MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

DEPARTMENT OF MECHANCIAL ENGINEERING

III B.Tech II Sem I MID Examinations Question Bank(Subjective Paper)

SUB: CAD/CAM

Name of the Faculty: S. Rammohan Reddy Branch: ME

Module I			
Q.No.	**Question**	**Bloom's Taxonomy Level**	**CO**
1.	Briefly explain the computerized Product cycle in the Manufacturing Environment?	Understanding	1
	OR		
2.	Briefly describe the types of storage devices used in computers.	Understanding	1
3.	Explain the influence exerted by computers on the Manufacturing scene?	Understanding	1
	OR		
4.	Briefly Explain the various Graphic Transformations required for Manipulating the Geometric Information?	Understanding	1
5.	Basic hardware structure of a digital computer with the help of a block Diagram?	Remembering	1
	OR		
6.	Briefly explain database structure for graphic modelling.	Remembering	1
7.	Explain the importance of clipping. Give details of method used for line clipping.	Understanding	1
	OR		
8.	Define CAD And Explain various steps in CAD Process?	Understanding	1
Module II			
1.	Define Geometric modelling. What are the requirements of geometric modeling?	Remembering	2
	OR		
2.	Give a brief Description about Hermite Cubic spline ?	Remembering	2
3.	Briefly explain CSG with a suitable Example?	Understanding	2
	OR		

4.	Describe the method of defining Bezier curve and explain characteristics of Bezier curves?	Understanding	2
5.	Explain the wire frame modeling with a suitable sketch?	Understanding	2
	OR		
6.	Describe the method of defining B-spline Surface in Geometric modelling?	Understanding	2
7.	What is meant by sweep? Discuss in detail the various types of sweep techniques available for 3D geometric construction.	Remembering	2
	OR		
8.	Give a classification of the different surfaces that can be used in Geometric modelling applications.	Remembering	2
Module III			
1.	What are the facilities that are useful for editing geometric entities in a drafting system?	Remembering	3
	OR		
2.	What are the various display control commands and dimensioning facilities available in a drafting system?	Remembering	3
3.	What is meant by a Geometric Entity? Explain the common entities used in Geometric Modelling.	Understanding	3
	OR		
4.	Give details of a few editing commands used in a drafting System?	Understanding	3

Signature of the Faculty Signature of the HoD

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)
DEPARTMENT OF MECHANCIAL ENGINEERING

III B.Tech II Sem I MID Examinations Question Bank (OBJECTIVE Paper)

SUB: CAD/CAM

Name of the Faculty: S. Rammohan Reddy Branch: ME

01) CAD/CAM is the technology concerned with the use of digital Computer to perform certain functions in [ ]

a. Design and Production
b. Plan, manage & Control
c. (a) and (b)
d. None

02) CAM can be defined as the use of computer system to [ ]

a. Plan
b. Control the operation of manufacturing plant
c. a)and (b)
d. None

03)The display screen is ---------- dimensional [ ]

a. one
b. two
c. three
d. four

04)The flow of data between the process and the computer is in One Directional only in [ ]

a. Computer monitoring
b. Computer Control
c. (a)and (b)
d. None

05)In design process that a problem exists, for which corrective actionshould be taken in [ ]

a. Synthesis
b. Evaluation
c. Recognition of need
d. None

06)For defining geometry of the parts the ---------- coordinate system is used [ ]

a. left hand Cartesian
b. Right hand Cartesian
c. polar
d. spherical

07) WCS means [ ]

a. world coordinate system
b. world convert system
c. word coordinate system
d. word convert system

08)A CAD system is a combination of---------- [ ]

a. CPU,O/P Plotter
b. Geometric terminals, Input devices
c. Secondary storage, CPU
d. hardware and software

09) The techniques used in current computer graphics terminals forgenerating the image on the CRT screen are [ ]

a. Stroke writing

b. CRT
c. Raster scan
d. (a) and (b)

10)UCS means [ ]
a. User coordinate system
b. united coordinate System
c. union coordinate system
d. universal convert system

11)CRT screen is having _____coated glass screen [ ]
a. sulphate
b. magnesium
c. Phosphor
d. oxide

12)The tracker ball is_____ device. [ ]
a. Input device
b. Output device
c. Software device
d. none

13)CAE [ ]
a. Computer aided Error
b. Computer aided Evaluation
c. Computer aided Engineering
d. Computer aided Existing

14)The computer-aided design hardware doesn't include [ ]
a. Graphic display terminals
b. Computer
c. Computer programmes
d. Keyboard

15)How many types of wireframemodeling are there [ ]
a. 6
b. 4
c. 2
d. 3

16)Modern CAD systems are based on [ ]
a. ICG
b. GCI
c. GIF
d. IFG

17) The computer communicates with the user via [ ]
a. CPU
b. CRT
c. Graphics
d. Display button

18)The process of designing consists of _____ identifiable steps. [ ]
a. 8
b. 5
c. 4
d. 6

19)Implementing CAD improves communications [ ]
a. True
b. False
c. Not sure
d. None

20)The functionality areas of CAD application can be grouped into _____ categories. [ ]

a. 2
b. 3
c. 4
d. 5
e.

21)The colour on CRT screen is obtained by combination of: [ ]

a. Red, yellow, blue
b. Red, green, blue
c. Green, black, yellow
d. Red, black, yellow

22)Who formulated the six ground rules to be considered in designing graphics software? [ ]

a. Newman and Sproull
b. Schaffer G
c. Fitzgerald W
d. Krouse and Lerro

23)The input devices in CAD can be divided into: [ ]

a. 2
b. 5
c. 3
d. 4

24)The typical ICG system consists of software component. [ ]

a. True
b. False
c. Incorrect data
d. None

25)Which of the following is a fixed disk? [ ]

a. Hard Disks
b. Flash Disks
c. Compact Disk
d. DVDs

26)Which of the following items are examples of storage devices? [ ]

a. Floppy disks
b. CD-ROMs
c. Hard Disks
d. All of the above

27)Dot-matrix is a type of [ ]

a. Tape
b. Printer
c. Disk
d. Bus

28)Which is not consisted in a processor [ ]

a. ALU
b. CU
c. Memory units
d. Registers

29)Which of the following are the two main components of the CPU [ ]

a. Control Unit and Registers
b. Registers and Main Memory
c. Control unit and ALU
d. ALU and bus

30)Which of the following is an input device? [ ]

a. Scanner
b. Speaker
c. Monitor
d. Projector

31)Pick the one that is used for logical operations or comparisons such as less than equal to or greater than. [ ]
a. Arithmetic and Logic Unit
b. Control Unit
c. Both of above
d. None of above
e.

32)Size of A4 sheet [ ]
a. 210 x 299
b. 297 x 210
c. 300 x 220
d. 250 x 310

33)Which one of the following is not input device [ ]
a. Scanner
b. Monitor
c. Mouse
d. Joystick

34)A ink jet printer [ ]
a. is an input-output device
b. is an output device only
c. is an input device only
d. None of these

35)Which one of the following is not a computer language [ ]
a. BASIC
b. COBOL
c. LOTUS
d. FORTRAN

36)Which one of the following is not a Transformation of a geometry [ ]
a. Scaling
b. Translation
c. Rotation
d. Oscillation

37)Register is a [ ]
a. Set of capacitors used to register input instructions in a digital computer
b. Set of paper tapes and cards put in a file
c. Temporary storage unit within the CPU having dedicated or general purpose use
d. part of the auxiliary memory

38)_____ allow(s) users to interactively send instructions (such as printing and closing a window) to a computer using graphical icons. [ ]
a. Commands
b. GUI
c. Printer
d. Keyboard

40)Which one is best suited for use with paper of large size drawings in CAD [ ]
a. Dot-Matrix printer
b. Laser printer
c. Plotter
d. Ink-Jet printer

41)Which of the following is not an output device? [ ]

a. Monitor
b. Touch-screen
c. Printer
d. Plotter

42)The operating speed of third generation computer was [ ]
a. Milliseconds
b. Microseconds
c. Nanoseconds
d. Picoseconds

43)Product cycle includes [ ]
a. CAD
b. CAM
c. CAPP
d. All of the above

44)One TB equals to [ ]
a. 103 Bytes
b. 106 Bytes
c. 109 Bytes
d. 1012 Bytes

45)Which of the following is primary storage device in computer [ ]
a. HDD
b. ROM
c. DDROM
d. RAM

46)Which of the following is not an display device? [ ]
a. CRT
b. LCD
c. LED
d. Mouse

47)Rasterization means [ ]
a. Conversion of pixels into image
b. Conversion Graphical image into raster format
c. Conversion pixel into raster format
d. None of above

48)Which of the following is not a Hidden line removal algorithm [ ]
a. Back face removal algorithm
b. Cohen Sutherland algorithm
c. Z-Buffer algorithm
d. Depth sort algorithm

49)Which of the following is a clipping line algorithm [ ]
a. Back face removal algorithm
b. Cohen Sutherland algorithm
c. Z-Buffer algorithm
d. Depth sort algorithm

50)OLED [ ]
a. Organ light emitting display
b. Organic light evaluation diode
c. Organic light emitting diode
d. Origin light emitting diode

51)Geometrical Modeling Involves in [ ]
a. Design analysis
b. Drafting
c. Manufacturing

d. All the above

52)A _____ modeler defines the model with surfaces bounding a region.[ ]

a. Wireframe
b. Primitive
c. B-rep
d. CSG

53)Which Boolean operation is sensitive to the order of the operands [ ]

a. Difference
b. Union
c. Divisor
d. Intersection

54)_____ control the geometric behavior of a dynamic model.[ ]

a. Standards
b. Booleans
c. Constraints
d. Habits

55)All of the following are elements needed to define a generalized sweep, except [ ]

a. Profile
b. Depth
c. Direction
d. Work plane

56)A _____ sweep is dependent on the location of the axis/vector relative to the profile [ ]

a. Path-based
b. Linear
c. Revolve
d. Blend

57)CSG Means [ ]

a. Computer solid geometry
b. Constructive solid geometry
c. Computer surface geometry
d. Common solid geometry

58)All of the following are examples of implicit constraints, except [ ]

a. Same size
b. Intersection
c. Overlap
d. Tangency

59)Which type of sweep definition takes the sweep infinitely far [ ]

a. to next
b. Offset
c. Blind
d. through all

60)What type of analysis helps evaluate how a model responds to forces acting on it [ ]

a. Ergonomics
b. Finite Element Analysis
c. Kinematics
d. Mass Properties

61)In the following geometric modeling techniques which is not three dimensional modeling [ ]

a. Wire frame modeling
b. Drafting
c. Surface modeling

d. Solid modeling

62)In the following three dimensional modeling techniques which do not require much time and memory [ ]

a. Surface modeling
b. Solid modeling
c. Wire frame modeling
d. All of the above

63)In the following geometric modeling techniques, which cannot be used for finite element analysis [ ]

a. Surface modeling
b. Solid modeling
c. Wire frame modeling
d. None of the above

64)In the following geometric primitives which is not a solid entity of CSG modeling [ ]

a. Box
b. Cone
c. Cylinder
d. Circle

65)The number of lines required to represent cube in wireframe model is [ ]

a. 8
b. 6
c. 12
d. 16

66)Which of the following is not an analytical entity [ ]

a. Spline
b. Circle
c. Line
d. Parabola

67) Which of the following is not a synthetic entity [ ]

a. Hyperbola
b. Bezier curve
c. B-Spline curve
d. Cubic spline curve

68)The number of tangents required to describe cubic spline is [ ]

a. 2
b. 1
c. 3
d. 4

69)The shape of Bezier curve is controlled by [ ]

a. Control points
b. Knot vectors
c. End points
d. All of the above

70)The curve that follows a convex hull property is [ ]

a. Hyperbola
b. Bezier curve
c. B-Spline curve
d. Cubic spline curve

71)The degree of Bezier curve with n control points is [ ]

a. n+1
b. n-1
c. 2n
d. 3n

72)Example of single curved surface [ ]
a. Spherical Surface
b. Conical surface
c. Torus
d. Ellipsoid

73)The following is not a graphics standard [ ]
a. GKS
b. IGBS
c. UNIX
d. PHIGS

74)Which of the following does not belongs to conicsections [ ]
a. Parabola
b. Hyperbola
c. Ellipse
d. Line

75)The degree of B spline curve with varying Knot vectors [ ]
a. Increases
b. Decreases
c. Remains same
d. None

76)Convex hull property is satisfied by following surface [ ]
a. Bezier
b. B-Spline
c. NURBS
d. None

77)The number of non-coincidental points required to define the simplest surface are [ ]
a. 4
b. 3
c. 2
d. 5

78)Which Boolean operation is sensitive to the order of operands [ ]
a. Difference
b. Union
c. Divisor
d. Intersection

79)Example of double curved surface [ ]
a. Spherical Surface
b. Ellipsoid
c. Torus
d. All of the above

80)If K=n+1 then the resulting B-spline curve is a _____curve. [ ]
a. Bezier Curve
b. Hermite Cubic spline
c. B-rep
d. None

81)The curve is also always tangent to the first and last polygon segment [ ]
a. Bezier Curve
b. Hermite Cubic spline
c. B-rep
d. None

82)Wire frame model consists of [ ]
a. Points
b. lines
c. curves

d. All

83)The following curve interpolate a given set of data points [ ]
a. Bezier Curve
b. Hermite Cubic spline
c. B spline
d. None

84)B-spline is _ order continuity [ ]
a. First
b. Second
c. Third
d. None

85)Cubic spline and Bezier curve are ____ order continuity [ ]
a. First
b. Second
c. Third
d. None

86)The following curve is smooth [ ]
a. Cubic Spline
b. Bezier curve
c. Ellipsoid
d. None

87)In Parametric form, the curve is represented as [ ]
a. X = x (u)
b. Y = y (u)
c. Z = z (u)
d. All of the above

88)NURBS full form [ ]
a. Non Uniform Rotational B-Spline
b. Non Uniform Rational Bezier
c. Non Uniform Rational B-Spline
d. None of the above

89)A plane surface is a_____ Surface. [ ]
a. 4D
b. 3D
c. 2D
d. 1D

90)Curves and surfaces can have representations [ ]
a. Explicit representation
b. Implicit representation
c. Parametric representation
d. All of the above

91)A typical solid model defined by [ ]
a. Volumes
b. Areas
c. Lines
d. All of the above

92)The basic geometric building blocks provided in a CAD/CAM package are [ ]
a. points
b. lines
c. circles
d. all of the mentioned

93)3D Representation are [ ]
a. Wireframe modeling
b. Surface modeling

c. Solid modelling
d. All of the above

94)A translation is applied to an object by [ ]
a. Repositioning it along with straight line path
b. Repositioning it along with circular path
c. Both a and b
d. None of the above

95)Translation of a two-dimensional point is done by adding [ ]
a. Translation distances
b. Translation difference
c. Translation points
d. None of the above

96)In 2D-translation, a point (x, y) can move to the new position (x', y') by using the equation [ ]
a. x'=x+dx and y'=y+dx
b. x'=x+dx and y'=y+dy
c. X'=x+dy and Y'=y+dx
d. X'=x-dx and y'=y-dy

97)To generate a rotation , we must specify [ ]
a. Rotation angle Ɵ
b. Distances dx and dy
c. Rotation distance
d. All of the mentioned

98)The transformation that is used to alter the size of an object is [ ]
a. Reflection
b. Rotation
c. Translation
d. Scaling

99)The transformation that produces a mirror image of an object called [ ]
a. translation
b. Reflection
c. Rotation
d. none of these

100) CSG stands for [ ]
a. Constructive solid graphics
b. Constant solid graphics
c. Constructive solid geometry
d. None of the above

101)-------command allows you to draw straight lines. [ ]
a. point
b. line
c. circle
d. none

102)----------is Used to add Material. [ ]
a. Extrude
b. layers
c. blend
d. none

103)----------command is used to move the display window [ ]
a. Zoom
b. pan
c. fillet
d. none

104)---------- is useful for drawing a new object into the drawing [ ]

a. snap
b. Osnap
c. pan
d. none

105)---------command is used to move one or more existing drawing entities. [ ]

a. copy
b. move
c. array
d. none

106)_____command is used to enlarge or reduce the size of the object. [ ]

a. copy
b. move
c. Scale
d. Fillet

107)The command that is used to duplicate one or more existing drawing entities at another location without erasing the original is called as_____ [ ]

a. copy
b. move
c. Scale
d. Fillet

108)The command that creates a bevel between two intersecting lines at a given distance from their intersection _____ [ ]

a. copy
b. move
c. Chamfer
d. Fillet

109)_____ is used for axi symmetric objects. [ ]

a. Extrude
b. Revolve
c. Blend
d. None of the above

110)_____ command connects two lines ,arcs, or circle with a smooth arc of Specified radius. [ ]

a. copy
b. move
c. Chamfer
d. Fillet

111)Which is the latest version of AutoCAD software [ ]

a. 2020
b. 2017
c. 2021
d. 2019

112)AutoCAD was first released in the year [ ]

a. 1878
b. 1919
c. 1982
d. 2002

113)Which mode allows user to draw 90o straight lines [ ]

a. Osnap mode
b. Ortho mode
c. Polar tracking
d. None of the above

114)Scale command can be accessed easily by typing [ ]

a. SL
b. SC
c. S
d. C

115)Drawing templates are held in files with the file extension [ ]
a. .dwt
b. .dwg
c. .bmp
d. .dwr.

116)When entering absolute coordinate numbers at the command line, the coordinates are preceded by: [ ]
a. The letter a
b. The symbol @
c. The letters ab
d. There is no need to enter anything in front of the coordinates

117)When using the Rotate tool the angle of rotation is in the following direction: [ ]
a. Clockwise
b. Anticlockwise
c. The direction in which the cursor is moved
d. There is no fixed rotation direction.

118)What time (according to the clock) are 270 degrees according to the conventional time [ ]
a. 12 exactly
b. 9 exactly
c. 6 exactly
d. 3exactly

119)When drawing in 2D, what axis do you not work with [ ]
a. X-Axis
b. Y-Axis
c. Z-Axis
d. None of the above

120)To print entire project you will select to regulate what to plot [ ]
a. Display
b. Limits
c. Extend
d. Window

121)In the coordinate system of AutoCAD [ ]
a. Positive x shows to the left
b. Positive x shows are to the right
c. Positive xshows are in the direction vertically upwards
d. Positive x shows are in the direction vertically downwards

122) The solid Primitives is [ ]
a. Extrude
b. Revolve
c. box
d. All the above

123)Which of the following is not a draw command [ ]
a. Line
b. Offset
c. Circle
d. Polygon

124)Which of the following is not a Modify command [ ]
a. Copy
b. Ellipse

c. Offset
d. Fillet

125)Which of the following command is not included in Property tool bar [ ]

a. Line Colour
b. Line type
c. Line weight
d. Ellipse

Signature of the faculty **HoD,ME**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

B.Tech– III Sem (MR 17)
MID-I Subjective Question Bank

Subject: Energy Conservation and Energy Management
Name of the faculty: Dr. M. Vijay Kumar

Q.No.	Question	Bloom's Taxonomy Level	CO
	Module-I		
1.	What is energy audit and Briefly explain the methodology for detailed Energy Audit.	Understanding	1
	OR		
2.	What is energy management and mention its objectives. Explain the needs of energy audit and types of energy audit.	Understanding	1
3.	List the keys instruments for energy audit and explain its function.	Understanding	1
	OR		
4.	Explain about the Renewable and Non- Renewable Energy.	Understanding	1
5.	List various primary energy sources and explain energy scenario in India.	Understanding	1
	OR		
6.	A. Explain about energy conservation and its importance. B. Explain about the energy strategy for future.	Understanding	1
7.	Explain the role of Energy Managers in an industry.	Understanding	1
	OR		
8.	A. Explain the major sources of pollutants in detail. B. How energy consumption, Acid rain & Ozone Layer depletion.	Understanding	1

Module II			
1.	A. Explain the efficiency computation of boilers. B. What are the merits and demerits of direct method and Indirect method.	Understanding	2
OR			
2.	Explain in detail about the energy conservation opportunities in boilers.	Understanding	2
3.	Explain the efficiency computation of furnances and explain the energy conservation measures in furnances.	Understanding	2
OR			
4.	Explain the about the steam traps and the types of steam straps.	Understanding	2
5.	Explain about the Thermic fluid heaters with neat sketch diagram.	Understanding	2
OR			
6.	Explain the Fire tube and Water tube boilers with neat sketch diagram.	Understanding	2
7.	The following are the data collected for a boiler using furnace oil as the fuel. Find out the boiler efficiency by indirect method. **Ultimate analysis (%)** Carbon = 84 Hydrogen = 12 Nitrogen = 0.5 Oxygen = 1.5 Sulphur = 1.5 Moisture = 0.5 GCV of fuel = 10000 kCal/kg Fuel firing rate = 2648.125 kg/hr Surface Temperature of boiler = 80 °C	Analyzing	2

	Surface area of boiler = 90 m2 Humidity = 0.025 kg/kg of dry air Wind speed = 3.8 m/s **Flue gas analysis (%)** Flue gas temperature = 190°C Ambient temperature = 30°C Co2% in flue gas by volume = 10.8 O2% in flue gas by volume = 7.4		
	OR		
8.	The following are the data collected for a boiler using coal as the fuel. Find out the boiler efficiency by indirect method. Fuel firing rate = 5599.17 kg/hr Steam generation rate = 21937.5 kg/hr Steam pressure = 43 kg/cm_2(g) Steam temperature = 377 °C Feed water temperature = 96 °C %CO_2 in Flue gas = 14 %CO in flue gas = 0.55 Average flue gas temperature = 190 °C Ambient temperature = 31 °C Humidity in ambient air = 0.0204 kg / kg dry air Surface temperature of boiler = 70 °C Wind velocity around the boiler = 3.5 m/s Total surface area of boiler = 90 m_2 GCV of Bottom ash = 800 kCal/kg GCV of fly ash = 452.5 kCal/kg Ratio of bottom ash to fly ash = 90:10 **Fuel Analysis (in %)**	Analyzing	2

	Ash content in fuel = 8.63 Moisture in coal = 31.6 Carbon content = 41.65 Hydrogen content = 2.0413 Nitrogen content = 1.6 Oxygen content = 14.48 GCV of Coal = 3501 kCal/kg		
	Module III		
1.	Explain the basic term in lighting system and features.	Understanding	3
	OR		
2.	Write the working principle of LED lamp. List the advantages and disadvantages of LED lighting over the commonly used lamps.	Understanding	3
3.	Explain the various types of lamp available along with their features.	Understanding	3
	OR		
4.	Explain the following, i. Illuminance ii. Luminous efficacy iii. Luminaire iv. Control gear v. Colour rendering index	Understanding	3

Signature of the Faculty **Signature of the HoD**

MALLA REDDY ENGINEERING COLLEGE(Autonomous)
III Year, II SEM (MR17)QUESTION BANK for MID-I Examination
OBJECTIVE QUESTIONS

Subject: Energy Conservation and Energy Management (70338)
Name of the faculty: Dr. M. Vijay Kumar

Module I

1 The energy sources, that are either found or stored in nature are

A. Secondary Energy Sources

B. Primary Energy Sources

C. Both A and B

D. None of the above

2 Inexhaustible energy sources are known as

A. Commercial Energy

B. Renewable Energy

C. Primary Energy

D. Secondary Energy

3 Which country has the largest share of the global coal reserves

A. Russia

B. China

C. USA

D. India

4 The primary energy consumption of India as of 2018 is

A. 10% of total share

B. 5.8% of total share

C. 7.5% of total share

D. 4.3% of total share

5 Which fuel dominates the energy mix in Indian energy scenario

A. Oil

B. Natural gas

C. Coal

D. Nuclear

6 Which of the following is the highest contributor to the air pollution

A. Carbon Monoxide

B. Hydro Carbons

C. Sulphur Oxides

D. Particulates

8 Acid rain is caused by the release of the following components from combustion of fuels

A. SO_x and NO_x

B. SO_x and CO_2

C. CO_2 and NO_x

D. H_2O

9 Which instrument is used to monitor O_2, CO in flue gas?

A. Combustion Analyzer

B. Power Analyzer

C. Pyrometer

D. Fryite

10 Lux meter is used to measure

A. Illumination Level

B. Utility factor

C. Production factor

D. Load factor

11 Energy manager should be well versed with

A. Manufacturing and processing skills

B. Managerial and technical skills

C. Technical and marketing skills

D. Managerial and commercial skills

12 CO_2 measurement of Fryite kit is based on

A. Weight basis (dry)

B. Volume basis (dry)

C. Weight basis (wet)

D. Volume basis (wet)

13 Non contact speed measurements can be carried out by

A. Tachometer

B. Stroboscope

C. Oscilloscope

D. Speedometer

14 The tool used for performance assessment and logical evaluation of avenues for improvement in Energy management and audit is

A. Fuel substitution

B. Monitoring and verification

C. Energy pricing

D. Benchmarking

15 Infrared thermometer is used to measure

A. Surface Temperature

B. Flame temperature

C. Flue gas temperature

D. Hot water temperature

16 The objective of energy management includes

A. Minimizing energy costs

B. minimizing waste

C. Minimizing environmental degradation

D. All of the above

17 Natural Gas contains

A. 95-99% methane

B. 95-99% ethane

C. 95-99% methane and ethane mix

D. None

18 “The judicious and effective use of energy to maximise profits and enhance competitive positions”. This can be the definition of:

A. Energy conservation

B. Energy management

C. Energy policy

D. Energy Audit

19 Replacement of steam based hot water generation by solar system is an example of

A. Matching energy usage to the requirement

B. Maximizing system efficiency

C. Energy substitution

D. Performance improvement

20 One unit of electricity is equivalent to kcal heat units.

A. 800

B. 860

C. 400

D. 680

21 Air velocity in ducts can be measured by using manometer and

A. Orifice meter

B. Borden gauge

C. Pitot tube

D. Anemometer

22 An energy audit team is formed during

A. post audit phase

B. audit phase

C. Pre-audit phase

D. The time of study

23 Which of the following is not part of energy monitoring

A. data recording

B. data analysis

C. data reporting

D. energy efficiency equipment financing

24 Which of the following is commercial energy source

A. Electricity

B. Coal

C. Oil

D. All of the above

25 Energy consumption per unit of GDP is called as

A. Energy Ratio

B. Energy intensity

C. Per capita Consumption

D. None of the above

26 Which of the following is not a duty of an Energy Manager

A. Report to BEE

B. Provide the support to accredited energy auditing firm

C. Prepare a scheme for efficient use of energy

D. Sign an energy policy

27 10 MWh of electrical energy is equal to _____ tonnes of Oil Equivalent (CV of oil = 10,000 kCal/kg)

A. 860

B. 0.86

C. 8,600

D. 86,000

28 Which of the following is a non renewable energy

A. Solar

B. Wind

C. Geothermal

D. Nuclear

29 What is ESCO?

A. Energy Saving Company

B. Energy Sourcing Company

C. Energy Service Company

D. Energy Section of Company

30 The Ozone layer in the stratosphere acts as an efficient filter for

A. Solar UV-B rays

B. X-rays

C. Gamma rays

D. UV-A rays

31 Which of the following gas damages the ozone layer

A. Argon

B. CFC’s

C. CO_2

D. Nitrogen

32 Energy management is a key component of

A. Environmental management

B. Carbon management

C. Nitrogen management

D. Water management

33 Effects of acid rain include:

A. deterioration of monuments

B. damage to vegetation

C. damage to lakes and their wildlife

D. All of the above

34 The main method of natural gas transportation is

A. Tankers

B. Truck

C. Pipeline

D. None of the above

35 “Fossil Fuels” refer to

A. Coal

B. Oil

C. Natural Gas

D. All of the above

36 LNG stands for

A. Liquefied natural gas

B. Liquid natural gas

C. Low nitrogen content gas

D. Liquid nitrogen gas

37 Which of the following is an example of non commercial energy

A. Firewood

B. Electricity

C. Coal

D. Refined Petroleum products

38 Which country has the largest oil reserves in the world as of 2018

A. Saudi Arabia

B. US

C. Venezuela

D. Qatar

39 Which of the following are some key barriers to energy conservation

A. Failure of consumers to make energy efficient decisions

B. Lack of Objective consumer information

C. Replacement Market decisions based on availability rather than efficiency

D. All the above

40 Which instrument measures the Oxygen and temperature of flue gas?

A. Fuel efficiency monitor

B. Fryite

C. Contact Thermometer

D. Infrared Thermometer

41 World Oil reserves are estimated to last over

A. 45 years

B. 60 years

C. 200 years

D. 75 years

42 The energy stored in the bonds of atoms and molecules is called

A. Kinetic energy

B. Chemical energy

C. Potential energy

D. Magnetic energy

43 The objective of material and energy balance is to assess the

A. Input-output

B. Conversion efficiency

C. Lossess

D. All of the above

44 Losses in material and energy balance is considered as

A. Inputs

B. Outputs

C. Both A and B

D. None of them

45 Energy is consumed by all sectors of the economy but at different proportions. Which sector in India is the largest consumer?

A. Agriculture

B. Commercial

C. Industrial

D. Domestic

46 Which energy source releases the most climate-altering carbon pollution per kg?

A. Oil

B. Coal

C. Rice husk

D. Bagasse

47 Which of the following enhances the energy efficiency in buildings

A. Light pipes

B. Triple glaze windows

C. Building integrated solar photovoltaic panels

D. All of the above

48 Which among the following is a green house gas

A. Sulphur Dioxide

B. Carbon Monoxide

C. NO_2

D. Methane

49 To judge the attractiveness of any investment, the energy auditor must consider

A. Initial Capital Cost

B. Net operating cash inflows

C. Salvage value

D. All of the above

50 The kilowatt-hour is a unit of

A. Power

B. Work

C. Time

D. Force

Module II

1 In thermal power plants, the dust of flue gases is trapped by

A. Precipitator

B. Economizer

C. Superheater

D. Air preheater

2 With the increase in _____ the efficiency obeys the ‘law of diminishing returns’

A. Pressure

B. Temperature

C. Volume

D. All of the above

3 For steam boilers, the fuel(s) is (are) mainly

A. Bituminous coal

B. Fuel Oil

C. Natural Gas

D. All of the above

4 Steam is preferred medium for heating applications because

A. High latent heat

B. Temperature breakdown is easy

C. Easy to control and distribute

D. All of the above

5 For high boiler efficiencies, the feed water is heated by

A. Recuperator

B. Convective heater

C. Super heater

D. Economizer

6 Pick the boiler, which can be considered as most combustion efficient?

A. Fluidized bed combustion boiler

B. Lancashire boiler

C. Stoker fired boiler

D. Chain grate boiler

7 The percentage excess air required for pulverized coal fired boiler is

A. 40 – 50%

B. 15 – 20%

C. 60 – 80%

D. 30 – 40%

8 Name the predominant loss component for furnace oil fed boiler

A. Losses due to radiation and convection

B. Loss due to hydrogen in fuel

C. Loss due to dry flue gas

D. Loss due to moisture in fuel

9 If the liquid fuel is highly viscous, the action required for proper burning in boiler is,

A. Pre-heating

B. Cooling

C. Mixing

D. Vaporizing

10 For industrial process heating, the best quality of steam is

A. Dry saturated steam

B. Superheated steam

C. Wet steam

D. High pressure steam

11 What type of steam is generally used for power generation/application

A. High pressure steam with super heat

B. Dry saturated low pressure steam

C. Dry saturated steam with high pressure

D. Wet steam with very high pressure

12 Which among the following steam traps has the principle of operation “Difference in temperature between steam and condensate”

A. Thermodynamic trap

B. Thermostatic trap

C. Orifice type trap

D. Float trap

13 In industrial applications type of trap used for main steam lines are

A. Thermodynamic

B. Thermostatic

C. Bimetallic

D. Float

14 For flash steam calculation, flash steam quantity available depends on

A. Condensate pressure and flash steam pressure

B. Pressure of steam generated in boiler

C. Steam enthalpy at atmospheric pressure

D. Total heat of flash steam

15 The hearth pressure in the heating zone of furnace should be

A. Slightly negative pressure

B. Slightly positive pressure

C. High negative pressure

D. High positive pressure

16 Which of the following furnaces have high operating efficiency

A. Low temperature furnaces

B. High temperature furnaces

C. Continuous kiln

D. Oven

17 For optimum fuel consumption, the pressure at which furnaces operate should be

A. Slightly negative

B. Slightly positive

C. Neutral

D. Any of the above

18 Pick up the wrong statement: The thermal efficiency of the furnace increases by

A. Increasing the furnace loading

B. Increasing the excess air flow rate

C. Reducing the surface heat loss

D. Minimizing the CO loss and unburnt losses

19 In cogeneration, the system efficiencies can go up to

A. 70%

B. 80%

C. 90%

D. 60%

20 Cogeneration is the simultaneous generation of

A. Heat and power

B. Steam and condensate

C. Mechanical energy and power

D. All of the above

21 Find the thermodynamic cycle not related to cogeneration

A. Brayton cycle

B. Rankine cycle

C. Otto Cycle

D. Bell-Coleman cycle

22 Major advantage of waste heat recovery in industry is

A. Reduction in pollution

B. Increase in efficiency

C. Both A and B

D. None of the above

23 Heat recovery equipment will be most effective when the temperature of flue gas is

A. 250^{o} C

B. 200^{o} C

C. 400^{o} C

D. 280^{o} C

24 A thermal insulator is

A. Good conductor of heat and has high thermal conductivity

B. poor conductor of heat and has high thermal conductivity

C. Good conductor of heat and has low thermal conductivity

D. poor conductor of heat and has low thermal conductivity

25 Select the suitable cost effective insulation for steam pipelines with temperature of 540^{o}C

A. Calcium silicate

B. Fibre glass

C. Rock wool

D. Alumina

26 The unit for thermal coefficient of insulation and refractories in SI system is

A. K.cal/m-hr-^{o}C

B. K.cal/m^{2}-hr-^{o}C

C. K.cal/m^{2}-^{o}C

D. K.cal/m-^{o}C

27 In FBC boilers fluidization depends largely on

A. Particle size

B. Air velocity

C. Both A and B

D. Neither A nor B

28 In India, commonly used power plant boilers are

A. PFBC Boiler

B. AFBC Boiler

C. Pulverized coal fired boilers

D. Stoker fired boilers

29 The equipment used to remove dirt from steam lines before steam trap is

A. Vent

B. Drain

C. Strainer

D. By pass line

30 As a thumb of rule, in case of efficiency issues for boiler, for every 6^{o}C rise in feed water temperature, the % saving of fuel will be

A. 1

B. 2

C. 3

D. 4

31 Mechanical steam traps works on the principle of

A. Difference in density between steam and condensate

B. Difference in thermodynamic properties between steam and condensate

C. Difference in temperature between steam and condensate

D. None of the above

32 Proper sizing of steam pipeline helps in minimizing

A. Steam requirement

B. Temperature drop

C. Boiler efficiency

D. Pressure drop

33 Dissolved CO_2 in boiler feed water when left untreated would result in occurrence of ------ in boiler tubes

A. Creep

B. Water side corrosion

C. Scale

D. Water hammer

34 Which of the following is not true of condensate recovery

A. Reduces water charges

B. Reduces fuel costs

C. Increases boiler output

D. Increases boiler blow down

35 Which of the following is not a property of ceramic fibre

A. Low thermal conductivity

B. Light weight

C. High heat capacity

D. Thermal shock resistant

36 In a reheating furnace, soaking time of a cycle depends typically on

A. Excess air level

B. Preheat temperature of charge

C. Thickness of the charged material

D. Furnace atmosphere

37 Higher excess air in an oil fired furnace would result in

A. Increased furnace temperature

B. Increase in CO_2 presence in flue gas

C. Reduced flame temperature

D. increased flame length

38 What is the most effective way to avoid ambient air infiltration into a continuous reheating furnace?

A. maintain negative pressure in furnace

B. increase the chimney height

C. operate at about 90%capacity

D. maintain slightly positive pressure in the furnace

40 Select the wrong statement with respect to furnace operations

A. the burner flame should not touch the stock

B. air infiltration leads to oxidation of billets

C. ceramic fibre linings are used in the exterior of the furnace

D. heat loss through openings is proportional to T4

41 The heat recovery device in which high conductivity bricks are used for storing heat is

E. heat pipe

F. Heat pump

G. Thermo compressor

H. Regenerator

42 The exhaust from which of the following is not suitable for waste heat boiler application?

A. Gas turbine

B. Hot air dryer

C. Diesel engine

D. Furnace

43 Desirable boiler water pH should be

A. 5-7

B. 7-9

C. 9-11

D. None of the above

44 Which of the following has the lowest stoichiometric oxygen demand (kg/kg of fuel)?

A. Hydrogen

B. Carbon

C. Sulphur

D. Nitrogen

45 Which trap is preferred in discharge of condensate recovery from process equipment?

A. Float trap

B. Thermodynamic trap

C. Thermostatic trap

D. All of the above

46 Corrosion in stack, Air Pre-Heater, Economizer is mainly influenced by

A. Sulphur content in fuel

B. Ash content in fuel

C. Moisture content in fuel

D. All of the above

47 In a boiler air preheater is installed

A. Before the economizer

B. After the economizer

C. After ESP

D. Before superheater

48 A rise in conductivity of boiler feed water indicates

A. drop in the total dissolved solids in boiler water

B. more steam generation

C. rise in the total dissolved solids in boiler water

D. greater purity of feed water

49 The insulation used for temperatures more than 350oC

A. Polyurethane

B. Polystyrene

C. Calcium silicate

D. Magnesia

50 The effectiveness of insulation with ingress of moisture would

A. Increases

B. Decreases

C. May increase or decrease depending on the thickness of insulation

D. Remain unaffected

Module III

1 Radiant efficiency of the luminous source depends on

A. Shape of the source

B. Temperature of the source

C. Wavelength of light rays

D. All of the above.

2 Light waves travel with a velocity of

A. 3×10^{10}cm/s
B. 3×10^{12}cm/s
C. 3×10^{15} cm/s
D. 3×10^{18} cm/s.

3 The unit of solid angle is

A. Solid angle
B. Radian
C. Steradian
D. Candela.

4 Candela is the unit of

A. Luminous flux
B. Luminous intensity
C. Wavelength
D. None of the above.

5 The unit of luminous flux is

A. Steradian
B. Candela
C. Lumen
D. Lux.

6 Luminous efficiency of a fluorescent tube is

A. 5- 10 lumens/watt
B. 15-20 lumens/watt
C. 30 - 40 lumens/watt
D. 60 - 65 lumens/watt.

7 CFL means

A. Combustible fluoride lamp

B. Compact fluoride lamp

C. Compact fluorescent lamp

D. Combustible fluorescent lamp

8 The inside wall of fluorescent tube is coated with

A. Sulphur powder`

B. Phosphor powder

C. Sodium

D. Krypton

9 Which bulb operates on lowest power

A. Night bulb

B. Neon bulb

C. GLS bulb

D. Torch bulb

10 Luminous flux is

A. The rate of energy radiation in the form of light waves

B. The part of light energy radiated by sun that is received on earth

C. Measured in lux

D. All of the above

11 Standard wattage of a 1 m fluorescent tube is

A. 50 w

B. 25 w

C. 100 w

D. 85 w

12 Which off the following is present inside the fluorescent tube.

A. Helium and oxygen

B. Aragon and carbon dioxide

C. Aragon and neon

D. Mercury vapour

13 A fluorescent tube can be operated on

A. Both DC and AC supply

B. Only AC supply

C. Only DC supply

D. Satisfactory only on the supply

14 The Flickr effect of fluorescent lamps is more pronounced at

A. Lower voltages

B. Higher voltages

C. Higher frequencies

D. Lower frequencies

15 The life of a fluorescent tube is affected by

A. Low-voltage

B. High-voltage

C. Frequency of switching and blinking

D. All of the above

16 The main disadvantages of fluorescent tube's in comparison to filament lamp is

A. High cost

B. Noise in choke

C. Stroboscopic effect

D. All of the above

17 Desired illumination level on the working plane depends upon

A. Age group of observers

B. Whether the object is stationary or moving

C. Size of the object to be seen and its distance from the observer

D. All of the above

18 Utilisation factor depends upon

A. Size of the room

B. Space height ratio of the lamps

C. Colour of walls or ceding

D. All of the above

19 The unit of luminous flux is

A. Watt/metersquare

B. Lumen

C. Lumen/mA^2

D. Watt

20 Nitrogen is added with the argon in an incandescent lamp to

A. Reduce the temperature

B. Reduce the possibility of arcing

C. Increase the brightness

D. Increase the efficiency

21 The practical luminous efficiency of the sodium vapour lamp is of the order of

A. 25 to 40 lumens per watt

B. 40 to 45 lumens per watt

C. 45 to 50 lumens per watt

D. 60 to 67 lumens per watt

22 Carbon arc lamps are commonly used in

A. Domestic lighting

B. Street lighting

C. Cinema projectors

D. Photography.

23 Which of the following will need the highest level of illumination

A. Proof reading

B. Bed rooms

C. Hospital wards

D. Railway platforms.

24 For the same wastage which lamp is cheapest

A. Sodium vapor lamp

B. Mercury vapor lamp

C. Fluorescent tube

D. GLS lamps.

25 One lumen per square meter is the same as

A. One lux

B. One candela

C. One foot candle

D. One lumen meter.

Faculty Signature **HOD/ME**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

III-B.Tech– II-SEM (MR 17-2017-18 Admitted Students)
I MID Examination Subjective Question Bank

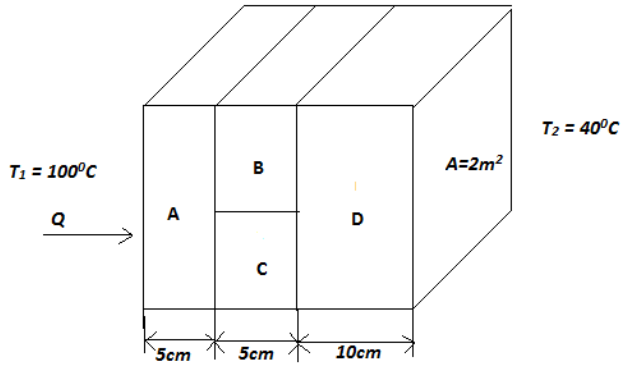
Subject: Heat Transfer (70324)
Branch:ME
Name of the faculty: Dr. Yogesh Madaria

Instructions:

1. All the questions carry equal marks

2. Solve all the questions

Q.No.	Question	Bloom's Taxonomy Level	CO
	MODULE - I		
1.	Explain the relevance of heat transfer in biological processes taking examples of hypothermia, laser treatments, frostbite, chemotherapies etc.	Understand	**1**
	OR		
2.	In a solar flat plate heater, some of the heat is absorbed by a fluid while the remaining heat is lost by convection, bottom surface is insulated. The fraction absorbed is known as efficiency of the collector. If the flux incident has a value of 1100 W/m^2 at collection temperature of 60˚C. Determine the collector efficiency when it is exposed to surroundings at 32˚C with convection coefficient of 15 $W/m^2.K$. Also find the collector efficiency if collection temperature is 45˚C.	Apply	**1**
3.	Derive the Fourier-Biot Equation and thereof Poisson's equation of heat conduction.	Analyze	**1**
	OR		
4.	Derive the 3-dimensional heat conduction equation with no internal heat generation by writing the energy balance for a differential equation volume element in spherical coordinate system.	Analyze	**1**

5.	Calculate the rate of heat loss for a red brick wall of length 5m, height 4m and thickness 0.25m. The temperature of the inner surface is 110^0C and that of the outer surface is 40^0C. The thermal conductivity of red brick, k = 0.70W/m.K and also estimate the temperature at distance of 20 cm from the inner surface of the wall.	Apply	**1**
	OR		
6.	A wall of 0.35m thickness having thermal conductivity of 1.7 W/m^{o}C. The wall is to be insulated with a material having an average thermal conductivity of 0.45W/m^{o}C. Inner and outer surface temperatures are 1100^{o}C and 30^{o}C respectively. If heat transfer rate is 1000 W/m^2 calculate the thickness of insulation.	Apply	**1**
7.	Describe these with examples (a) Initial and Boundary conditions (b) Critical Radius of Insulation	Understanding	**1**
	OR		
8.	Determine the heat transfer through the composite wall. Take the thermal conductivities of A, B, C & D as 10, 20, 30 & 40 W/mK respectively and assume one-dimensional heat transfer.  	Apply	**1**
	MODULE - II		
1.	Heat is generated at an interface between two slabs, one is of steel (k = 47 W/m.K) having 10 cm thickness and other is of brass (k = 82 W/m.K), 6 cm thick. The outer surface temperature of steel and brass are maintained at 100ºC and	Apply	**2**

	50ºC, respectively. Calculate the heat flux through the outer surface of brass slab and interface temperature. Assuming that the contact between the two slabs is perfect and the heat generation is 175 x 10^3 W/m^2.		
	OR		
2.	The heat generation rate in a plane wall, insulated at its left face and maintained at a uniform temperature, T_2 on the right face is given as $g(x) = g_0 e^{-xy} W/m^3$ where g_0 and y are constants and x is measured from left face. Develop an expression for temperature distribution in the plane wall, and deduce the expression for temperature of the insulated surface.	Analyze	**2**
3.	A solid sphere (k = 39 W/m.K) 10 cm in diameter generates heat at a uniform rate of 5 x 10^6 W/m^3. The outer surface of sphere is exposed to an ambient at 50ºC with heat transfer coefficient of 400 W/m^2.K. Calculate: (i) Maximum temperature in solid and its location (ii) Temperature at the radius of 3 cm.	Apply	**2**
	OR		
4.	Derive an expression for temperature distribution in a rectangular fin of cross sectional area A and length L, fitted to a plane wall at temperature T_0.	Analyze	**2**
5.	Blades of an aerofoil section are designed for a gas turbine to transfer 80 W of heat by each blade having the following dimensions: A = 2 x 10^{-4} m^2, P = 0.08 m, k = 25 W/m.K, Temperature of gas over the blades = 800ºC allowable temperature at the roots of the blade = 350ºC, Convective heat transfer coefficient, h = 120 W/m^2.K. Assume blades as a fin with insulated ends, find the height of blade required.	Analyze	**2**

	OR		
6.	A stainless steel rod of outer diameter 3 cm originally at a temperature of 500ºC is suddenly immersed in a liquid at 100ºC for which the convective heat transfer coefficient is 100 $W/m^2.K$. For stainless steel, k = 40 W/m.K, ρ = 7800 kg/m^3, c = 460 J/kg.K. Determine the time required for the rod to reach a temperature of 150ºC.	Apply	**2**
7.	An array of eight aluminium alloy fins, each 3 mm wide, 0.4 mm thick and 40 mm long, is used to cool a transistor. When the base is at 342 K and the ambient air is at 300 K, calculate (a) the fin efficiency, and (b) the power the fins would dissipate if the combined convection and radiation heat transfer coefficient is estimated to be 8 W/m^2K. The alloy has a thermal conductivity of 177 W/m K.	Apply	**2**
	OR		
8.	A gas stream flows through a long duct. In order to estimate the gas temperature, two thermocouples are attached to a tube that is mounted normal to the duct wall. the tube is 250 mm long with a perimeter of 50 mm and an area of cross section of 15 mm^2. The locationof the thermoucouples measured from the duct wall is 125 mm and 250 mm with the corresponding temperatures measured being 390˚C and 427˚C. The thermal conductivity of the tube material is 240 W/m˚C and the combined convection and radiation heat-transfer coefficient between the tube surface and the gas stream is 12 W/m^2˚C. Neglecting heat loss from the exposed tube tip, determine the gas stream temperature and the base (tube wall) temperature.	Analyze	**2**
	MODULE – III		
1.	a) Distinguish between Natural and forced convection heat transfer. b) Air at 20ºC is flowing along a heated flat plate at 134ºC at a velocity of 3 m/s. The plate is 2 m long and 1.5m wide. Calculate the thickness of the hydrodynamic boundary layer and the skin friction coefficient at 40 cm from the leading edge of the plate. The kinematic viscosity of air at 20ºC may be taken at 15.06 x 10^{-6} m^2/s.	Understanding Apply	**3**
	OR		

2.	a) Define Nusselt, Reynolds, Prandtl and Stanton numbers. Explain their physical significance in forced convection. b) Assuming that a man can be represented by a cylinder 30 cm in diameter and 1.7 m high with a surface temperature of 30^{o}C, calculate the heat that he would lose while standing in a 36 km/h wind at 10^{o}C.	Understanding Apply	**3**
3.	a)Explain for fluid flow along a flat plate, velocity distribution in hydrodynamic boundary layer b) Air at a pressure of 8 kN/m^2 and a temperature of 250^{o}C flows over a flat plate 0.3 m wide and 1 m long at a velocity of 8 m/s. If the plate is to be maintained at a temperature of 78^{o}C, estimate the rate of heat to be removed continuously form the plate.	Understand Apply	**3**
	OR		
4.	Derive the Continuity equation for boundary layer	Analyze	**3**
5.	The heat transfer coefficient for a gas flowing over a thin flat plate 3 m long and 0.3 m wide, varies with distance from the leading edge according to h(x) = 10 x$^{(-1/4)}$ W/m^2 K. Calculate (a) the average heat transfer coefficient, (b) the rate of heat transfer between the plate and the gas if the plate is at 170˚C and the gas is at 30˚C, and (c) the local heat flux 2 m from the leading edge.	Apply	**3**
	OR		
6.	Air at 3.5 bar and 27˚C flows in a smooth 2.5 cm ID tube with a bulk velocity of 10 m/s; the tube is 25 m long. What is the pressure drop and power required to move the air through the tube?	Apply	**3**

Signature of Faculty Member **Signature of HOD**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

III-B.Tech– II-SEM (MR 17-2017-18 Admitted Students)
I MID Examination Objective Question Bank

Subject: Heat Transfer (70324) **Branch: ME**
Name of the faculty: Dr. Yogesh Madaria

1 Thermal diffusivity is

(A) c_p/k (B) k/ c_p (C) k/c_p (D) c_p/ k

2 All the three modes of heat transmission are involved in

(A) Melting of ice

(B) Cooling of a small metal casting in a quenching bath.

(C) Heat flow through the walls of a refrigerator

(D) Automobile engine equipped with a thermo-syphon cooling system.

3 Steady state flow implies

(A) Negligible flow of heat

(B) No difference of temperature between the bodies

(C) Constant heat flow rate i.e., heat flow rate independent of time

(D) Uniform rate in temperature rise of a body

4 Thermal diffusivity of a substance is

(A) Directly proportional to the thermal conductivity

(B) Inversely proportional to density of substance

(C) Inversely proportional to specific heat

(D) All of the above

5 Thermal conductivity of most of the liquids _____ with rise of temperature

(A) Decreases (B) Increases

(C) First decreases and then increases (D) None of these

6 The heat transfer is constant when

(A) Temperature remains constant with time (B) Temperature decreases with time

(C) Temperature increase with time (D) None

7 Thermal conductivity is expressed as

(A) W/mK (B) W/m^2K (C) W/hmK (D) W/hm^2K

8 Thermal conductivity of solid metals----------with rise in temperature

(A) Decreases (B) increase (C) remain same (D) Constant

9 The overall coefficient of heat transfer is used in the problem?

(A) Radiation (B) conduction (C) convection (D) conduction and convection

10 The quantity of heat radiation is dependent on?

(A) Area of the body only (B) shape of the body only

(C) Temperature of the body only (D) All of the above

11 For a steady state heat transfer we should consider:

(A) dT/dt=0 (B) dy/dx=0 (C) dQ/dt=0 (D) dT/dx=0

12 The Reciprocal of thermal conductance is

(A) Thermal Conductivity (B) Diffusivity

(C) Convection (D) Thermal Resistance

13 The thickness of insulation of steam pipe and electric wire depends upon

(A) Rate of Heat loss (B) Physical Conditions (C) Practical Utility (D) None

14 Many Engineering applications involves heat transfer is made of

(A) Raw Materials (B) Biomass (C) Composite Materials (D) None

15 Heat conduction equation in Cartesian coordinate system is applicable for

(A) Pipes (B) Ball bearing (C) circular tubes (D) Plane walls

16 Heat conduction equation in Cylindrical coordinate system is applicable for

(A) Cuboid (B) Square Plates (C) Steam Pipe (D) Rubber ball

17 Heat conduction equation in spherical coordinate system is applicable for

(A) Spherical objects (B) Cylinders (C) slabs (D) None

18 Coordinates used in Cartesian system

(A) r, θ, z (B) x, y, z (C) r, θ, ϕ (D) None

19 Coordinates used in cylindrical system

(A) r, θ, z (B) x, y, z (C) r, θ, ϕ (D) None

20 Coordinates used in spherical system

(A) r, θ, z (B) x, y, z (C) r, θ, ϕ (D) None

21 Thermodynamics deals with the

(A) Fluid and work relation (B) Vapour and heat relation

(C) Heat and work relation (D) Analysis of rate of heat transfer

22 Heat transfer deals with the

(A) Fluid and work relation (B) Vapour and heat relation

(C) Heat and work relation (D) Analysis of rate of heat transfer

23 Heat transfers by virtue of density variation in the air is

(A) Conduction (B) Free Convection (C) Forced convection (D) None

24 Heat transfers by means of blower or fan

(A) Conduction (B) Free Convection (C) Forced convection (D) None

25 Heat transfer by drift of free electrons in metallic solids

(A) Conduction (B) Free Convection (C) Forced convection (D) None

26 Laws governing the subject heat transfer is

(A) zeroth and second law of thermodynamics

(B) Zeroth and third law of thermodynamics

(C) First and second law of thermodynamics

(D) All of the above

27 Heat transfer by molecular interaction in solids, liquids or gases

(A) Conduction (B) Free Convection (C) Forced convection (D) None

28 Heat transfer between a flowing fluid and a solid body at different temperatures is

(A) Conduction (B) Convection (C) Radiation (D) None

29 According to Fourier law of heat conduction, rate of heat transfer is given as

(A) -kAdT/dx (B) hA(Ts – Ta) (C) σAT^4 (D) None

30 According to Newton's law of Heating or Cooling, rate of heat transfer is given as

(A) -kAdT/dx (B) hA(Ts – Ta) (C) σAT^4 (D) None 31 According to Stefan Boltzmann law of radiation, rate of heat transfer is given as

(A) -kAdT/dx (B)hA(Ts – Ta) (C) σAT^4 (D) None

32 Thermal Conductivity is expressed by

(A) U (B) Σ (C) Ɛ (D) k

33 Thermal Diffusivity is expressed by

(A) α (B) Σ (C) Ɛ (D) K

34 Overall heat transfer coefficient is expressed by

(A) U (B) Σ (C) Ɛ (D) K

35 Heat transfer coefficient is expressed by

(A) U (B) h (C) Ɛ (D) K

36 Choose the value of Stefan Boltzmann constant σ

(A) 5.6697 x 10-6w/m^2K^4 (B) 5.8 x 10-8 w/m^2K^4

(C) 5.6697 x 10-8 w/m^2K^4 (D) None

37 Unit for heat transfer coefficient

(A) W/mK (B) m^2/s (C) W/m^2K (D) N.s/m^2

38 Unit for thermal resistance

(A) W/mK (B) k/W (C) W/m^2K (D) N.s/m2

39 Unit for Conductance

(A) W/mK (B) k/W (C) W/m^2K (D) W/k

40 Heat transfer problems in composite systems can be solved by

(A) Thermal conductivity (B) Thermal Resistance

(C) Heat transfer coefficient (D) Thermal diffusivity

41 Radiative heat transfer can be accomplished by

(A) Solids (B) Liquids (C) Electromagnetic waves (D) None

42 When the rate of heat transfer depends upon time, it is supposed to be

(A) Unsteady (B) Steady (C) A & B (D) None

43 Rate of heat transfer does not change with respect to time, then it is

(A) Unsteady (B) Steady (C) A & B (D) None

44 if the temperature is the function of distance ‘x’ and time ‘t’, then it is represented by

(A) T=f(y,x) (B) T=f(y,t) (C) T=f(t,t) (D) T=f(x,t)

45 if the temperature is the function of distance ‘y’ and time ‘t’, then it is represented by

(A) T=f(y,x) (B) T=f(y,t) (C) T=f(t,t) (D) T=f(x,t)

46 The temperature change for a isothermal surface can represented by

(A) dT/dt=0 (B) dT/dx=0 (C) A & B (D) None

47 If ‘Q’ is the heat flow rate, then heat flux is

(A) Q/V (B) Q/A (C) A& B (D) None

48 If the material is isotropic in nature, then the properties in all directions are

(A) Distinct (B) Varying (C) Constant (D) None

49 Material that belongs to thermal insulator is

(A) Copper (B) Aluminium (C) Gold (D) Asbestos

50 Material that acts as thermal conductor is

(A) Asbestos (B) Wool (C) Bagasse (D) Copper

51 Thermal conductivity of solid metals, with rise in temperature normally

(A) increases (B) decreases (C) remains constant (D) unpredictable

52 The insulation ability of an insulator with the presence of moisture would

(A) increase (B) decrease (C) remains unaffected (D) none of the above

53 When heat is transferred by molecular diffusion, it is referred to as

(A) conduction (B) convection (C) radiation (D) advection

54 Metals are good conductors of heat because

(A) their atoms collide frequently (B) their atoms are quite far apart

(C) they contain free electrons (D) their density is high

55 Thermal conductivity of air, with rise in temperature normally

(A) increases (B) decreases (C) remains constant (D) unpredictable

56 Which of the following has least value of thermal conductivity

(A) glass (B) water (C) plastic (D) air

57 Which of the following is expected to have highest value of thermal conductivity

(A) steam (B) solid ice (C) melting ice (D) water

58 Thermal diffusivity is

(A) a dimensionless parameter (B) a function of temperature

(C) a physical property of substance (D) useful in case of radiation heat transfer

59 Unit of thermal diffusivity is

(A) square meter/s (B) square meter/s.^{o}C

(C) W/square meter (D) W/square meter.^{o}C

60 Fourier's law of heat conduction is valid for

(A) one dimensional cases only (B) two dimensional cases only

(C) three dimensional cases only (D) regular surface having non-uniform temperature gradients

61 With variable thermal conductivity, Fourier law of heat conduction through a plane wall can be expressed as (k0 is the thermal conductivity at 0 ºC)

(A) $Q = -k0 (1 + \beta T)A \, dT/dx$ (B) $Q = k0 (1 + \beta T)A \, dT/dx$

(C) $Q = (1 + \beta T)A \, dT/dx$ (D) $Q = - (1 + \beta T)A \, dT/dx$

62 The mean thermal conductivity evaluated at the arithmetic mean temperature is represented by

(A) $k_m = k_0 [1 + \beta (T1 – T2)/2]$ (B) $k_m = k_0 [1 + (T1 + T2)/2]$

(C) $k_m = k_0 [1 + \beta (T1 + T2)/3]$ (D) $k_m = k_0 [1 + \beta (T1 + T2)/2]$

63 With respect to the equation $k = k0 (1 + \beta T)$ which is true if we put $\beta = 0$?

(A) slope of temperature curve is constant

(B) slope of temperature curve decreases

(C) slope of temperature curve increases

(D) None of the above

64 The unit of thermal conductivity doesn't contain which parameter

(A) Watt (B) Pascal (C) Meter (D) Kelvin

65 If β is greater than zero, then choose the correct statement with respect to given relation $k = k0 (1 + \beta T)$

(A) k doesn't depend on temperature (B) k depends on temperature

(C) k is directly proportional to temperature (D) Data is insufficient

66 Thermal conductivity is defined as heat flow per unit time

when temperature gradient is unity

across the wall with no temperature

through a unit thickness of the wall

across unit area where temperature gradient is unity

67 Heat conduction in gases is due to

(A) elastic impact of molecules (B) movement of electrons

(C) electromagnetic waves (D) mixing of gases

68 The heat energy propagation due to conduction will be minimum for

(A) Lead (B) Water (C) Air (D) Copper

69 Choose the false statement

(A) For pure metal thermal conductivity is more

(B) Thermal conductivity decreases with increase in density of the substance

(C) Thermal conductivity of dry material is lower than that of damp material

(D) Heat treatment causes variation in thermal conductivity

70. What is the purpose of using fins in a heat transfer system

(A) to decrease rate of heat transfer (B) to increase rate of heat transfer

(C) to increase the stability of the system (D) cannot say

71 Temperature at the end tip of the fin with uniform cross-sectional area is

(A) maximum (B) minimum

(C) similar to heat generation temperature (D) none of the above

72 When heat transfers between a solid surface and a fluid in motion, the mode of heat transfer is

(A) conduction (B) convection (C) radiation (D) combination of convection and radiation

73 If fin is sufficiently thin then heat flow pertains to

(A) one dimensional heat conduction (B) two-dimensional heat conduction

(C) three-dimensional heat conduction (D) No heat flow

74 In order to achieve maximum heat dissipation, the fin should be designed in such a way that has a

(A) Maximum lateral surface towards the tip side of fin

(B) Minimum lateral surface near the center line

(C) Maximum lateral surface at the root side of fin

(D) Maximum lateral surface near the center of fin

75 On a heat transfer surface, fins are provided to

(A) Increase turbulence in flow for enhancing heat transfer

(B) Increase temperature gradient so as to enhance heat transfer

(C) Pressure drop of the fluid should be minimized

(D) Surface area is maximum to promote the rate of heat transfer

76 From a metallic wall at 100°C, a metallic rod protrudes to the ambient air. The temperatures at the tip will be minimum when the rod is made of

(A) Aluminium (B) Steel (C) Copper (D) Silver

77 The insulated tip temperature of a rectangular longitudinal fin having an excess (over ambient) root temperature of $\theta 0$ is

(A) $\theta 0 \tanh(ml)$ (B) $\theta 0/(\sinh(ml))$ (C) $\theta 0 \tanh(ml)/(ml)$ (D) $\theta 0/(\cosh(ml))$

78 The efficiency of a pin fin with insulated tip is

(A) $\tanh(ml)/\{(hA/kP)^{0.5}\}$ (B) $\tanh(ml)/(ml)$

(C) $ml/\tanh(ml)$ (D) $\{(hA/kP)^{0.5}\}/\tanh(ml)$

79 The effectiveness of a fin will be maximum in an environment with

(A) Free convection (B) Forced convection

(C) Radiation (D) Convection and radiation

80 Usually fins are provided to increase the rate of heat transfer. But fins also act as insulation. Which one of the following non-dimensional numbers decides this factor?

(A) Eckert number (B) Biot number

(C) Fourier number (D) Peclet number

81 Provision of fins on a given heat transfer surface will be more served, if there are

(A) fewer number of thick fins (B) large number of thick fins

(C) fewer number of thin fins (D) large number of thin fins

82 Fins are made as thin as possible to

(A) reduce the total weight

(B) accommodate more number of fins

(C) increase the width for the same profile area

(D) improve flow of coolant around the fin

83 In order to achieve maximum heat dissipation, the fin should be designed in such a way that

(A) It should have maximum lateral surface at the root side of the fin

(B) It should have maximum lateral surface towards the tip side of the fin

(C) It should have maximum lateral surface near the centre of the fin

(D) It should have minimum lateral surface near the centre of the fin

84 Extended surfaces are used to increase the rate of heat transfer. When the convective heat transfer coefficient h = mk, the addition of extended surface will

(A) increase the rate of heat transfer

(B) decrease the rate of heat transfer

(C) not increase the rate of heat transfer

(D) increase the rate of heat transfer when the length of the fin is very large

85 Addition of fin to the surface increases the heat transfer if $\{hA/(kP)\}0.5$ is:

(A) equal to one (B) greater than one

(C) less than one (D) greater than one less than two

86 A thermocouple in a thermo-well measures the temperature of hot gas flowing through the pipe. For the most accurate measurement of temperature, the thermo-well should be made of

(A) Steel (B) Brass (C) Copper (D) Aluminium

87 Heisler charts are used to determine transient heat flow rate and temperature distribution when

(A) Solids possess infinitely large thermal conductivity

(B) Internal conduction resistance is small and convective resistance is large

(C) Internal conduction resistance is large and the convective resistance is small

(D) Both conduction and convention resistance are almost of equal significance

88 The value of Biot number is very small (less than 0.01) when

(A) The convective resistance of the fluid is negligible

(B) The conductive resistance of the fluid is negligible

(C) The conductive resistance of the solid is negligible

(D) None of these

89 A fin of length 'l' protrudes from a surface held at temperature T0 greater than the ambient temperature Tf. The heat dissipation from the free end' of the fin is assumed to be negligible. The temperature gradient at the fin tip

(A) Zero (B) (Tl – Tf)/(T0 – Tf) (C) h(T0 – Tl) (D) (T0 – Tl)/l

90 Which of the following is not an assumption for Fourier's law

(A) No internal heat generation

(B) Steady state heat conduction

(C) Non-linear temperature profile

(D) Isotropic and homogeneous material

91 Negative sign in Fourier heat conduction equation indicates

(A) Heat always flow in the direction of positive temperature gradient

(B) Heat always flow in the direction of negative temperature gradient

(C) No heat flow is there

(D) Data is insufficient

92 Which of the following is the unit of thermal resistance

(A) K/kcal (B) h.K (C) s.K/kcal (D) K/W

93 The time constant of a thermocouple is the time taken to attain

(A) the final value to be measured

(B) 50% of the value of the initial temperature difference

(C) 63.2% of the value of the initial temperature difference

(D) 98.8% of the value of the initial temperature difference

94 A steam pipe is covered with two layers of insulating materials, with the better insulating materials, with the better insulating material forming the outer part. If the two layers are interchanged, the heat conducted

(A) will decrease (B) will increase (C) will remain unaffected

(D) may increase or decrease depending upon the thickness of each layer

95 Hot coffee in a cup is allowed to cool. Its cooling rate is measured and found to be greater than the value calculated by conduction, convection and radiation measurement. The difference is due to

(A) properties of coffee changing with temperature

(B) currents of air flow in the room

(C) underestimation of the emissivity of coffee

(D) Evaporation

96 In a long cylindrical rod of radius R and a surface heat flux of q0, the uniform internal heat generation rate is

(A) 2q0/R (B) 2q0 (C) q0/R (D) 2q0/R2

97 A copper block and an air mass block having similar dimensions are subjected to symmetrical heat transfer from one face of each block. The other face of the block will be reaching to the same temperature at a rate

(A) Faster in air block (B) Faster in copper block

(C) Equal in air as well as copper block (D) Cannot be predicted with given information

98 Thermal diffusivity of a substance is

(A) inversely proportional to thermal conductivity

(B) directly proportional to thermal conductivity

(C) directly proportional to the square of thermal conductivity

(D) inversely proportional to the square of thermal conductivity

99 What is the ratio of thermal conductivity to electrical conductivity equal to?

(A) Prandtl number (B) Schmidt number (C) Lorenz number (D) Lewis number

100 Schmidt number is ratio of which of the following?

(A) Product of mass transfer coefficient and diameter to diffusivity of fluid

(B) Kinematic viscosity to thermal diffusivity of fluid

(C) Kinematic viscosity to diffusion coefficient of fluid

(D) Thermal diffusivity to diffusion coefficient of fluid

101 The dimensionless number relevant in transient heat conduction is

(A) Grashof number (B) Weber number (C) Fourier number (D) Reynolds number

102 Fourier number may be expressed as

(A) Ratio of buoyancy to viscous forces

(B) Ratio of gravitational and surface tension forces

(C) Ratio of internal thermal resistance of a solid to the boundary layer thermal resistance

(D) Ratio of heat conduction rate to the rate of thermal energy storage in a solid

103 On a hot summer day a stream of water is directed onto a concreate highway to lower its temperature suddenly. The temperature at any depth may be estimated using

(A) Infinite slab model (B) Semi-infinite slab model

(C) Negligible surface resistance model (D) Lumped heat capacity model

104 Transient heat conduction means

(A) Heat transfer with small temperature difference

(B) Variation of temperature with time

(C) Heat transfer for a short time

(D) Very little heat transfer

105 The temperature variation in lumped heat capacity analysis is

(A) Linear with time (B) Quadratic with time

(C) Cubic with time (D) Exponential with time

106 Heat transfer coefficient depends upon

(A) Nature of fluid flow (B) Thermal properties

(C) Configuration of system (D) All of the above

107 According to Newton's law of cooling

(A) $Q = hA(Ts - Tf)$ (B) $Q = -kA(dT/dx)$ (C) $Q = \sigma AT^4$ (D) None

108 Heat transfer coefficient considered at a particular location or place in a system is

(A) Local Heat transfer coefficient (B) Average Heat transfer coefficient

(C) Both A & B (D) None

109 The skin friction coefficient can be determined by the

(A) Thermal Boundary Layer (B) Velocity boundary layer

(C) Both A & B (D) None

110 The fluid flow in which the each particle may have constant velocity

(A) Turbulent Flow (B) Laminar Flow (C) Both A & B (D) None

111 The fluid flow in which particles may have irregular flow

(A) Turbulent Flow (B) Laminar Flow (C) Both A & B (D) None

112 The type of fluid flow depends upon

(A) Prandtl Number (B) Reynolds Number (C) Grashoff Number (D) Biot Number

113 Dimensionless numbers are derived from the theorem

(A) Pythagoras theorem (B) Buckingham Pi Theorem (C) Both A & B (D) None

114 In Heat transfer by convection from a body to the surrounding fluid, the convective Heat transfer coefficient

(A) Remains constant over the entire surface of the body

(B) Does not remain constant over the entire surface of the body

(C) It has no effect (D) None

115 The fluid flow in which the fluid particles do not mix with the fluid particles in the other layer is called as

(A) Laminar flow (B) Turbulent flow (C) Layer flow (D) None of the above

116 Generally, all the fluid particles in flowing fluid

(A) Flow at a constant velocity (B) Flow at various velocities

(C) Flow at a velocity as high as possible (D) None of the above

117 Viscosity of a fluid can be defined as

(A) Change in density of the fluid per unit temperature

(B) Flow resistance offered by the fluid

(C) Flow velocity change (D) None of the above

118 Which of the following fluid can be considered as an ideal fluid?

(A) Viscous fluid (B) Non-viscous fluid (C) Compressible fluid (D) All of the above

119 What is the SI unit for Absolute or dynamic viscosity?

(A) Ns/m^2 (B) Nm^2/s (C) N/m^2s (D) N/m^2

120 The viscosity of the liquid

(A) Increases with increase in liquid temperature

(B) Decrease with increase in liquid temperature

(C) Is not affected by the change in liquid temperature

(D) Is unpredictable

121 Kinematic viscosity of the fluid

(A) Dynamic viscosity per unit volume of the fluid

(B) Dynamic viscosity per unit weight of the fluid

(C) Dynamic viscosity per unit density of the fluid

(D) None of the above

122 In turbulent flow of fluid

(A) Conduction becomes more important (B) Conduction becomes less important

(C) Doesn't matter (D) None of the above

123 Mixing of fluid from regions of higher temperature with fluid from region of low Temperature

(A) Increases the rate of heat transfer (B) Decreases the rate of heat transfer

(C) Rate of heat transfer is not affected (D) None of the above

124 The Nusselt number is a convenient measure of

(A) Rate of heat transfer(B) Convective heat transfer coefficient

(C) Both A & B (D) None of the above

125 Which of the following are primary dimensions used in Buckingham pi theorem?

(A) Length (L) (B) Time (t) (C) Temperature (T) (D) All of the above

Signature of Faculty Member **Signature of HOD**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

B. Tech– II-II Sem (MR 18) II Mid Examination Subjective Question Bank

Subject: INDUSTRIAL MANAGEMENT **Branch: ME**

Name of the faculty: M.Sameera Sarma, Rishikanth.N ,Vijay Krishna

Instructions: 1. All the questions carry equal marks

Q.No.	Question	Bloom's Taxonomy Level	CO
	Module-I		
1.	Name the concepts of management and explain them in detail?	Understanding	1
	OR		
2.	Explain the principles of fayol's management?	Understanding	1
3.	Explain about the theory X and theory Y?	Understanding	1
	OR		
4.	Explain about leadership styles?	Understanding	1
5.	Explain about entrepreneurship.	Understanding	1
	OR		
6.	Write about different human needs stated by Maslow for management?	Understanding	1
7.	Explain about functions of management indetail.	Understanding	1
	OR		
8.	Explain about scientific management theory of management.	Understanding	1
	Module II		
1.	Explain about organisation structures in-detail.	Understanding	2
	OR		
2.	Differentiate between line and functional organisation.	Understanding	2
3.	Explain 'Decentralisation' and what are the objectives of it?	Understanding	2
	OR		
4.	Explain Committee organisation and its merits & demerits.	Understanding	2
5.	Explain about flat organistion indetail.	Understanding	2
	OR		
6.	Explain about 'Departmentation' and what are the objectives of it?	Understanding	2
7.	Explain about team organisation structure with merits and demerits.	Understanding	2
	OR		

8.	Explain about matrix organisation structure in detail.	Understanding	2
	Module III		
1.	What is meant by plant layout and write its objectives?	Understanding	3
	OR		
2.	Explain the following terms a) Job production b) Batch production c) Mass production	Understanding	3
3.	Explain about different factors affecting plant location.	Understanding	3
	OR		
4.	Explain about operations management and its objectives.	Understanding	3

Signature of the faculty **HoD,ME**

Objective Question Multiple choice questions

Module – I

1. Scientific Management approach is developed by
    a) Elton Mayo
    b) Henry Fayol
    c) F.W. Taylor
    d) A. Maslow
2. "Hawthrone experiment" which was a real beginning of applied research in OB was conducted by
    a) Elton Mayo
    b) Henry Fayol
    c) F.W. Taylor
    d) Max Weber
3. Whose concept states that interpersonal and human relations may lead to productivity
    a) Elton Mayo
    b) Henry Fayol
    c) F.W. Taylor
    d) d. Max Weber
4. "---------- are social inventions for accomplishing goals through group efforts"
    a) Management
    b) Organization
    c) Leadership
    d) Behavior
5. Which of the following is/are the key features of organization
    a) Social invention
    b) Accomplishing goals
    c) Group efforts
    d) All of these
6. A study of human behavior in organizational settings is
    a) Individual behavior
    b) Group behavior
    c) Organizational behavior
    d) None of these
7. Process or administrative theory of organization is being given by
    a) Elton Mayo
    b) Henry Fayol
    c) F.W. Taylor
    d) Max Weber
8. Management is a ----------process
    a) Structural
    b) Organisational
    c) Operational
    d) Motivation

9 Who proposed " **bureaucratic structure**" is suitable for all organization
    a) Elton Mayo
    b) Henry Fayol
    c) F.W. Taylor

d) Max Weber

10 Which of the following does management not refer to

a. Social process

b) Exact science

c) omnipresent and universal

d) Situational in nature

11. Which of the following is not covered by the 4M's of management

a) Money

b) Materials

c) Manager

d) Machines

12 Which of the following is an environmental force that shapes personality?

a) Gender

b) Height

c) Experience

d) Brain size

13 Which one of the following Is an external stakeholder of the organization

a) informal organization

b) degree of centralization

c) formal organization

d) impact of technology

14 The term management does not connote which of the following

a) inter disciplinary in nature

b) Profession

c) Body of people involved in decision making

d) Omniscient

15 Which of the following is a challenge faced by the managers

a) sticking on to business ethics

b) good basic infrastructure

c) decreasing opportunities

d) Depleting financial and non financial resources

16. Which one of the following is not an element of planning

a. Objectives

b) Policies

c) Budgets

d) Analysis

17. According to henry fayol, management process covers all except

a) Organising

b) Commanding

c) Ordinating

d) Controlling

18. The process of determining the best course of action to achieve the given goals is called

a) Organizing

b) Planning

c) Controlling

d) Coordinating

19. Which one of the following ends with decision making

a) Planning

b) Organizing
c) Implementing
d) Coordinating

20. Which one of the following phrase best describes the management functions
    a. Omnipresent
    b. Omniscient
    c. Ubiquitous
    d. Permanent
21. Free rein leadership is also known as
    a) Democratic
    b) Autocratic
    c) Laissez-faire
    d) Bureaucratic
22. ----------is the attractiveness of the members towards the group or resistance to leave it
    a) Group norms
    b) Group behavior
    c) Group cohesiveness
    d) Group structure
23. Believes, attitudes, traditions and expectations which are shared by group members is called
    a) Group norms
    b) Group communication
    c) Group cohesiveness
    d) Group structure
24. ----------is the ability of influencing people to strive willingly for mutual objectives
    a) Motivation
    b) Control
    c) Leadership
    d) Supervision
25. In ----------leadership, there is a complete centralization of authority in the leader
    a) Democratic
    b) Autocratic
    c) Free rein
    d) Bureaucratic
26 In---------- in fact “No leadership at all”
    a) Democratic
    b) Autocratic
    c) Free rein
    d) Bureaucratic
27. Grid Organization Development was developed by
    a) Blake and Mounton
    b) Elton Mayo
    c) F W Taylor
    d) Max weber
28. Who propounded X and Y theory of motivation
    a) Maslow
    b) F. Herzberg

c) Alderfer
d) Mc Gregor

29. ---------- theory believes that employees dislike work
a) X theory
b) Y theory
c) Z theory
d) None of these

30. According to ----------employees love work as play or rest
a) X theory
b) Y theory
c) Z theory
d) None of these

31. Z theory is a Japanese approach of motivation developed by
a) Mc Clelland
b) William Ouchi
c) Alderfer
d) Mc Gregor

32. According to ---------- the managers and workers should work together as partners and of equal importance for the organizations success
a) X theory
b) Y theory
c) Z theory
d) 2 Factor theory

33. Which of the following is not a biographical characteristic?
a) political affiliation
b) Age
c) Sex
d) Tenure

34. ----------is an attitude reflects the extent to which an individual is gratified or fulfilled by his work
a) Motivation
b) Job satisfaction
c) Contribution
d) Cognitive dissonance

35. Maslow's "basic needs" are also known as
a) Social needs
b) Esteem needs
c) Safety needs
d) Physiological needs

36. In Maslow's Need hierarchy which needs are shown between Esteem needs and Safety needs
a) Social needs
b) Esteem needs
c) Security needs
d) Basic need

37. ERG theory of motivation was proposed by
a) Maslow
b) F. Herzberg
c) Alderfer
d) Mc Gregor

38. Under Herzberg's theory, factors causing dissatisfaction is called
    a) Demotivators
    b) Negative stimuli
    c) Hygiene factors
    d) Defectors
39. Hygiene factors are
    a) Satisfiers
    b) Maintenance factors
    c) Defectors
    d) All of these
40. In Two Factor theory, "Salary" coming under ----------
    a) Satisfiers
    b) Maintenance factors
    c) Both of these
    d) None of above a and b
41. Who propounded X and Y theory of motivation
    a) Maslow
    b) F. Herzberg
    c) Alderfer
    d) Mc Gregor
42. ---------- theory believes that employees dislike work
    a) X theory
    b) Y theory
    c) Z theory
    d) None of these
43. Which one is not a Need Based Theory of motivation?
    a) Maslow's Theory
    b) F. Herzberg's theory
    c) Alderfer's theory
    d) Vroom's theory
44. Who gave the two factor theory of motivations
    a) Vroom
    b) Herzberg
    c) Fayol
    d) Maslow
45. which one of the following is not one of the fayol's 14 principles of management
    a) Authority
    b) Remuneration
    c) Decentralisation
    d) unity of direction
46. Good natured, cooperative and trusting are the features of
    a) Introversion
    b) Agreeableness
    c) Extroversion
    d) Conscientiousness
47. Responsible, dependable, persistent and achievement oriented are features of
    a) Introversion
    b) Agreeableness
    c) Extroversion

d) Conscientiousness

48. Imaginative, artistically sensitive etc. are features of
    a) Openness
    b) Agreeableness
    c) Extroversion
    d) Conscientiousness

49. What does “spirit de corps” stand for
    a. team work
    b. right thing in the right place

b) Initiation
    a. avoiding frequent transfers

50. Which one of the following is not a financial factor in the motivation process
    a) salary package
    b) Bonus
    c) flexible working hours
    d) Allowances

MODULE-II

51. The obligation on the part of the subordinate to complete the given job is called
    a) Authority
    b) Power
    c) Reliability
    d) Responsibility

52 The process of transferring the authority from the top to the lower levels in the organization is called
    a) Authority
    b) Delegation
    c) Power
    d) Responsibility

53 What is the type of organization when the authority is delegated to the regional offices? ( )
    a) Centralized
    b) Decentralized
    c) Both
    d) None

54 Line organization is favored because of
    a) More scope for favoritism
    b) No scope for favoritism
    c) Flexibility
    d) No scope for the nepotism

55 Which one of the following is a demerit of the line organization?
    a. Simple to understand
    b. Facilitates quick decisions
    c. Each section is treated as a unit for control purpose
    d. Inability is likely due to lack of continuity

56 Which one of the following is a merit for the functional organization?
    a) Calls for more coordination

b) Delays the decision making
c) Offers better control
d) Expensive in terms of time

57 Which one of the following refers to policies & procedures of the organization?

a) Manual
b) Book
c) Journal
d) Record

58 What refers to the effective control of a number of subordinates by a supervisor at a given point of time?

a. Management
b. Control of power
c. Span of control
d.Authority

59 What refers to the flow of authority from the management to every subordinate in the organization

a) Unit of command
b) Flow of authority
c) Span of management
d) Delegation of authority

60 Which one of the following is an example of organic structure of an organization?

a. Line and staff organization
b) Product organization
c) Virtual Organization
d) Matrix organization

61 **Departmentation leads to grouping of**

a) Activities
b) Personnel
c) Both 'A' and 'B'
d) None of the above

62 **The department can be created**

a) By function
b) By product
c) By process
d) All of the above

63 **The following is also known as Military organisation**

a) Line organisation
b) Functional organisation
c) Line and staff organisation
d) None of the above

64 **In hospitals, the following type of departmentation is common**

a) By function
b) By committee
c) By geographical region
d) All of the above

65 **In line organisation, the business activities are divided into following three types**

a) Accounts, Production, Sales
b) Production, Quality, Sales
c) Production, Quality, Maintenance
d) Production, Maintenance, Sales

66 **Which organisation structure is generally followed by big steel plants?**

a) Line organisation
b) Functional organisation
c) Line and staff organisation
d) All of the above

67 **Departmentation is a process where**

a) Tasks are grouped into jobs
b) Jobs are grouped into effective work groups
c) Work groups are grouped into identifiable segments
d) All of the above

68 **Organisation establishes relationship between**

a) People, work and resources
b) Customer, work and resources
c) People, work and management
d) Customer and work management

69 **In which of the following organisation structure, each specialist is supposed to give his functional advice to all other foremen and workers**

a) Line organisation
b) Functional organisation
c) Line and staff organisation
d) All of the above

70 **The process of dividing the work and then grouping them into units and subunits for the purpose of administration is known as**

a) Departmentation
b) Organisation structure
c) Committee
d) All of the above

71 **Organisation is a process of**

a) Identifying and grouping of work to be performed
b) Defining and delegating the responsibility and authority
c) Both ‘A’ and ‘B’
d) None of the above

72 **Responsibility always flows from**

a) Superior to subordinate
b) Subordinate to superior
c) Both ‘A’ and ‘B’
d) None of the above

73 **Authority always flows from**

a) Superior to subordinate
b) Subordinate to superior
c) Both ‘A’ and ‘B’
d) None of the above

74 **'No one on the organisation should have more than one boss' is a statement of**

a) Principle of specialisation
b) Principle of authority
c) Principle of unity of command
d) Principle of span of control

75 **The number of persons which can be effectively supervised by a single executive or departmental head should be limited to ___ in an average firm.**

a) Six
b) Ten
c) Fourteen
d) Twenty

76 **The following is not a principle of organisation**

a) Principle of exception
b) Principle of balance
c) Principle of complexity
d) Principle of co-ordination

77 **As per the principle of balance, there should be balance between**

a) The activities
b) Authority and responsibility
c) Standardisation of procedures and flexibility
d) All of the above

78 **The following is not a type of organisation structure**

a) Line organisation
b) Functional organisation
c) Line and staff organisation
d) Flexible organisation

79 Which of the following is a system

a) An organization
b) An automobile
c) A community
d) All

80 Organisational success in providing a service or a product depends on

a) doing product development faster than anyone else.
b) being the cheapest in the market.
c) having the first product or service in the market place.
d) the product or service being valued by a segment of society.

81 An organisation's mission is

a) the fundamental purpose of an organisation.
b) articulated in such a way that it defines the business of the enterprise
c) a concept for unifying the efforts of organisational members.
d) all of the above

82 Management is the practice of

a) recruiting and motivating talented people to work for your organisation.
b) increasing a firm's revenues and cutting costs to maximize profits.
c) directing, organizing, and developing people, technology, and financial resources.
d) mastering political behaviours so that the fittest survive and rise to the top.

83 What does a fire department, hospital, business, service club, and church all have in common?

a) They all have shareholders.
b) They all are organizations.
c) They all are closed systems
d) They all are growth oriented

84 What is not common to the purpose of an organisation?

a) Working to benefit multiple stakeholders.
b) Using a mission and goals to focus purpose.
c) Having first-line managers create superordinate goals.

d.)Organizing around ways of serving customers/clients

85 Organisational behaviour allows us to be more prepared to cope with the challenges ofmodern management and life in organisations. What do the practical applications of xbehavioural research tell managers?

a) Why humans are inherently ill-suited to the workplace.
b) How to improve the odds that their influence will be effective.
c) That common sense is the best guide for managers
d) How to program employees for peak performance through direct, precise application oftheoretical models.

86 What is the primary reason why you should study management and organizational behaviour?

a) The chances are high you will spend much of your life working for or within organisations.
b) It is fun to learn why people often do dumb things in organisations and how to prevent them.
c) The lessons of managerial success can be learned as seven basic habits of organizational behaviour.
d) The fastest way to become rich is by working for a firm that provides generous stock options.

87 An organisation's plans are usually most specific at what level?

a) The top
b) The middle
c) The bottom
d) They should be essentially equal in specificity at all levels of the organisation

88 Which of the following can be sources of organisational control?

a) Performance appraisals.

b) Organisational culture
c) Leadership
d) All of the above

89 What is the primary reason why you should study management and organizational behaviour?
a) The chances are high you will spend much of your life working for or within organisations.
b) It is fun to learn why people often do dumb things in organisations and how to prevent them.
c) The lessons of managerial success can be learned as seven basic habits of organisationalbehaviour.
d) The fastest way to become rich is by working for a firm that provides generous stockoptions

90 When project requires integration of inputs from several functional areas, form would be
a) Pure Organization
b) Matrix organization
c) Mixed Organization
d) Virtual Organization

91. When an organization assigns specialists to group according to the projects they are working on, this is called
a) Divisional structure
b) Functional structure
c) Product structure
d) Matrix structure

92 Which of the following organizational forms may also be referred to as a project management structure
a) line structure
b) functional structure
c) line-and-staff structure
d) matrix structure

93 Marketing, production and management of distribution comes under category of
a) staff management
b) line management
c) marketing management
d) production management

94 An organization structure that consist of manager of HR, Finance and Accounts is anexample of a
a) Customer Departmentalization
b) Geographical departmentalization
c) Process departmentalization
d) Functional Departmentalization

95 Organizing aims to serve
a) common purpose
b) corruption,
c) authority structure,
d) All of the above.

96 Functional foremanship is the concept underlying the following organization
a) Matrix

b) Functional
c) Product
d) Divisional

97 Design engineers at Ford advise production personnel about what products to use in making a product. This is an example of _____ authority.

a) Staff
b) Group
c) Line
d) Line and Staff

98 A cross functional organizational structure in which individuals performing one function, such as accounting, are to the senior executive in finance and also to another senior executive in a geographical, product, or customer department is called:

a) line organization
b) matrix form.
c) informal organization
d) bureaucratic organization

99 A position to which decision-making authority has been delegated within the chain of command from senior managers to front line production or service employees is called

a) line position
b) staff position
c) departmentalization.
d) line & staff positions

100 People who work in the Human resource department should have a knowledge of

a) organisational behavior
b) IT
c) Finance
d) Marketing

MODULE-III

101. **The profit of an enterprise can be increased by**

a) Reducing total costs of production
b) Increasing sales value
c) Increasing capital cost
d) Increasing manpower

102. **Which of the following industries should be located near the vicinity of raw materials?**

a) Cycles
b) Televisions
c) Sewing machines
d) Steel mills

103 **For which of the following industry humid climate is helpful**

a) Cotton
b) Steel

c) Light Bulb
d) Automobile

104 **What is the location of lower control limit in the X bar-R control chart?**
(A) 3 standard deviations below central line
(B) 2 standard deviations below central line
(C) 1 standard deviations below central line
(D) Any of the above

105 **Which kind of labour force is required in case of Jobbing Production?**
(A) Highly Skilled
(B) Semi skilled
(C) Unskilled
(D) Any of the above

106 **Which of the following is not true for Multi-storey building?**
High heating and ventilation cost

Small ground runs for drainage
Adopted for manufacture of light goods
Less roof repairs

107 **Which of the following is not the characteristic of Project Production?**
(A) Continuous flow of material
(B) Highly mechanised material handling
(C) Virtually zero manufacturing cycle time
(D) All of the above

108 **If all the processing equipment and machines are arranged according to the sequence of operations of a product the layout is known as**
a) Product layout
b) Process layout
c) Fixed position layout
d) Combination layout

109 **The following type of layout is preferred to manufacture a standard product in large quantity**
a) Product layout
b) Process layout
c) Fixed position layout
d) Combination layout

110. **The following type of layout is preferred for low volume production of non standard products**
a) Product layout
b) Process layout
c) Fixed position layout
d) Combination layout

111. **In ship manufacturing, the type of layout preferred is**
a) Product layout
b) Process layout
c) Fixed position layout
d) Combination layout

112. **This chart is a graphic representation of all the production activities occurring on the shop floor**
a) Operation process chart

b) Flow process chart
c) Templates
d) All of the above

113. Objective of plant layout is
a) minimum material handling
b) minimum equipment utilization
c) minimum manpower utilization
d) minimum utilization of floor area

114. The most important objective behind plant layout is
a) Overall simplification and ease in integration of various functions
b) Economy in machines
c) Maximum travel time in plant
d) Minimum work-in-progress

115. A low unit cost can be achieved by following
a) Process layout
b) Product layout
c) Fixed position layout
d) Functional layout

116. The pattern of plant layout is basically divided by the relationship between the ---------- and ---
a) Commercial Printer
b) Plastic Part Manufacturer
c) Consumer Electronics
d) Number of products, Production quantity

117. The location of plant should be in such a place where the ---------- are available
a) Larger production cycle
b) Higher material handling costs
c) Interesting to workers
d) Large scale economics

118. Flexibility cannot be achieved with
a) Moveable equipment
b) Inexpensive equipment
c) Sophisticated electronic equipment
d) Immovable equipment

119. A common goal in process layouts is to
a) Minimize transportation distance
b) Maximize distance between departments
c) Standardize processes
d) Convert to cellular layout as often as possible

120. Conveyors are suitable for _____ production in _____ routes
a) Standardize processes
b) Convert to cellular layout as often as possible
c) Share personnel
d) Mass, fixed

121. For lifting heavy jobs in a shop, _____are made use of
a) Overhead cranes
b) bridge crane
c) monorail

d) True

122. Which layout facilitates high degree of automation to minimize fatigue and error?

a) Product layout
b) Process layout
c) Flexible layout
d) Fixed layout

123. For ship vessel industry the following layout is best suited:

a) Process layout
b) Product layout
c) Fixed position layout
d) Plant layout

124. _____ is concerned with the orderly storage and issuing of finished goods.

a) tool room
b) receiving area
c) shipping area
d) warehousing area

125 **Inadequate production capacity ultimately leads to**

(A) Poor quality
(B) Poor Customer Service
(C) Poor inventory control
(D) All of the above

Signature of the faculty **HoD,ME**

Malla Reddy Engineering College

DEPARTMENT OF MECHANICAL ENGINEERING

Question Bank with BT Level and CO

III B.TECH II SEM (MR15 2017-2021 batch)

I Mid Examination Subjective Question Bank

Subject: Metrology & Instrumentation **Branch : ME**

Instructions:

1. All the questions carry equal marks

2. Answer all the questions

Name of the Faculty: Mr.M.Srinivasulu Reddy

Q.No.	Question	Bloom's Taxonomy Level	CO
1.	Explain the different type of fits with neat sketch.	Understanding	1
	OR		
2.	Compare between hole basis system and shaft basis system.	Understanding	1
3.	Explain the unilateral and bilateral system of writing tolerances with suitable examples.	Understanding	1
	OR		
4.	(a) Explain the different types of gauges.	Understanding	1
	(b)Demonstrate and explain the Taylor's principle of gauge design'.	Understanding	1
5.	In a hole and shaft assembly of 30 mm nominal size, the tolerances for hole and shaft are as specified as Hole : $30^{+0.02}_{-0.00}$ mm, Shaft: $30^{+0.04}_{-0.70}$ mm. Determine : (i) Maximum and minimum clearance obtainable, (ii) Hole and shaft tolerance, and (iii) The type of fit.	Applying	1
	OR		

6.	Design the general type GO and NO GO GUAGE for components having 20H7f8 fit. given 1) I = $i=0.45\sqrt[3]{D}+0.001$ 2)Upper deviation of f shaft = $-5.5D^{0.41}$ 3) 20 MM falls in the diameter step 0f 18mm to 30 mm 4) IT7=16i 5)IT8=25i Wear allowance 10% of gauge tolerance	Applying	1
7.	List out and explain various types of limit gauges with neat sketches.	Analyzing	1
	OR		
8.	Compare Interchangeable assembly and selective assembly with advantages?	Analyzing	1
Module II			
1.	Examine the working principle of tool maker's microscope with neat sketch.	Analyzing	1
	OR		
2.	List the various uses of Vernier Bevel Protractor with neat sketch.	Analyzing	1
3.	Make use of sine bar and measure the angles explain with neat sketch.	Appling	1

OR			
4.	Identify the various types of optical flat? Why it is used?	Appling	1
5.	Explain working principle of Michelson and NPL gauge interferometer with neat sketches.	Understanding	1
OR			
6.	Explain the method of checking the angle of a taper plug gauge using rollers, micrometers and slip gauges. Draw neat sketch of the set up.	Understanding	1
7.	Explain with the help of neat sketches the principle and construction of an auto-collimator.	Understanding	1
OR			
8.	Explain with the help of neat sketches the principle and construction of an dial indicator	Understanding	1
Module III			
1.	Illustrate the differences between surface roughness and surface waviness.	Understanding	1
OR			

2.	Explain in brief the construction and working of a sigma comparator with the help of a neat sketch.	Understanding	1
3.	In the measurement of surface roughness, heights of successive 10 peaks and troughs were measured from a datum and were 33,25,30,19,22,18,27,29,22 and 20microns .If these measurements were obtained on 10 mm length, determine CLA and RMS values of surface roughness.	Applying	1
	OR		
4.	Identify various differences between surface roughness & surface waviness.	Applying	1

Signature of the faculty **HoD,ME**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)
DEPARTMENT OF MECHANCIAL ENGINEERING
B.Tech. – MID-1,III - II Semester, 2019
Metrology & Instrumentation - OBJECTIVE QUESTIONS

B) **OBJECTIVE QUESTION BANK.**

01 Maximum deviation in size of shaft or hole is known as ( )

A)Tolerance

B)Fundamental deviation

C)Clearance

D) Interference

02 Nearest deviation between hole and shaft from the basic value is known as ( )

A)Tolerance

B)Fundamental deviation

C)Clearance

D)Interference

03 When size of smallest hole is more than size of biggest shaft then it is ( )

A)Clearance fit

B)Interference fit

C)Transition fit

D)None of the mentioned

04 Value of minimum clearance is given by ( )

A)Size of smallest hole – size of biggest shaft

B)Size of smallest hole + size of biggest hole

C)Size of smallest shaft – size of biggest shaft

D)None of the mentioned

05 Value of maximum clearance is given by ( )

A)Size of smallest hole – size of biggest hole

B)Size of smallest shaft + size of biggest hole

C)Size of smallest shaft – size of biggest shaft

D)None of the mentioned

06 When size of smallest shaft is more than size of biggest hole then it is ( )

A)Clearance fit

B)Interference fit

C)Transition fit

D)None of the mentioned

07 Value of maximum Interference is given by ( )

A)Size of smallest hole – size of biggest shaft

B)Largest of shaft size hole – smallest hole size

C)Size of smallest shaft – size of biggest shaft

D)None of the mentioned

08 Value of minimum interference is given by ( )

A)Size of smallest hole – size of biggest hole

B)Size of smallest shaft + size of biggest hole

C)Size of smallest shaft – size of biggest hole

D)None of the mentioned

09 For manufacturing of certain amount of hole, maximum hole size was found to be 50.14 mm and minimum hole size was found to be 49.98. Tolerance in mm will be ( )

A)0.12

B)0.16

C)0.20

D)0.19

10 In manufacturing of hole and shaft, maximum shaft diameter was 49.88 mm and minimum hole diameter was found to be 49.94 mm. It is a ( )

A)Clearance fit

B)Interference fit

C)Transition fit

D)None of the mentioned

11 In an assembly of hole and shaft, smallest hole was having diameter of 49.98 mm and largest shaft was having diameter of 49.94 mm. Minimum clearance in mm will be ( )

A)0.08

B)0.03

C)0.01

D)0.04

12 In an assembly of hole and shaft, smallest shaft was having diameter of 49.98 mm and largest hole was having diameter of 50.14 mm. Maximum clearance in mm will be ( )

A)0.23

B)0.26

C)0.32

D)0.12

15 In an assembly of hole and shaft, smallest shaft was having diameter of 50.16 mm and largest hole was having diameter of 50.14 mm. Minimum interference in mm will be ( )

A)0.2

B)0.3

C)0.4

D)0.1

16 Maximum material limit of shaft is ( )

A)Maximum diameter of hole

B)Maximum diameter of shaft

C)Smallest diameter of hole

D) Minimum diameter of shaft

17 Maximum material limit of hole is ( )

A)Maximum diameter of hole

B)Maximum diameter of shaft

C)Smallest diameter of hole

D)Minimum diameter of shaft

18 Minimum material limit of shaft is ( )

A)Maximum diameter of hole

B)Maximum diameter of shaft

C)Smallest diameter of hole

D)Minimum diameter of shaft

19 Minimum material limit of hole is ( )

A)Maximum diameter of hole

B)Maximum diameter of shaft

C)Smallest diameter of hole

D)Minimum diameter of shaft

20 Allowance of hole and shaft assembly is equal to ( )

A)Sum of maximum metal limit

B)Product of Maximum limit

C)Difference of maximum metal limit

D)None of the mentioned

21 The amount by which the actual size of a shaft is less than the actual size of mating hole in an assembly. ( )

A)Clearance

B)Allowance

C)Interference

D)None of the above

22 A positive allowance will always result in a _____ fit. ( )

A)Clearance

B)Interference

C)both ‘a’ and ‘b’

D)Any of the above

23 A negative allowance will always result in a _____ fit. ( )

A)Clearance

B)Interference

C)Transition

D)Any of the above

24 A shaft rotating in a bushed bearing is good example of ( )

A)Sliding fit

B)Running fit

C)Push fit

D)Driving fit

25 Fitting of rim on a locomotive wheel is done by ( )

A)Keying fit

B)Driving fit

C)Force fit

D)Any of the above

26 The following is used to check the diameters of holes ( )

A)Plug gauge

B)Ring gauge

C)Slip gauge

D)Standard screw pitch gauge

27 To check external diameter of hole, we use ( )

A)Plug gauge

B)Ring gauge

C)Slip gauge

D)Standard screw pitch gauge

28 'GO' and 'NO GO' gauge is a type of ( )

A)plug gauge

B)slip gauge

C)ring gauge

D)limit gauge

29 What are the functional dimensions? ( )

A)Have to be machined and fit with other mating components

B)Which have no effect on performance of quality

C)Need not to be machined to an accuracy of high degree

D)Function is more important than accuracy

30 Why tolerances are given to the parts? ( )

A)Because it’s impossible to make perfect settings

B)To reduce weight of the component

C)To reduce cost of the assembly

D)To reduce amount of material use

31 What is bilateral tolerance? ( )

A)Total tolerance is in 1 direction only

B)Total tolerance is in both the directions

C)May or may not be in one direction

D)Tolerance provided all over the component body

32 Which type of tolerance provided in drilling mostly? ( )

A)Bilateral

B)Unilateral

C)Trilateral

D)Compound

33 What is mean clearance? ( )

A)Maximum size of hole minus maximum size of shaft

B)Minimum size of hole minus minimum size of shaft

c)Mean size of hole minus mean size of shaft

D)Average of both size of shaft and hole

34 Which of the following is incorrect about tolerances? ( )

A)Too loose tolerance results in less cost

B)Tolerance is a compromise between accuracy and ability

C)Too tight tolerance may result in excessive cost

D)Fit between mating components is decided by functional requirements

35 What does '50' represents in 50H8/g7? ( )

A)Basic size

B)Actual size

C)Maximum limit of size

D)Minimum limit of size

36 What is the condition for a positive upper deviation? ( )

A)Maximum limit of size > basic size

B)Maximum limit of size is < basic size

C)Minimum limit of size > basic size

D)Maximum limit of size < basic size

37 How many holes are there for any basic size? ( )

A)22

B)24

C)26

D)28

38 What does ES represents in terminology as per IS: 919? ( )

A)Lower deviation of hole

B)Upper deviation of shaft

C)Lower deviation of shaft

D)Upper deviation of hole

39 What is 'IT01'? ( )

A)Basic size of hole

B)Basic size of shaft

C)Tolerance grade

D)Standard tolerance factor

40 For tolerance grades 5 to 16, what is the formula for standard tolerance factor? ( )
(D=mean diameter in mm)

A)0.45 $(D)^{1/3}$ + 0.001D

B)10*D

C)0.45 $(D)^{3}$ + 0.001 D

D)20*D

41 What is the range of shafts which produce transition fits? ( )

A)Shaft 'a' to 'h'

B)Shaft 'e' to 'n'

C)Shaft 'd' to 'h'

D)Shaft 'j' to 'n'

42 Which one of the following statements is TRUE? ( )

A)The 'GO' gage controls the upper limit of a hole

B)The 'NO GO' gage controls the lower limit of a shaft

C)The 'GO' gage controls the lower limit of a hole

D)The 'NO GO' gage controls the upper limit of a hole

43 A ring gauge is used to measure ( )

A)Outside diameter but not roundness

B)Roundness but not outside diameter

C)Both outside diameter and roundness

D)Only external threads

44 Plug gauges are used to ( )

A)Measure the diameter of the work pieces

B)Measure the diameter of the holes in the work pieces

C)Check the diameter of the holes in the work pieces

D)Check the length of holes in the work pieces

45 The fit on a hole-shaft system is specified as H7-s6.The type of fit is ( )

A)Clearance fit

B)Running fit (sliding fit)

C)Push fit (transition fit)

D)Force fit (interference fit)

46 For sizes up to and including 500 mm, the tolerance unit i is determined from the equation $i=0.45\sqrt[3]{D}$ + 0.001D which one of the following does D stands for ( )

A)The diameter

B)The geometric mean of diameter steps between which is a particular basic size lies

C)Product of the two diameter steps

D)Arithmetic mean of the two diameter steps

47 Expressing a dimension as $25.3^{\pm 0.05}$ mm is the case of ( )

A)Unilateral tolerance

B)Bilateral tolerance

C)Limiting dimensions

D)All of the above

48 Basic shaft and basic hole are those whose upper deviations and lower deviations respectively are ( )

A)+ve, -ve

B)-ve, +ve

C)Zero, Zero

D)None of the Above

49 Expressing a dimension as $25.3^{\pm 0.05}$ mm is the case of ( )

A)Unilateral tolerance

B)Bilateral tolerance

C)Limiting dimensions

D)All of the above

50 Which one of the following is the value for the tolerance grade IT8 ( )

A)10i

B)16i

C)40i

D)25i

51 The following is a line standard measurement ( )

A)measuring tape

B)slip gauges

C)micrometer

D)end bars

52 The following is not used to measure angles ( )

A)bevel protractor

B)calibrated levels

C)optical flats

D)clinometers

53 Which is not a common basic form of slip gauge ( )

A)rectangular

B)square with centre hole

C)square without centre hole

D)parallelogram

54 how many grades or classes of slip gauges are present? ( )

A)3

B)5

C)6

D)4

55 Which is the approximate size of slip gauges? ( )

A)30mm long and 10mm wide

B)45mm long and 15mm wide

C)20mm long and 5mm wide

D)25mm long and 10mm wide

56 Which of the following is used for manufacturing of length bars? ( )

A)high carbon high chromium steel

B)tungsten

C)steel

D)None of the mentioned

57 In absence of parallelism what is the size of the slip gauge ( )

A)distance between two measuring faces

B)distance between the centre of exposed face to surface of body

C)corners width

D)None of the mentioned

58 which of the following is not important feature of slip gauge ( )

A)flatness

B)length b/w measuring surface

C)adhereness efficiency

D)all the above

59 slip gauges are specified by their ( )

A)height

B)weight

C)width

D)none

60 what is the smallest size measured by internal dial gauge in terms of diameter ( )

A)5-10mm

B)11-18mm

C)14-20mm

D)1-14mm

61 which of the following is a problem in using a dial gauge? ( )

A)oscillation in the pointer

B)economy

C)temp variation

D)none

62 which of the following is true for advantages of dial indicators ( )

A)adaptability and visibility

B)speed

C)use of different inspectors

D)all of the above

63 which of the following is an example for end standard method? ( )

A)slip gauges

B)sine bars

C)protractors

D)all of the above

64 which of the following is an example for line and end standard method? ( )

A)vernier callipers

B)sine bars

C)slip gauges

D)all of the above

65 lapping is used to get ( )

A)high degree of surface finish

B)wear resistant

C)corrosion resistant

D)high toughness

66 rupturing during machining results in ( )

A)roughness

B)low yield

C)waviness

D)none of the above

67 Up to which angle sine bars can measure the angle ( )

A)45 degrees

B)60 degrees

C)90 degrees

D)120 degrees

68 which of the following is not used in making sine bars? ( )

A)high carbon

B)aluminium

C)high chromium

D)all of the above

69 which of the following is incorrect regarding sine bars? ( )

A)sine bar itself is a complete measuring instrument

B)it is capable of self generation

C)some holes are drilled in the body

D)all of the above

70 what is sine centre? ( )

A)centre of sine bar

B)sine bar with hole in centre

C)sine bar with block holding centres

D)none

71 which of the following is not a type of direct measuring instrument? ( )

A)divider

B)micrometer

C)vernier calipers

D)all of the above

72 which among the following is an optical measurement? ( )

A)autocollimator

B)sine bar

C)vernier calipers

D)bevel protractor

73 which type of tolerance slip gauge has ( )

A)unilateral tolerance

B)bilateral tolerance

C)both a and b

D)none

74 which of the material is /are used in making an angle gauge block ( )

A)nickel

B)tungsten carbide

C)hardened tool steel

D)all of the above

75 which of the following components are inspected by tool makers microscope ( )

A)gauges

B)screw threads

C)dies and fixtures

D)all of the above

76 tool makers microscope is ( )

A)direct reading measurement

B)indirect reading measurement

C)both a and b

D)none

77 interference of two beam of lights occurs in ( )

A)tool makers microscope

B)interferometer

C)collimators

D)all of the above

78 interferometer deals with ( )

A)light waves

B)sound waves

C)both a and b

D)none

79 which of the following is a result of two coherent sources ( )

A)interference

B)diffraction

C)both a and b

D)none

80 which of the following has large bands ( )

A)interference

B)coherence

C)diffraction

D)none

81 the ability of an optical instrument to produce distinct and separate images is ( )

called

A)resolving power

B)relative interference

C)polarity

D)none

82 when two light waves interfere, the resultant wave is ( )

A)harmonic

B)diffraction

C)displacement

D)all of the above

83 one radian is ( )

A)57.28 degrees

B)50 degrees

C)30.76 degrees

D)none

84 number of pieces in a set of angle blocks are ( )

A)10

B)11

C)12

D)13

85 1 yard= ( )

A)3 feet

B)2 feet

C)4 feet

D)none

86 High carbon steel is used to manufacture ( )

A)slip gauges

B)collimators

C)microscope

D)none

87 1 feet= ( )

A)12 inches

B)10 inches

C)15 inches

D)none

88 which of the following is the final manufacturing method used during ( )

manufacturing of top and bottom surfaces of slip gauges

A)lapping

B)honing

C)turning

D)threading

89 which of the following is not a step for slip gauge ( )

A)0.001

B)0.5

C)0.01

D)0.2

90 dovetail slides are widely used in ( )

A)machine tool construction

B)instrumental deviations

C)metallurgical devices

D)none

91 autocollimator are used for measurement of ( )

A)straightness

B)flatness

C)both a and b

D)none

92 parallel error occurs in ( )

A)sine bar

B)autocollimator

C)gauges

D)none

93 principle of sine bar is based on ( )

A)law of trigonometry

B)law of momentum

C)both a and b

D)none

94 each angle gauge is marked with which type of groove ( )

A)V-type

B)L-type

C)both

D)none

95 precision balls and rollers are used in ( )

A)taper measurement

B)micrometer

C)screw gauge

D)all of the above

96 angle dekkor is a type of ( )

A)autocollimator

B)gauge

C)both a and b

D)none

97 optical square is how many sided prism ( )

A)5

B)3

C)2

D)7

98 plane surface inspection is done by using ( )

A)autocollimator

B)clinometer

C)micrometer

D)OPTICAL FLAT

99 Optical flats are made of ( )

A)Quartz

B)Glass

C)Sapphire

D)All of the above

100 Slip gauges are also called as ( )

A)Swedish gauges

B)Johanson gauges

C)Ruby gauges

D)Steel gauges

101 Which irregularities are caused by inaccuracies in machine tool itself ( )

A)First order

B)Second order

C)Third order

D)Fourth order

102 Which irregularities are caused due to vibrations of any kind ( )

A)First order

B)Second order

C)Third order

D)Fourth order

103 Which irregularities are caused by machining itself ( )

A)First order

B)Second order

C)Third order

D)Fourth order

104 Which irregularities are caused by arising from rupture of material during separation of chip ( )

A)First order

B)Second order

C)Third order

D)Fourth order

105 The surface irregularities of considerable wavelength of a periodic character are called ( )

A)Primary texture

B)Surface Roughness

C)Surface waviness

D)None of the above

106 Which is defined as a contour of any section of a surface ( )

Roughness

A)Texture

B)Flaw

C)Profile

D)linear

107 The length of the profile necessary for evaluation of the irregularities taken in to account is called ( )

A)Sampling

B)Lay

C)Texture

D)Profile

108 Which average is defined as average values of ordinates from the mean line, regardless of the arithmetic signs of the ordinates ( )

A)Centre line

B)Arithmetic

C)Both

D)None

109 Which value is defined as square root of arithmetic mean of the values of the squares of the ordinates of the surface measured from a mean line ( )

A)RMS

B)CLA

C)Ten point

D)Arithmetic

110 Lay in the surface finish is due to ( )

A)Irregularities in the surface roughness

B)Method of production

C)Machine or work deflection

D)Machine vibration

111 The ratio of pitch to height in surface roughness is ( )

A)Equal to50

B)Greater than 50

C)Less than 50

D)None

112 The ratio of pitch to height in surface waviness is ( )

A)Equal to50

B)Greater than 50

C)Less than 50

D)None

113 Johansson mickrocator is a type of ( )

A)mechanical comparator

B)Electrical optical comparator

C)optical comparator

D)None

114 Which type of comparator changes its magnification, when distance between cross strip hinge and knife edge is varied? ( )

A)Johansson mickrocator

B)Solex pneumatic comparator

C)Projector comparator

D)Sigma comparator

115 Overall magnification of optical comparators is given as ( )

A)(4 d / f) x (magnification of eye piece)

B)(2 f / d) x (magnification of eye piece)

C)(4 f / d) x (magnification of eye piece)

D)(2 d / f) x (magnification of eye piece)

116 Which principle is used to measure distance in electronic comparator? ( )

A)Frequency modulation

B)Radio oscillations

C)Both a. and b.

D)None of the above

117 The sensitivity of back pressure air gauge is given by the relation shown below, what does $\delta R / \delta p_2$ signify? ( )
$(\delta R / \delta t) = (\delta A_m / \delta t) \times (\delta R / \delta p_2) \times (\delta p_2 / \delta A_m)$

A)Pneumatic sensitivity

B)Sensitivity of pressure gauge

C)Overall magnification

D)Measuring head sensitivity

118 Internal diameter of any workpiece can be measured using ( )

A)Solex pneumatic comparator

B)Sigma comparator

C)Johansson mickrocator

D)All of the above

119 What is the phase difference, when the system is operated at excitation frequency ? ( )

A)Phase difference is greater than 90^o

B)Phase difference is less than 90^o

C)Phase difference is zero

D)Unpredictable

120 Which of the following is true for uses of comparators? ( )

A)Can't be used in mass production

B)Not suitable for inspection purposes

C)Can be used as working gauge

D)Slow rate of working

121 What is the principle of 'The Johansson Mikrokator'? ( )

A)Button spinning on a loop of string

B)Principle of interference

C)Optical magnification

D)Principle of transformer

122 What is the advantage of mechanical comparator over others? ( )

A)Less moving parts

B)No need of external supply

C)No error due to parallax

D)Large range of instrument

123 Which of the following is true for 'Cross strip' in sigma comparator? ( )

A)Has two moving members

B)Cross strip is hinged

C)Two members are at 45^o to each other

D)flexible strip is attached to any one of the member of cross strip

124 Which of the following is true for Eden-Rolt Millionth Comparator? ( )

A)Utilise both mechanical and optical magnifications

B)Only mechanical magnification

C)Only optical magnification

D)Only electrical magnification

125 What is the order of overall magnification in Eden-Rolt Millionth Comparator? ( )

A)50

B)400

C)20000

D)800

HoD,ME

Signature of the faculty

Malla Reddy Engineering College (Autonomous)

Department of Mechanical Engineering

III B.TECH II SEM (MR17) I MID EXAMINATION

Subject: MACHINE TOOLS QUESTION BANK 2019-20

Name of the faculty: Mr.D.S.Chandra Mouli

MODULE -1

Q.NO	QUESTIONS	BLOOM'S TAXONOMY LAVEL
1	Draw the Merchant's circle diagram and its assumptions. Derive the expression to show the velocity relationships on cutting tool and work piece?	Analyzing
	OR	
2	Differentiate between Orthogonal and Oblique cutting?	Analyzing
3	What are the basic requirements of machining? Discuss in brief?	Understanding
	OR	
4	Discuss various chip formation process during metal cutting with neat sketches?	Understanding
5	Define a types of Chip breakers and its uses?	Understanding
	OR	
6	Define Machinability and Tool life?	Understanding
7	Discuss about various materials used for cutting tools?	Understanding
	OR	
8	Explain about different temperature measuring methods of cutting tools?	Understanding

MODULE – 2

Q.NO	QUESTIONS	BLOOM'S TAXONOMY LAVEL
1	Discuss about back gear in and back gear out mechanisms?	Understanding
	OR	
2	Explain about thread cutting operation with neat sketch and half nut mechanism?	Understanding
3	Differentiate between single spindle and multi-spindle lathe machines?	Analyzing
	OR	
4	With the help of a neat sketch, explain the working principle of a Lathe machine?	Analyzing
5	State the working principle and specifications of a Lathe machine?	Understanding
	OR	
6	State the advantages of Automatic lathe machines?	Understanding
7	Enumerate the different operations that can be performed on a lathe machine? Sketch and explain any three operations?	Analyzing
	OR	
8	Differentiate between Capstan and Turret lathes with sketches?	Analyzing

MODULE – 3

Q.NO	QUESTIONS	BLOOM'S TAXONOMY LAVEL
1	Differentiate between Shaper, Slotter and Planar Machines with neat sketches	Analyzing
	OR	
2	Draw the block diagram of standard double housing planar, showing the main parts and briefly describe about it?	Analyzing
3	What are the various operations performed on Shaper machine? How do you adjust the length of stroke and ram position in shaper?	Understanding
	OR	
4	Explain the following terms	Understanding

	a. Ram b. clapper box c. whitworth quick return mechanism	

Signature of the faculty **HoD,ME**

Malla Reddy Engineering College (Autonomous)

Department of Mechanical Engineering

III B.TECH II SEM (MR17) I MID EXAMINATION

Subject: MACHINE TOOLS QUESTION BANK 2019-20

Name of the faculty: Mr.D.S.Chandra Mouli

OBJECTIVE QUESTIONS

01 The cutting edge is perpendicular to cutting tool during machining in
- A. Orthogonal cutting
- B. Plane cutting
- C. Oblique cutting
- D. Perspective cutting

02 _____ is a single point cutting tool
- A. Milling cutter
- B. Knurling cutter
- C. Drilling cutter
- D. Lathe cutter

03 Which of the following indicate better machinability?
- A. Small shear angle
- B. Higher cutting force
- C. Longer tool life
- D. Big nose radius

04 A built-up edge is formed while machining
- A. Ductile material at high speed
- B. Ductile material low speed
- C. Brittle material at high speed
- D. Brittle material at low speed

05 Continuous chips are formed in _____ type of metals
- A. Brittle metals
- B. Ductile metals
- C. Hard metals
- D. None of these

06 Taylor's equation is derived as _____
- A. $VT^n = C$
- B. $P_1V_1 = P_2V_2$
- C. $\log T = C$
- D. $KT^n = C$

07 The method of application of cutting fluids during machining are_____
- A. Jet method
- B. Diffusion method
- C. Wax method
- D. None

08 Tool failure usually occurs due to _____
- A. Flank wear
- B. Improper grinding of tool angles
- C. Cutting speed
- D. High hardness

09 Crater wear is predominant in
- A. Cast iron tools
- B. mild steel tools
- C. Tungsten carbide tools

D. None

10 The primary tool force used in calculating the tool power consumption is
A. Radial force
B. Tangential force
C. Axial force
D. Frictional force

11 A single point cutting tool consists of _____ angles
A. 4
B. 5
C. 6
D. 7

12 The shank of SPCT is used to____
A. Hold the tool in tool holder
B. Grind the work piece
C. Cut the work piece
D. None

13 The tool which produce discontinuous chips have _____ rake angle
A. High
B. Low
C. Very large
D. medium

14 The tool which produce continuous chips have _____ rake angle
A. Large
B. small
C. medium
D. Zero

15 Direction of chip flow velocity is _____ to cutting edge
A. Normal
B. Inclined
C. perpendicular
D. None

16 The ratio between frictional force andnormal force to friction is called
A. Thrust force
B. Frictional force
C. Cutting force
D. Coefficient of friction

17 The component of resultant force in the direction parallel to cutting velocity is called_____
A. Shear force
B. Cutting force
C. Thrust force
D. Frictional force

18 The device used to measure the temperature of a cutting tools are known as_____
A. Barometer
B. Thermometer
C. Bomb calorimeter
D. Thermocouple

19 The cutting fluid should have _____
A. Low flash point
B. High flash point
C. Zero flash point
D. Negative flash point

20 The function of a cutting fluid is to
A. Reduce the friction at tool-chip interface

B. Be low cost and readily available
C. Non toxic
D. All the above

21 In Water-based cutting fluids the % of water is__
A. More
B. Less
C. Equal
D. Zero

22 Machinability can be evaluated by
A. Tool life
B. Forces and power
C. Surface finish
D. All the above

23 ___is the result of increased heat at chip-tool interface and poor surface finish on work piece
A. Built-up-edge
B. Continuous chips
C. Discontinuous chips
D. Ribbon like chips

24 The Merchant's circle theory is based on _____ theory
A. Orthogonal
B. Isometric
C. Oblique
D. Perspective

25 Direction of chip flow velocity is _____ to cutting edge
A. Normal
B. Inclined
C. perpendicular
D. none

26 The angle of Shear plane is called_____
A. Thrust angle
B. Shear angle
C. Tangential angle
D. Compression angle

27 The portion of tool which faces the work is called_____
A. shank
B. Point
C. Face
D. Flank

28 _____ forms the main body of a solid tool
A. shank
B. Point
C. Face
D. Flank

29 The curved portion at the bottom of the tool where base and flank meet is called
A. Flank
B. Point
C. Heel
D. Face

30 The symbol for orthogonal rake angle is
A. gamma
B. beta
C. alpha

D. pie

31 The formation of chips in metal cutting are of
A. 2 types
B. 3 types
C. 4 types
D. 5 types

32 The extra metal welded to the nose of the tool is called_____
A. Scrap
B. Crater
C. Built-up edge
D. Flank

33 The chip flow velocity is abbreviated as
A. Vc
B. Vf
C. Vs
D. Vt

34 The total work done in metal cutting is defined as
A. W= Ws +Wf
B. W= Wa + Wh
C. W = Ws + Wh
D. W= Wh +Wa

35 The flank wear is also called as _____
A. Crater wear
B. Wear land
C. Tool wear
D. None

36 The chip flow angle in orthogonal cutting is
A. 0
B. 90
C. 180
D. 360

37 Larger the shear angle denotes
A. Poor machinability
B. Better machinability
C. High machinability
D. Low machinability

38 Continuous chips are formed in _____ type of metals
A. Brittle metals
B. Ductile metals
C. Hard metals
D. None of these

39 The shank of SPCT is used to____
A. Hold the tool in tool holder
B. Grind the work piece
C. Cut the work piece
D. None

40 The primary tool force used in calculating the tool power consumption is
A. Radial force
B. Tangential force
C. Axial force
D. Frictional force

41 Cutting edge clears the width of the work piece in
A. Oblique cutting

B. Orthogonal cutting
C. Perspective cutting
D. Isometric cutting

42 Crater wear occurs at _____ interface
A. Tool and work piece
B. Chip and tool
C. Chip and work piece
D. none

43 Flank wear occurs at _____ interface
A. Tool and work piece
B. Chip and tool
C. Chip and work piece
D. none

44 The tool failure occurs mainly due to
A. Good lubrication
B. Optimum speeds
C. Fracture of tool by heavy load
D. Chip formation

45 Increase in the rake angle reduces the _____ force
A. Cutting
B. Frictional
C. Thrust force
D. Machining force

46 The function of cutting fluid is to
A. Coo the tool and work piece
B. Improve the surface finish
C. Prevent formation of BUE
D. All the above

47 The chip thickness ratio is defined as
A. R= t/tc
B. R=tc/t
C. R= t/bc
D. R= bc/t

48 The various indentation provided on knurl too is
A. Diamond profile
B. Circular profile
C. Square profile
D. All the above

49 In machining, the primary shear zone occurs at
A. Work piece and chip
B. Chip and tool
C. Tool and work piece
D. Tool only

50 In machining, the secondary shear zone occurs at
A. Work piece and chip
B. Chip and tool
C. Tool and work piece
D. Tool only

51 Tailstock set-over method of taper turning is preferred for
A. Internal tapers
B. Small tapers
C. Long slender tapers
D. Steep tapers

52 A lead screw with half nuts in a lathe, free to rotate in both directions has

A. V-threads
B. Whit worth threads
C. Buttress threads
D. ACME threads

53 Chasing dial is provided in most of the lathes for ____ cutting
A. Taper
B. Thread
C. Knurling
D. Grooving

54 The operation of enlarging a hole is called____
A. Boring
B. Turning
C. drilling
D. Slotting

55 For holding irregular work piece on lathe _____ chuck is used
A. 3-jaw chuck
B. 4-jaw chuck
C. 2-jaw chuck
D. spindle

56 Turret in Capstan lathe is a_____ holding tool
A. Work
B. Tool
C. Carrier
D. machine

57 Swiss type automatic screw machine is provided with _____ head stock
A. Sliding
B. Inclined
C. perpendicular
D. automatic

58 Tool travel in capstan lathe is limited by_____
A. Length of bed
B. Length of feed rod
C. Length of lead screw
D. Length of auxiliary slide

59 Snip nut is engaged with lead screw for automatic feed motion while doing_____
A. Knurling operation
B. Drilling operation
C. Thread cutting operation
D. Tapering operation

60 Steady rests are used to _____ while turning on lathe
A. Long and slender diameter work pieces
B. Short and thick diameter work pieces
C. Narrow work pieces
D. Tapered work pieces

61 The accessory fitted to the engine lathe is
A. Tail stock
B. chucks
C. Carriage
D. Tool post

62 Mandrels are used to _____
A. Support and hold tools
B. Support and hold hollow cylindrical jobs
C. Support and hold solid cylindrical jobs
D. Fix the chucks

63 The 4-way tool post is mounted on_____
A. carriage
B. Cross slide
C. Compound slide
D. Lathe bed

64 The work holding devices on lathe are___
A. Mandrels
B. Rests
C. Chucks
D. All the above

65 Which of the following is not a work holding device
A. 3-jaw chuck
B. Collet chuck
C. 4-way tool post
D. Follower rest

66 The tail stock is placed on _____ side of the Lathe machine
A. Right side
B. Left side
C. Centre
D. Bottom

67 A knurl tool of a Lathe machine is called___
A. MPCT
B. SPCT
C. Grinding tool
D. None

68 Drilling operation is done on _____ of the lathe machine
A. carriage
B. Head stock
C. Tailstock spindle
D. toolpost

69 _____ is the method of performing taper turning operation
A. Jet impact method
B. Gear mechanism
C. Reaming
D. Compound rest method

70 _____ materials are used for making SPCT
A. High carbon steels
B. High speed steels
C. Cast alloys
D. All the above

71 During knurling operation, the speed of the spindle is
A. High compared to turning
B. Low compared to turning
C. Very high
D. Reverse to turning

72 The work holding devices of capstan or turret lathes are
A. Collets
B. Chucks
C. Fixtures
D. All the above

73 The Automatic lathes are generally used in
A. Batch production
B. Job shop production
C. Mass production

D. None

74 The indexing of the turret in a single-spindle automatic lathe is done by using
A. Geneva Mechanism
B. Rachet and pawl mechanisms
C. Rock and pinion mechanism
D. Whit worth mechanism

75 The machining time of a machine tool is
A. T=L/fN
B. T= M/fN
C. T= D/fN
D. T= VT

76 The compound rest is mounted on the top of the cross-slide and can rotate
A. 90 degree
B. 180 degree
C. 270 degree
D. 360 degree

77 The half nut mechanism is used in lathe for
A. Turning operation
B. Threading operation
C. Knurling mechanism
D. Tapering mechanism

78 The cross slide of lathe machine is located on
A. Tool post
B. Tail stock
C. Carriage
D. Compound rest

79 The tailstock is also termed as
A. Live centre
B. Dead centre
C. Clutch plate
D. Apron

80 Height of the centres above the lathe bed is prescribed as
A. Specification of lathe
B. Accessories of lathe
C. Attachment of lathe
D. Functions of lathe

81 Automatic lathes are provided with _____ controls for machining
A. Manual
B. Automatic
C. Semi-automatic
D. Gear

82 The swing diameter over the gap of the bed is
A. Accessories of lathe
B. Attachment of lathe
C. Specification of lathe
D. Functions of lathe

83 The feed rod is employed in operating the carriage in _____
A. knurling
B. Automatic turning
C. Gear cutting
D. Tapering

84 The chuck is attached to the lathe spindle with the help of _____
A. Clutch plate
B. Dog plate

C. Back plate
D. Rests

85 Collet chuck provides a _____ means of holding the bar stock
A. Slow
B. Quick
C. Fixed
D. ordinary

86 The 4-way tool post is also known as _____
A. Rectangular tool post
B. Square tool post
C. Single tool post
D. none

87 Tool moves at inclination to the axis of work in _____
A. Longitudinal feed
B. Cross feed
C. Angular feed
D. Perpendicular feed

88 Tool moves parallel to the axis of work is known as_____
A. Longitudinal feed
B. Cross feed
C. Angular feed
D. Perpendicular feed

89 Tool moves normal to the axis of work is known as_____
A. Longitudinal feed
B. Perpendicular feed
C. Angular feed
D. Cross feed

90 When the tool face is ground to slope from the nose towards the rear end is called____
A. Negative rake
B. Positive rake
C. Zero rake
D. Neutral rake

91 If the slope is provided in direction opposite to that of positive rake is called____
A. Negative rake
B. Positive rake
C. Zero rake
D. Neutral rake

92 When no slope is provided and the tool face lies in same plane is called____
A. Negative rake
B. Positive rake
C. Zero rake
D. Neutral rake

93 The geometrical head of Turret lathe is
A. Pentagonal
B. Hexagonal
C. Rectangular
D. Square

94 The tailstock device can be replaced by_____
A. Turret head
B. Carriage
C. Head stock
D. Chuck

95 The feed rod is placed _____ the lead screw of lathe machine

A. diagonal
B. Below
C. Above
D. near

96 The gear box of a lathe machine is located in_____
A. Head stock
B. Tailstock
C. Carriage
D. Bed

97 The profile cut of guide ways on lathe bed are designed in _____ position
A. Straight
B. Tapered
C. Circular
D. square

98 Making the existing circular hole to the accurate size is called
A. Boring
B. drilling
C. reaming
D. internal turning

99 The Indentation formed on the work piece during knurling is for _____
A. Cutting
B. Packing
C. Turning
D. Gripping

100 The device placed between turret and saddle of capstan lathe is called
A. Auxiliary slide
B. Shaft
C. carriage
D. Cross slide

101 The size of Shaper is specified by_____
A. Maximum length of the stroke
B. Minimum length of stroke
C. Cutting tool
D. Floor space

102 In shaper the cutting action is
A. Continuous
B. Discontinuous
C. Intermittent
D. All the above

103 Compared to forward stroke, return stroke in shaper is
A. Slower
B. Faster
C. Medium
D. continuous

104 As compared to shaper_____ size work can be mounted on the planer
A. Large
B. Small
C. Cylindrical
D. Hollow objects

105 Feed in shaping is expressed in
A. Mm/stroke
B. Mm/rev
C. Mm/teeth
D. All the above

106 In shaper, the metal is removed in
A. Forward stroke
B. Return stroke
C. Both strokes
D. None

107 The type of quick return mechanism employed mostly in shaping machine is
A. D.C reversible motor
B. Fast and loose pulleys
C. Whitworth motion
D. Slotted link mechanism

108 The push and draw type machines are used in _____
A. planar
B. Shaper
C. Slotter
D. Drilling

109 The tool post is fixed to _____ of shaper machine
A. Clapper box
B. Ram
C. column
D. Table

110 The most common material used for shaper tools are made of
A. Ceramics
B. Aluminum
C. High speed steel
D. Cast Iron

111 The various types of planar machines are_____
A. Double housing planar
B. Pit type planer
C. Divided table planer
D. All the above

112 Puncher slotter machine is used for machining _____
A. Large castings and forgings
B. Light cutting
C. Making holes
D. Knurling operations

113 The precision slotter is used for machining_____
A. Heavy operations
B. Light cuts giving accurate finish
C. holes
D. Taper turning

114 In slotter machine, the ram reciprocates in____
A. Horizontal motion
B. Vertical
C. Horizontal and vertical
D. none

115 Machining blind holes are used in _____ machine
A. Planer
B. Shaper
C. Slotter
D. Lathe

116 Shaping operations are limited to _____ and _____ size work pieces
A. Large and heavy
B. Heavy and complex sizes
C. Hole and step

D. Small and medium

117 In Universal shaping machine, the table can be swiveled around _____ degree
A. 90
B. 180
C. 270
D. 360

118 In double housing planer, the number of tool heads are_____
A. 2
B. 3
C. 4
D. 5

119 Planer operations are used to hold _____ and _____ size work pieces
A. Large and heavy
B. Heavy and complex sizes
C. Hole and step
D. Small and medium

120 In Pit type planer, the table is kept_____ and the tool_____
A. Stationary , reciprocates
B. Reciprocates, Stationary
C. Idle, rotates
D. Rotated, idle

121 In slotter machine, the chuck device is placed over_____ the table
A. S-slot
B. T-slot
C. C-slot
D. M-slot

122 The floor space of planer machine is _____ than shaper machine
A. Smaller
B. Bigger
C. moderate
D. same

123 The T-slots on any table of machine tools are made by
A. Lathe machine
B. Drilling machine
C. Grinding machine
D. Slotter machine

124 In Planer machine, the table is _____ against tool post
A. Inlcined
B. Vertical
C. Reciprocated
D. circular

125 The bull gear is located in _____ machine
A. Shaper
B. Lathe
C. Grinding
D. milling

Signature of the faculty **HoD,ME**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

B.Tech III– IISem (MR 17)
I Mid Examination Subjective Question Bank

Subject:Professional Ethics **Branch: MECH**
Name of the faculty:Mrs.P. Shanthi Priya

Q. No.:	Questions	Bloom's Taxonomy Level	CO
	Module I		
1.	What is meant by professional responsibility and discuss theories about virtue?	Remembering	1
	OR		
2.	What are the basic ethical principles?	Remembering	1
	OR		
3.	Explain with example the various ethical theory available for "right of action"?	Understand	1
	OR		
4.	Explain the need of Consensus and Controversy?	Understand	1
5.	Give the various tests required to evaluate the Ethical Theories?	Understand	1
	OR		
6.	Write a short note on professional ethics.	Understand	1
	OR		
7.	Distinguish values from ethics and culture.	Understand	1
	OR		
8.	Explain with examples the issues linked up with values and ethics in various professions.	Understand	1
	Module II		
1.	What do you understand by term moral dilemma? Differentiate with moral autonomy?	Remembering	2
	OR		
2.	Enumerate the code of ethics of engineer?	Understand	2

3.	What are the function and limitation of code of ethics?	Remembering	2
OR			
4.	Enumerate on oral issue and type of inquiry?	Remembering	2
5.	Discuss the role and importance of ethics in engineering?	Remembering	2
OR			
6.	What are the steps in confronting Moral Dilemmas?	Understand	2
7.	What are the Senses of Engineering Ethics?	Understand	2
OR			
8.	Give the importance of Lawrence Kohlberg‟s and Carol Gilligan‟s theory?	Understand	2
Module III			
1.	What are the central elements of collegiality?	Remembering	3
OR			
2.	What is the relationship between the loyalty to the company and Professional responsibility to the public?	Remembering	3
OR			
3.	Why does a conflict of interest arise?	Understand	3
OR			
4.	Write about ethical egoism.	Understand	3

Signature of the Faculty **Signature of the HoD**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

B.Tech– II Sem (MR 17-2019-20 Admitted Students)
I Mid Examination Subjective Question Bank

Subject: Professional Ethics
Branch: MECH
Name of the faculty:Mrs.P. Shanthi Priya

OBJECTIVES

Module 1

1. Which of the following is defined as the duty, obligation or even authority [ ]
   a) a)Work
   b) Responsibility
   c) Democracy
   d) authority
2. A group of people working together to get a surplus is [ ]
   a) organization
   b) routline
   c) .system
   d) military
3. It is a multipurpose organ that manages a business and manages managers and manages work and the workers. This was stated by . [ ]
   a) hellrigel
   b) peter drucker
   c) harold koontz
   d) FW taylor
4. Any business that has productive activities in two or more countries is called a [ ]
   a) Multinational enterprise.
   b) Multiglobal enterprise.
   c) Multilocational enterprise.
   d) Multilevel firm.
5. Which of the following actions will likely lead to organizational ethical behavior? [ ]
   a) promoting moral courage
   b) developing strong governance processes
   c) establishing an ethics office
   d) all
6. The quest to maximize profitability should be constrained by: [ ]
   a) Ethical obligations.
   b) Unethical obligations.
   c) Stakeholders.
   d) Lack of social responsibility.

7. _____ Behavior tends to arise when mangers decide to put the attainment of their own personal goals, or the goals of the organization, above the fundamental rights of one or more [ ]
   Stakeholder groups.
   a) Complementary
   b) Situational
   c) Unethical

d) Confusing

8. Accepted principles of right or wrong governing the conduct of businesspeople are called: [ ]
   Choose one answer.
   a) Business values.
   b) Business conduct.
   c) Business ethics.
   d) Business principles.
9. Planning is a primary function of :
   a) Front-line staff.
   b) The accounting department.
   c) Management.
   d) The marketing department.

10. In the case of a business enterprise, the major goals at the top of the organizational hierarchy are [ ]
    a) Revenue.
    b) Asset turnover.
    c) Expenses saved.
    d) Profitability.

11. A written statement of policies and principles that guides the behavior of all employees is called [ ]
    a)code of ethics
    b) word of ethics
    c)ethical dilemma
    d) none

12. An empirical inquiry into the actual rules or standards of a particular group is [ ]
    a)normative justice
    b) descriptive justice
    c)interpersonal justice
    d) none
13. _____is defined as the right of a person to guide [ ]
    a) Democracy
    b) Responsibility
    c) Freedom
    d) autonomy
14. The language to communicate should be [ ]
    Properly defined
    a) Clear
    b) Precise
    c) Both b and c
    d) None
15. Violating the rules of organization is [ ]
    a) Unethical behavior
    b) Ethical behavior
    c) Friendly
    d) None of the above
16. An engineer whether he works for the company or individual should posses [ ]
    a) Goals

b) Willingness
c) Ethics
d) Interests

17. Engineering ethics is the study of [ ]
    a) Decisions, ethics and values
    b) Morals , responsibilities , duty
    c) Both a and b
    d) none
18. Engineering is the process of developing [ ]
    a) Efficient people
    b) Efficient mechanism
    c) Resources
    d) Technology
19. Before concluding the argument has to be [ ]
    a) Assessed
    b) Comprehended
    c) Both a and b
    d) None of the above
20. Tolerance to diversity means [ ]
    a) Genuine concern
    b) Broadly seeing issue
    c) Narrow issue
    d) Facts based
21. A nursing instructors teaching nursing students about principles of ethics in health care, and she tells them that the utmost important principle to observe while taking care of patient is doing no harm. [ ]

    The principle of Ethics she described here:

    a) Beneficence
    b) Justice
    c) Non maleeficience
    d) Respect for autonomy
22. According to most Provincial and Territorial Acts, which activity by a professional member would be considered UNETHICAL? [ ]
    a) Not charging a fee for presenting a speech
    b) Signing plans prepared by an unknown person without thoroughly reviewing those plans
    c) Reviewing the work of another member with that member's consent
    d) Providing professional services as a consultant
23. Which of the following is an example of a fraudulent, contractual misrepresentation? [ ]
    a) A party is coerced into signing a contract by means of intimidation
    b) A party knowingly makes false statements to induce another party into a contract
    c) A party induces his son-in-law to sign an unfair contract
    d) A party unknowingly provides false information about a portion of a contract
24. Contractual disputes of a technical nature may be most expeditiously and effectively solved [ ]

through:

a) Lawsuit
b) Court appeals
c) Contract renegotiations
d) Arbitration

25. Which of the following is the most common job activity of top-level managers? [ ]
    a) Writing and reading corporate financial reports
    b) Developing and testing new products
    c) Designing and implementing production systems
    d) Directing and interacting with people
26. To effectively reduce liability exposure, the professional engineer or geoscientist should: [ ]
    a) Pursue continuing educational opportunities
    b) Work under the supervision of a senior engineer or geoscientist
    c) Maintain professional standards in practice
    d) Provide clients with frequent progress reports
27. The professional's standard of care and skill establishes the point at which a professional: [ ]
    a) May or may not charge a fee for services
    b) Has the duty to apply "reasonable care"
    c) May be judged negligent in the performance of services
    d) Has met the minimum requirements for registration
28. Which type of original work below is automatically protected by copyright upon creation? [ ]
    a) Paintings
    b) Inventions
    c) Clothing designs
    d) Signatures
29. The observable symbols and signs of an organization's culture [ ]
    a) Its cultural design
    b) Art craft
    c) Its cultural formatting
    d) None
30. The values and assumptions shared within an organization is called organizational [ ]
    a) Values
    b) DNA
    c) Life style
    d) Culture

Module-2

2. The ability and willingness to be morally reasonable that one should have is known as [ ]
    a) Moral reasonable ness
    b) Respect
    c) Moral coherence
    d) Tolerance
3. Tolerance to diversity means [ ]
    a) Genuine concern
    b) Broadly seeing issue

c) Narrow issue
d) Facts based

4. Moral conflicts can be resolved by [ ]
a) Better communication
b) Proper understanding of issues
c) Honesty
d) Interest

5. Being honest and having strong moral principles means [ ]
a) Integrity
b) Moral hope
c) Moral awareness
d) coherence

6. Micro ethics means [ ]
a) Small issues
b) Daily issues
c) Engineering issues
d) Both a & b

7. Macro means [ ]
a) Known issues
b) Unknowns issues
c) National issues
d) State issues

8. Inquiry means [ ]
a) Procedure
b) Investigation
c) Process
d) Understanding

9. Normative inquiry refers to [ ]
a) What one ought to do
b) Public issue
c) Information gathering
d) Guidelines

10. Conceptual inquiry means [ ]
a) Description and meaning of concepts
b) Allocating facts
c) Decision making
d) Precaution inquiry

11. Descriptive inquiry means [ ]
a) Finding solutions
b) Facts based
c) Solution based
d) Theory based

12. The moral reasons can be [ ]
a) Rights , duties, values

b) Good bad and obligations
c) Moral dilemmas
d) Value based

13. Vagueness refers to [ ]
a) Action refers to bad
b) Action refers to good or bad
c) Action refers to wrong
d) None of the above

14. The making the better choice from the ones you had will lead to _____ conflict [ ]
a) Internal
b) Ethical conflict
c) External.
d) None of the above

15. When there are two nor more solutions and none of them is mandatory then it is called [ ]
a) Conflicting reason
b) Vagueness
c) Disagreement
d) Solution

16. Understanding the issue thoroughly can lead to lessen [ ]
a) Moral dilemma
b) Moral issues
c) Moral facts
d) All the above

17. The duties and the responsibilities of the persons involved should be [ ]
a) Clearly known
b) Precise
c) Definite
d) Unknown

18. The moral factors related to the issues are to be [ ]
a) Understood
b) Facts bases
c) Clear
d) None of the above

19. Moral autonomy is [ ]
a) Self obligation
b) Self governing
c) Self appreciation
d) Influence

20. Ability to relate the problems with the problem flow economics is called [ ]
a) Religious principle
b) Ethical principle
c) Moral autonomy principle
d) Facts based principle

21. ---------- proposed Kohlberg theory [ ]
a) Lawrence Kohlberg
b) F.W Taylor
c) John wick
d) Henry fowl

22. To make sure that an organization is working efficiently and in a manner consistent with [ ]

Its intended strategy manager's use:

a) Controls
b) Coercion
c) Financial statements
d) Substandard

23. What was the name of the first personate describe bureaucratic controls [ ]

a) Max Weber
b) Peter drucker
c) Jack Welch
d) Adam smith

24. Cost advantages derived from a large scale volume are called as economies of [ ]

a) Location
b) Scale
c) Scope
d) Density

25. A unique strength that rivals a lack is called [ ]

a) Distinctive competency
b) Scope advantage
c) Horizontal advantage
d) Legacy constraint

26. Plans that addresses a unique events that do not reoccur Is called: [ ]

a) Standing plans
b) Single use plans
c) Operating plan
d) Strategic plan

27. Planning includes which of the following step

a) Identifying actions
b) Choosing goals
c) Reviewing performance
d) All the above

28. The normative sense includes: [ ]

a) Knowing of moral values
b) Identifying solutions for problems
c) Study of values
d) All the above

29. Employer acting with double behavior towards the employees and public comes under: [ ]

a) Opportunity
b) Resource crunch
c) Attitude
d) none

30. ethical egoism come under: [ ]

a) normative ethical position
b) descriptive ethic
c) virtue ethics
d) all the above

Module -3

1. Moral conflicts can be resolved by [ ]

a) Better communication
b) Proper understanding
c) Honesty
d) Interest

2. Being honest and having strong moral principles means [ ]
   a) Integrity
   b) Moral hope
   c) Moral awareness
   d) Coherence
3. Micro ethics means [ ]
   a) small issues
   b) daily issues
   c) both a & b
   d) engineering issues
4. Cared based morality is based on [ ]
   a) Men
   b) Women
   c) Both a and b
   d) None of the above
5. Pre conventional level is generally found at [ ]
   a) Organizations
   b) Moral development
   c) Elementary school level
   d) None of the above
6. The judgments are to be judged based on [ ]
   a) Socially accepted norms
   b) Which are not true
   c) Value based
   d) None of the above
7. Conventional level is knows [ ]
   a) Elementary level
   b) Primary and high school
   c) Pre primary
   d) Unknown
8. Post-conventional is found out at [ ]
   a) School level
   b) College level
   c) After school level
   d) College level
9. Gilligan theory is based on [ ]
   a) Female thinking
   b) Society thinking
   c) Male thinking
   d) Both a and b
10. In the women point of view moral development involves [ ]
    a) Decision making
    b) Caring
    c) Disrespecting
    d) Accepting
    e)

11. Reviewing the standard procedure of the company means
[ ]
a) Seeing what organization is doing
b) Allocating work
c) Ethical confrontation
d) Understanding the policies and procedures of the company

12. After evaluating options one should look for
[ ]
a) The worst option
b) The accurate one
c) The best ones
d) The least ones

13. The best option should address the ethical issue in a ---------
[ ]
a) Critical manner
b) Productive manner
c) Profit manner
d) Both a and b

14. Objectively reviewing the report means
[ ]
a) Formally written document
b) Verbal note
c) Document based
d) None of the above

15. Do not involve -------- and -------- with the parties involved affect judgments
[ ]
a) Factual and personal
b) Personal
c) Personal and professional
d) Both a and b

16. -------the circumstances again and again to find out the facts is a part of
[ ]
a) Reviewing
b) Concepting the issue
c) Finding the issue
d) Creating the issue

17. Brainstorm means
[ ]
a) Ethical thinking
b) Fun thinking
c) Critical thinking
d) Optimum thinking

18. Ask for external support is asking for
[ ]
a) Spoiling the case
b) Not solving the case
c) Helping
d) Both a and b

19. A person who is loyal is called a
[ ]
a) Loyal person
b) Honest person
c) Bureaucratic person
d) Awful person

20. Gathering as much as information about the issues is a part of
a) Resolving issue
b) Arising issues
c) Discussions
d) Values

e) MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

f)

g) B.Tech– III Sem II Sem (MR 17)

h) MID-I Subjective Question Bank

i)

j) Subject: Power Plant Engineering **Name of the faculty:** Mr.N.Srinivasa Rajneesh

k)

Q.No.	Question	Bloom's Taxonomy Level	CO
	Module-I		
1.	Explain different working circuits or lines of a thermal power plant.	Understanding	1
	OR		
2.	Explain Underfeed and Overfeed Stoker working with diagram.	Understanding	1
3.	. What various methods of ash handling .Describe the pneumatic system of ash handling	Remembering	1
	OR		
4.	. Explain Pulverized Fuel Firing System in detail.	Understanding	1
5.	Explain the working of Cooling Tower with Diagram	Understanding	1
	OR		
6.	Explain the construction and working of Electrostatic precipitator.	Understanding	1
7.	What is the advantage of burning coal in pulverized form?	Remembering	1
	OR		

8.	. List the advantages and disadvantages of stoker firing	Remembering	1
	Module II		
1.	Draw the layout of Diesel engine power plant showing clearly all the essential circuits.	**Analyzing**	2
	OR		
2.	List the advantages and disadvantages of diesel engine power plant.	Remembering	2
3.	Explain Cooling system of a Diesel Power Plant.	Understanding	2
	OR		
4.	Explain the principle of Closed and Open Gas Turbines Cycles.	Understanding	2
5.	. . State merit and demerit of gas turbine power plant over diesel and thermal power plant.	Understanding	2
	OR		
6.	. Explain the working of supercharging	Understanding	2
7.	Distinguish merits and demerits of gas turbine plants over diesel and thermal power plant**?**	**Analyzing**	2
	OR		
8.	Explain three important refinements by which the efficiency of a simple gas turbine plant can be improve considerably?	Understanding	2
	Module III		
1.	Explain Hydrology and Hydrological cycle.	Understanding	3
	OR		

2.	Explain the construction and working of a Hydro Power Plant.	Understanding	3
3.	What are the factors should be consider while selecting the site for Hydroelectric power plant	Remembering	3
	OR		
4.	Describe briefly the working of a pumped storage plant. When can such type of plants be installed?	Understanding	3

MALLA REDDY ENGINEERING COLLEGE(Autonomous)
III Year, II SEM (MR17)QUESTION BANK for MID-I Examination
OBJECTIVE QUESTIONS

Subject: Power Plant Engineering **Name of the faculty:** Mr.N.Srinivasa Rajneesh

Module I

1 Modern steam plants works on which of the following cycles?
   a) Carnot cycle
   b) Rankine cycle
   c) Otto cycle
   d) Bell- Coleman cycle

2 What would be the most important factor under consideration for the site selection of a thermal plant?

   a) Availability of fuel.
   b) Availability of water.
   c) Distance from the populated area.
   d) Cost and the type of land

3 The major use of the Economizer is _____
   a) Heat up the incoming water with exhaust steam..
   b) Heat up the incoming air by exhaust gases.
   c) Heat up the incoming water by exhaust gases.
   d) Heat up the pulverized fuel by exhaust

4 The flue gases are released to the atmosphere through _____.
   a) Air- Preheater
   b) Forced draught
   c) Induced draught
   d) Electrostatic precipitator

5 The feed water entering into a Economizer in a thermal plant gets heated up by_____.
   a) H.P cycle
   b) Flue gases
   c) L.P cycle
   d) Direct heat from the furnace

6 In a superheater _____.
   a) Pressure rises and temperature drops.
   b) Temperature rises and pressure drops..
   c) Temperature rises and pressure remains unchanged.
   d) Pressure rises and temperature remains the same

7 The boiler commonly used in a thermal plant are_____.
   a) Water tube type
   b) Fire tube
   c) Both (a) & (b)
   d) None of these

8 What is the main advantage of the usage of high pressure boilers in a thermal plant?
   a) Lower price
   b) Increase in efficiency
   c) Low grade fuel can be burnt.
   d) Both (b) and (c)

9 Heat balance in a boiler furnace is improved by sending air to the furnace
   a) At low temperature.

b) At high temperature.
c) Mixed with CO2.
d) Both (b) & (c).

10 Coal is carried from storage to the boiler by means of?
a) Trolleys)
b) V – belts
c) Buckets
d) both (b) and (c)

11 The reheat factor in a steam turbine depends on
a) Stage efficiency.
b) initial pressure and temperature.
c) Exit pressure.
d) All of the above.

12 Air- preheater in a steam power plant_____.
a) Recovers the heat from the flue gases leaving the economizer.
b) Improves combustion rate.
c) Raises the temperature of the furnace gases.
d) All of these

13 The definition of the draught system is
a) A device used to pull in air.
b) The difference between absolute gas pressure at any point in a gas flow and the ambient atmospheric pressure.
c) The sum of the absolute gas pressure at any point in a gas flow and the ambient atmospheric pressure.
d) A device used to pull out air

14 The draught produced by the chimney is_____.
a) Forced draught
b) Natural draught
c) Induced draught
d) Balanced draught

15 A condenser condenses the steam coming out from_____.
a) Boiler
b) Turbine
c) Economizer
d) Super heater

16 Water used in the steam plant is used for cooling in_____.
a) Condenser
b) Turbine only
c) Boiler tube
d) Boiler tubes and turbines

17 Spray ponds are used to cool the warm water coming from the condenser in _____
a) Large power plants
b) Small power plants
c) Medium power plants
d) Both medium and large power plants

18 The best coal suitable for the production of energy is_____.
a) Lignite
b) Bituminous
c) Anthracite
d) Peat

19 The coal with highest ash content is?
a) Steam coal
b) Coking coal
c) Bituminous coal

d) Lignite

20 Which of the following is a good medium for constant temperature heating?

a) Water
b) Steam
c) Coolant
d) Diesel

21 Ratio of primary air to secondary air increases with increase in the rank of coal, because the

a) Oxygen content progressively decreases
b) High rank coals have higher amount of volatile matter
c) Ratio of fixed carbon to volatile matter increases
d) Calorific value of the coal increases

22 For the induced draught fan is located

a) Near the bottom of chimney
b) Near the bottom of furnace
c) At the top of chimney
d) Anywhere permissible

23 Live storage of coal in a power plant means

a) coal ready for combustion
b) preheated coal
c) storage of coal sufficient to meet 24 hour demand of the plant
d) coal in transit

24 When pulverized fuel is not used, the equipment used for supplying coal to the boiler is

a) Heater
b) Stoker
c) Burner
d) Skip hoist

25 The boilers using lignite as fuel do not use

a) under feed stoker
b) traveling grate stoker
c) spreader stoker
d) all of the above

26 Which of these is not auxiliary equipment in a power plant?

a) Fans
b) Crushers
c) Galvanizers
d) Conveyors

27 The equipment installed in power plants to reduce air pollution due to smoke is

a) Induced draft fans
b) De-super heaters
c) Electrostatic precipitators
d) Re-heaters

28 Power plants using coal work closely on known which of the following cycle ?

a) Otto cycle
b) Binary vapor cycle
c) Brayton cycle
d) Rankine cycle

29 The efficiency of a thermal power plant improves with

a) increased quantity of coal burnt
b) larger quantity of water used
c) lower load in the plant
d) use of high steam pressures

30 Which of the following contributes to the improvement of efficiency of Rankine cycle in a thermal power plant ?

a) Reheating of steam at intermediate stage
b) Regeneration use of steam for heating boiler feed wate
c) Use of high pressures
d) All of the above

31 In a steam turbine cycle, the lowest pressure occurs in

a) turbine inlet
b) boiler
c) Condenser
d) super heater

32 The draught produced by a steam jet issuing from a nozzle placed in the chimney, is called.....

a) Induced steam jet draught
b) Forced steam jet draught
c) Chimney draught
d) None of the above

33 The air pressure at the fuel bed is reduced below that of atmosphere by means of a fan placed at or near the bottom of the chimney to produce a draught. Such a draught is called .....

a) Natural draught
b) Induced draught
c) Forced draught
d) Balanced draught

34 "Overfire burning" in a furnace is a phenomenon characterized by the burning of carbon monoxide and other incombustibles in upper zone of furnace by

a) supplying more air
b) supply of excess fuel
c) supply of excess air
d) none of the mentioned

35 Combustion of pulverized coal as compared to that of lump coal

a) develops a non-luminous flame
b) can be done with less excess air
c) develops a low temperature flame
d) provides a lower rate of heat release

36 In a thermal power plant cooling towers are used to

a) condense low pressure steam
b) cool condensed steam
c) cool water used in condenser for condensing steam
d) cool feed water of boiler

37 In a super-heater

a) pressure rises, temperature drops
b) pressure rises, temperature remains constant
c) pressure remains constant and temperature rises
d) both pressure and temperature remains constant.

38 Which material is used for the manufacture of the turbine blades?

a) Stainless steel
b) Carbon steel
c) High nickel alloy
d) High alloy steel

39 On which factor does the calorific value of coal depend on?

a) Ash content.
b) Size of coal particles.

c) Moisture content.
d) Volatile material

40 Which of the following is the essential element for the combustion of fuel?

a) Oxygen
b) Correct fuel air ratio.
c) Proper ignition temperature.
d) All of these

41 Why is pulverized coal used?

a. Better burning.
b. Increased calorific value of coal.
c. Medium size units.
d. Less radiation loss

42 Ash handling system is mainly divided into_____ systems.

a) Mechanical handling
b) Pneumatic
c) Hydraulic
d) All of these

43 The thermal efficiency of a steam plant is defined as?

a) The ratio of heat equivalent of electrical output to the heat of combustion of coal.
b) The ratio of heat of combustion of coal to the heat equivalent of electrical output.
c) The ratio of heat equivalent of mechanical energy transmitted to the turbine shaft to the heat of combustion of coal.
d) The ratio of heat of combustion of coal to the heat equivalent of mechanical energy transmitted to the turbine shaft

44 The chimney draught varies with?

a) climatic conditions
b) temperature of furnace gases
c) height of chimney
d) all of the mentioned

45 Which of the following statement is correct?

a) The expansion of steam in a nozzle follows Rankine cycle
b) The friction in the nozzle increases the dryness fraction of steam
c) The pressure of steam at throat is called critical pressure
d) All of the mentioned

46 Air-Preheater in a steam power plant_____

a) Recovers the heat from the flue gases leaving the economizer.
b) Improves combustion rate.
c) Raises the temperature of the furnace gases.
d) All of the mentioned

47 A Stoker is a power operating fuel ____ mechanism

a) Burning
b) Feeding
c) Handling
d) Storage

48 An air preheater is installed

a) between the economizer and chimney
b) before the superheater
c) before the economizer
d) none of the mentioned

49 Which of the following auxiliaries are not used in steam Generators?

a) economizer
b) burner
c) fan
d) stoker

50 Comparing fire tube and water tube boilers, which boiler can produce comparatively higher pressure steam than another for the same capacity?

a) fire tube boiler
b) water tube boiler
c) both can produce steam at same pressure for the same capacity
d) none of the mentioned

Module II

51. In a 4 stroke engine, the operation cycle are completed in how many strokes and revolution?
a) 4 strokes and 2 revolutions.
b) 2 stroke and 2 revolutions.
c) 2 strokes and 1 revolution.
d) 4 stroke and 4 revolutions.

52. The speed of the diesel engine may vary from
a) 0 – 100 rpm.
b) 200 – 1000 rpm.
c) 500 -5000 rpm.
d) 1000 – 3000 rpm.

53. The diesel plants are mainly used _____
a) As peak load plants.
b) As base load plants.
c) As standby power plants.
d) Both peak and stand by plants.

54. What is the ranging capacity of the diesel plant?
a) 50 – 750 kW
b) 100 – 1175 kW
c) 75 – 3750 kW
d) 150 – 4575 Kw

55. It is very much necessary to treat the makeup water to remove the scale forming the impurities. Which treatment is used?
a) Zeolite softener.
b) Lime or lime soda treatment
c) Both (a) and (b).
d) None of the following

56. Which among the following instruments are provided on the exhaust line to reduce the pressure?
a) Ducts.
b) Muffler
c) Strainers.
d) Purifiers

57. Which type of cylinder configuration is commonly used?
a) Vertical – in line.
b) V – type.
c) Horizontal type.
d) All of these.

58. What is supercharging?

a) Pumping of air into the cylinder at the pressure greater than atmospheric pressure.
b) Pumping of air out of the cylinder at the pressure greater than atmospheric pressure.
c) Pumping of air into the cylinder at the pressure lower than atmospheric pressure.
d) Pumping of air out of the cylinder at the pressure lower than atmospheric pressure.

59. The cetane no. of diesel fuel are usually in the range of
a) 10-200
b) 20-400
c) 30-60
d) None of these

60. The lubrication cost in a diesel power plant is
a) High.
b) Low
c) Moderate
d) Very low.

61. The identification of a two stroke engine is given by
a) Cooling system
b) Lubrication system.
c) Absence of valve.
d) All of these.

62. Maximum temperature developed in a diesel engine is in the range of
a) 2000 - 2500 °C
b) 500 – 1000 °C
c) 1500 – 2000 °C
d) 1000 – 1500 °C

63. High output diesel engines are started by
a) Self starter.
b) Compressed air.
c) Battery.
d) Cranking.

64. Heating value of diesel is around?
a) 4000 kcal/kg.
b) 10000 kcal/kg
c) 15000 kcal/kg
d) 20000 kcal/kg

65. The temperature of the cooling water leaving the diesel engine should not exceed.
a) 25 °C
b) 40 °C
c) 85 °C
d) 70 °C

66. Which among these is the main component of a gas turbine plant?
a) Condenser
b) Compressor.
c) Boiler
d) Both (b) & (c).

67. Which type of compressor is used in a gas turbine plant?
a) Reciprocating compressor.
b) Axial flow compressor
c) Centrifugal compressor.
d) Both Axial and Centrifugal compressor

68. What part or % of power developed is utilized for driving the compressor?

a) 65 %
b) 70 %
c) 55 %
d) 80 %

69. The gas turbine power plant mainly uses which among the following fuels?
    a) Coal and Peat.
    b) Kerosene oil and diesel oil and residual oil.
    c) Gas oil.
    d) Natural gas and liquid petroleum fuel
70. The heating value of gaseous fuels is about
    a) 500 kJ/litre
    b) 30 kJ/litre
    c) 100 kJ/litre
    d) 10 kJ/litre
71. The compressor has to be started
    a) Before starting the gas turbine.
    b) After starting the gas turbine.
    c) Simultaneously with starting of gas turbine.
    d) At any time during the operation.
72. What would be the temperature of the gas in the combustion chamber?
    a) 500 °C
    b) 800°C
    c) 2000 °C
    d) 650 °C
73. The efficiency of the open cycle gas plant is quite low. Why?
    a) Gas gets cooled before reaching the turbine wheels..
    b) A lot of mechanical energy is used up by the compressor.
    c) Due to the presence of regenerator and absence of air pre heater.
    d) Both (a) and (b).
74. To improve the efficiency of the gas turbines, which among these are used?
    a) Regenerator.
    b) Inter cooling.
    c) Reheating.
    d) All of these.
75. What is regeneration?
    a) Removal of heat from compressed air between stages of compression.
    b) Transfer of heat energy from exhaust gases to the compressed air flowing between compressor and the combustion chamber.
    c) To increase the temperature of partially expanded gases by burning more fuel.
    d) Both (b) & (c).
76. What is meant by inter cooling?
    a) Removal of heat from compressed air between stages of compression.
    b) Transfer of heat energy from exhaust gases to the compressed air flowing between compressor and the combustion chamber.
    c) To increase the temperature of partially expanded gases by burning more fuel.
    d) . None of the above.
77. Which material is used for the manufacture of the turbine blades?
    a) Stainless steel.
    b) Carbon steel.
    c) High nickel alloy.
    d) High alloy steel.
78. Which among these plants are most efficient?
    a) Open cycle.
    b) Combined cycle.

c) Closed cycle.
d) Either (a) or (c)

79. In a 2 stroke engine, the operation cycle are completed in how many strokes and revolution?
a) 4 strokes and 2 revolutions.
b) 2 stroke and 2 revolutions.
c) 2 strokes and 1 revolution.
d) 4 stroke and 4 revolutions.

80. Which type of dynamometer is used in the diesel engine?
a) Rope Brake Dynamometer
b) Electric Dynamometer
c) Hydraulic Dynamometer
d) All of these

81. An air standard diesel engine cycle consist of
a) Two adiabatic and two constant volume process
b) Two isothermal and constant volume process
c) Two adiabatic, one constant pressure and one constant volume process
d) Two isothermal, one constant pressure and one constant volume process

82. BHP of diesel engine can be increase by
a) Increasing the pressure of intake air
b) Increasing temperature of intake air
c) Increasing density of intake air
d) Decreasing density of intake air

83. With increase in the temperature of intake air, CI engine efficiency
a) Decrease
b) Increase
c) Remain same
d) Depends upon the other factors

84. Which type of system is not used in a diesel power plant
a) Fuel supply system
b) Lubrication system
c) Ash handling system
d) Cooling system

85. A gas power plant cycle will have
a) Two isothermal and two constant volume process
b) Two isentropic and two constant pressure process
c) Two isothermal, one constant pressure and one constant volume process
d) None of these

86. The Regenerative in a gas power plant will increase
a) Work output
b) Thermal efficiency
c) Heat input
d) None of these

87. The Reheat in a gas power plant will increase
a) Work output
b) Thermal efficiency
c) Heat input
d) None of these

88. The Intercooler in a gas power plant will increase
a) Work output
b) Thermal efficiency
c) Heat input
d) None of these

89. Supercharger is used to increase

a) Quantity of intake air in engine
b) Pressure of intake air in the engine
c) Temperature of intake air in the engine
d) All of these

90. The capacity of a captive power combined cycle power plant is
a) More than 100 MW
b) Less than 100 MW
c) Less than 50 MW
d) None of these

91. Which gas power plant will give maximum efficiency
a) Peak load Gas turbine power plant
b) Captive Gas turbine power plant
c) Co-generation Gas turbine power plant
d) None of these

92. The efficiency of gas power plant as compare to condensing type steam plant is
a) Higher
b) Lower
c) Same
d) None of these

93. When is the compressor to be started?
a) Before starting the gas turbine.
b) After starting the gas turbine.
c) Simultaneously with starting of gas turbine.
d) At any time during the operation.

94. The percent of installed capacity of gas turbines contribute to the total installed capacity of the power plants in India is _____.
a) 15 %
b) 5 %
c) 8 %
d) 11 %

95. A cycle used by gas turbine is what?
a) Carnot.
b) Brayton.
c) Dual cycle.
d) Rankine cycle.

96. Which types of loads are suitable for Combined cycle power plants?
a) Base loads.
b) Peak loads.
c) Intermediate loads.
d) Both base and peak loads.

97. Capital Cost of a gas power plant as compare to steam power plant is
a) More
b) Less
c) Same
d) None of these

98. In gas turbine, high thermal efficiency is obtained by
a) Open cycle type
b) Closed cycle type
c) In both cycle
d) None of these

99. Maximum combustion pressure in a gas power plant as compare to diesel power plant is
a) More
b) Less

c) Same
d) Non of these

100. The blades of gas turbine rotor are made of
a) Carbon steel
b) High alloy steel
c) Stainless steel
d) High nickel alloy steel

Module III

101. Out of the following which one is not a unconventional source of energy?
a) Tidal power
b) Geothermal energy
c) Nuclear energy
d) Wind power

102. A curve between flow discharge in cum/s versus time in hours is called as
a) Load curve
b) Hydrograph
c) Flow duration curve
d) Mass curve

103. The flow duration curve is a plot of
a) Discharged against time in chronological order
b) Flow available during a period versus the fraction of time
c) Accumulated flow against time
d) Cumulative volume flow versus time

104. The mass flow curve is an integral curve of
a) The hydrograph
b) The flow duration curve
c) The load curve
d) None of these

105. The direct runoff is made up of
a) Rainfall and evaporation
b) Surface runoff, transpiration
c) Surface run off, prompt inflow
d) Runoff and evaporation

106. A flow duration curve indicates
a) The duration of floods or droughts
b) Effect of storage
c) The stream flow available for different per cent of time
d) All of the above

107. Operating charges are minimum for same power output in the case of
a) Thermal plant
b) Hydro plant
c) Nuclear plant
d) Gas turbine

108. The water hammer develops in
a) Surge tank
b) Turbine
c) Penstock
d) Draft tube

110. Gross head of the hydropower station is
a) The height of water level in the river where the storage is provided

b) The height of water level in the river where the tailrace is provided
c) The difference between water level between the level in the storage and tail race.
d) None of these

111. The function of surge tank is
a) To supply water at constant pressure
b) To relieve the water hammer pressures in the penstock pipe
c) To produce surges in the pipe lines
d) None of these

112. The location of the surge tank in the hydro power station is near to
a) Reservoir
b) Turbine
c) Tailrace
d) Headrace

113. Pelton wheel turbine is used for the minimum head of
a) 20 m
b) 100 m
c) 180 or above m
d) None of these

114 Francis turbine is used for
a) Low head
b) Medium head
c) High head
d) None of these

115 Pelton turbine are mostly
a) Horizontal
b) Vertical
c) Inclined
d) None of these

116. In reaction turbine, function of the draft tube is
a) To convert K.E. of water to P.E.
b) by a gradually expansion in divergent part
c) To increase flow rate
d) To reduce water hammer effect

117 Francis turbine is used foe the head between
a) Less than 30 m
b) 30 -180 m
c) More than 180 m
d) All of the above

118 Francis, Kaplan and propeller turbines fall under which category
a) Impulse turbine
b) Reaction turbine
c) Impulse reaction turbine
d) Axial flow turbine

119 The runner of a Kaplan turbine is consists of Blades count between
a) 2-4
b) 3-6
c) 4-8
d) 12-16

120 The runner of a francis turbine is consists of Blades count between

.

a) 2-4
b) 3-6
c) 4-8
d) 12-16

121 For low head and high discharge, the hydraulic turbine used is

a) Kaplan turbine
b) Francis turbine
c) Pelton wheel
d) Jonual turbine

122 For high head and low discharge, the hydraulic turbine used is

a) Kaplan turbine
b) Francis turbine
c) Pelton wheel
d) Jonual turbine

123 For medium head and medium discharge, the hydraulic turbine used is

a) Kaplan turbine
b) Francis turbine
c) Pelton wheel
d) Jonual turbine

124 Which one is a tangential flow turbine

a) Kaplan turbine
b) Francis turbine
c) Pelton wheel
d) Jonual turbine

125 Which one is a axial flow turbine

a) Kaplan turbine
b) Francis turbine
c) Pelton wheel
d) Jonual turbine

Faculty Signature **HOD/ME**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

B.Tech–III Year / II Sem (MR 17)

I Mid Examination Subjective Question Bank

Subject: Refrigeration and Air-Conditioning **Branch : Mechanical Engineering**

Name of the faculty: Mr.Vasili Srinivas

Instructions:

1. All the questions carry equal marks

2. Solve all the questions

Q.No.	Question	Bloom's Taxonomy Level	CO
1.	Explain the necessity of Refrigeration and define Ton of refrigeration.	Understanding	1
	OR		
2.	Explain the factors to be considered for the adoption of a refrigeration system for an aircraft?	Understanding	1
3.	Explain reverse Brayton cycle with a schematic diagram and draw the P-V diagram.	Understanding	1
	OR		
4.	Explain the difference between a Refrigerator, Heat Engine and Heat Pump.	Understanding	1
5.	Explain the Boot strap refrigeration system with a schematic and cycle diagram.	Understanding	1
	OR		
6.	Explain open and closed air cycle refrigeration system.	Understanding	1
7.	A dense air refrigeration machine operating on Bell-Coleman cycle works between 3.4 bar and 17 bar. The temperature of air after the cooler is 15ºC and after refrigeration is 6ºC, for a refrigeration capacity of 6 tons calculate, i. Temperature after compression and expansion ii. Air circulation required in cycle per minute iii. Work of compression and expansion iv. Theoretical COP	Applying	1

	OR		
8.	A refrigerator working on bell coleman cycle operates between pressure limits of 1.05 bar and 8.5 bar. Air is drawn from the cold chamber at 10^0 C. Air coming out of the compressor is cooled to 30^0 C before entering into the expansion cylinder. Expansion and compression follow the laws $pv^{1.25}$ =C and $pv^{1.35}$ =C respectively. Determine the theoretical C.O.P. of the system.	Applying	1
Module II			
1.	Explain the functioning of Shell and Tube evaporator with a schematic diagram.	Understanding	2
	OR		
2.	Explain the working of vapour compression refrigeration system (VCRS) with a schematic diagram and draw the p-h chart	Understanding	2
3.	Explain the working of automatic expansion valve.	Understanding	2
	OR		
4.	Explain the thermodynamic properties of refrigerants.	Understanding	2
5.	An ammonia ice plant operates between condenser temperature of 35^0C and an evaporator temperature of -15^0C. I produces 5 tons of ice per day from water at 25^0C to ice at -5^0C.NH_3 enters compressor as dry saturated vapour and leaves the condenser as saturated liquid. Calculate (i) Capacity of the plant (ii) mass flow of the refrigerant. Take specific heat of water and ice as 4.2 and 1.94 KJ/Kg-k. Latent heat of ice as 335 KJ/Kg	Applying	2
	OR		
6.	A domestic refrigerator works with an evaporator temperature – 23^oC. The refrigerant R12 is dry saturated at the entry to compressor. Ambient temperature is 37^0C. A minimum of 10^0C temperature difference is required at evaporator as well as condenser. There is no sub cooling. Refrigerant flow rate is 1 Kg/Min. Find (i) the refrigeration capacity of the system in TR, (ii) Power requirement, (iii) COP of the system.	Applying	2

7.	Explain the different methods of improving the COP of a simple vapour compression refrigeration cycle.	Understanding	2
	OR		
8.	Explain the difference between the Actual VCR and theoretical VCR	Understanding	2
Module III			
1.	Explain the working of simple $NH_3 – H_2O$ VARS with schematic diagram	Understanding	3
	OR		
2.	Explain the working of domestic Electrolux refrigeration system.	Understanding	3
3.	Describe with neat sketch Li-Br and water system. What are its limitations?	Understanding	3
	OR		
4.	Explain how the pressure and temperature of refrigerator is increased in vapour absorption systems	Understanding	3

Signature of the Faculty **Signature of the HoD**

III Year II Sem MID I Examination Objective Question Bank

Subject: Refrigeration & Air Conditioning (R&AC)

Branch: Mechanical Engineering **Name of the Faculty: Vasili Srinivas**

1 The COP of a refrigerator working on Reversed Carnot Cycle with T_1 being higher temperature and T_2 being lower temperature is

[ ]

A. $(T_1 – T_2)/T_1$
B. $T_1/(T_1 – T_2)$
C. $T_2/(T_1 – T_2)$
D. $(T_1 – T_2)/T_2$

2 The relationship between $COP_{heat\ pump}$ and $COP_{refrigerator}$ working on reverse Carnot cycle, for the same range of temperature operation is

[ ]

A. $COP_{heat\ pump} = COP_{refrigerator}$
B. $COP_{heat\ pump} – COP_{refrigerator} = 1$
C. $COP_{heat\ pump} = 2\ COP_{refrigerator}$
D. Not possible to predict without knowing the working substance

3 COP of a Reversed Carnot Cycle refrigerator working between higher temperature T_1 and lower temperature T_2

[ ]

A. Will increase with increase in T_2 keeping T_1 fixed
B. Will decrease with increase in T_2 keeping T_1 fixed
C. Will first increase with increase in T_2 and then decrease with increase in T_2 keeping T_1 fixed
D. None of the above

4 Two Carnot refrigerators are employed, one for ice making and other for comfort cooling

[ ]

A. The COP of refrigerator for ice making is higher than that for the other
B. The COP of refrigerator for ice making is lower than that for the other
C. The COP of refrigerator for ice making is same as that for the other
D. The COP of Carnot refrigerator will depend on refrigerant used

5 Reversed Carnot cycle comprises

[ ]

A. Two isentropic processes and two adiabatic processes
B. Two isentropic processes and two isothermal processes
C. Two isentropic processes and two constant pressure processes
D. Two isentropic processes and two constant volume processes

6 A reversible refrigerator working between two fixed temperatures

[ ]

A. Has the same COP whatever the working substance
B. Has its COP increased for working substance with high enthalpy of evaporation
C. Has its COP increased for working substance with high specific heats
D. None of the above

7 Which of the following cycles uses air as the refrigerant

[ ]

A. Ericsson
B. Carnot
C. Bell-Coleman
D. Stirling

8 One ton of refrigeration is equal to the refrigeration effect corresponding to melting of 1000 kg of ice at 0°C in
[ ]
A. 1 hour
B. 1 minute
C. 24 hours
D. 12 hours

9 In Reversed Carnot cycle working on perfect gas
[ ]
A. Isothermal work of compression is equal to isothermal work of expansion
B. Isentropic work of compression is equal to isentropic work of expansion
C. Net work of the cycle is zero
D. Net heat transfer of the cycle is zero

10 Reversed Carnot cycle assumes that all processes in the cycle are
[ ]
A. Non-flow only
B. Steady flow only
C. Non-flow or steady flow
D. Transient flow

11 One ton of refrigeration corresponds to
[ ]
A. 50 kcal/min
B. 50 kcal/hr
C. 80 kcal/min
D. 1000 kcal/day

12 In a reversed Carnot cycle working on vapour
[ ]
A. Isentropic work of compression is equal to isentropic work of expansion
B. Isothermal heat absorption is equal to isothermal heat rejection
C. There is no work done during isothermal processes
D. There is no work done during isentropic processes

13 Air refrigeration cycle is used in
[ ]
A. Commercial refrigerators
B. Domestic refrigerators
C. Air-conditioning
D. Gas liquefaction

14 In a refrigerating machine, heat rejected is …… heat absorbed
[ ]
A. Equal to
B. Less than
C. Greater than
D. Any of these

15 Actual air refrigerator works on
[ ]
A. Carnot cycle
B. Rankine cycle
C. Reversed Otto cycle
D. Bell-Coleman cycle

16 The air cooling system mostly used in transport type aircrafts is
[ ]
A. Simple air cooling system

B. Simple evaporative air cooling system
C. Boot-strap air cooling system
D. All of the above

17 In reversible refrigeration cycle, the heat absorbed in comparison with the heat rejected is

[ ]
A. more
B. less
C. equal
D. more for small capacity and less for large capacity

18 The cooling system used for supersonic aircrafts and rockets is

[ ]
A. Simple air cooling system
B. Boot-strap air cooling system
C. Reduced ambient air cooling system
D. Regenerative air cooling system

19 A boot-strap air cooling system has

[ ]
A. One heat exchanger
B. Two heat exchangers
C. Three heat exchangers
D. Four heat exchangers

20 In a boot-strap air evaporative cooling system, the evaporator is provided

[ ]
A. Between the combustion chamber and the first heat exchanger
B. Between the first heat exchanger and the secondary compressor
C. Between the secondary compressor and the second heat exchanger
D. Between the second heat exchanger and the cooling turbine

21 An ordinary passenger aircraft requires a cooling system of capacity

[ ]
A. 2 TR
B. 4 TR
C. 8 TR
D. 3 TR

22 In aircraft, air refrigeration cycle is used because of

[ ]
A. low weight per TR
B. high heat transfer rate
C. low temperature at high altitudes
D. higher COP

23 Which of the following is an advantage of Dense air machine as compared to open system?

[ ]
A. it requires only one heat exchanger
B. it has lower cost
C. C.O.P is higher
D. None of the above

24 Why a refrigeration machine based on reverse Carnot cycle cannot be devised?

[ ]
A. It is an ideal cycle
B. It will have infinite COP

C. It will need very huge investment
D. Adiabatic part demands very high speed while isothermal part demands very low speed

25 Why a turbine is not used in domestic refrigeration system
[ ]
A. It will result in decrease in COP
B. It is difficult to manufacture
C. The work output obtained will not justify the increased complication and cost
D. None of the above

26 What is the full-form of DART
[ ]
A. Dry Air Rated Temperature
B. Dry Air Relative Temperature
C. Dry Air Reduced Temperature
D. None of the above

27 Which of the following statement is correct with respect to a simple air-refrigeration system
[ ]
A. The temperature of compressed air is lower than that of Ram air
B. The temperature of compressed air is higher than that of Ram air
C. The temperature of compressed air is equal to that of Ram air
D. None of the above

28 In case of air refrigeration system with evaporative cooling when compared to system without evaporative cooling
[ ]
A. The temperature of refrigerated air is lower
B. The temperature of refrigerated air is higher
C. The temperature of refrigerated air is same
D. None of the above

29 In reduced ambient air-refrigeration system, air is bled off from
[ ]
A. the main compressor
B. the turbine
C. the heat exchanger
D. None of the above

30 The cooling effect of simple air cooling system
[ ]
A. increases with flight
B. decreases with flight
C. remains unchanged with flight
D. None of the above

31 The phase of the refrigerant in air refrigeration system
[ ]
A. changes twice in a cycle
B. changes once in a cycle
C. remains liquid throughout the cycle
D. remains gaseous throughout the cycle

32 Which of the following is the oldest form of refrigeration
[ ]
A. air refrigeration
B. evaporative cooling
C. ice refrigeration
D. vapour absorption refrigeration

33 Which of the following is NOT an aircraft refrigeration system
[ ]
A. Boot strap system
B. Regenerative system
C. Reduced ambient system
D. Ice refrigeration

34 The inclusion of evaporative cooling in Boot strap system results in
[ ]
A. decrease in size of the system
B. decrease in C.O.P of the system
C. decrease in mass flow rate of refrigerant per TR
D. all of the above

35 Which of the following is not an application of refrigeration
[ ]
A. separation of gases
B. condensation of gases
C. cold treatment of metals
D. air quenching

36 What is thetemperature, internalorgans of a human being required fortheir efficientoperation
[ ]
A. close to 96°C
B. close to 25°C
C. close to 35°C
D. None of the above

37 What is the principle behind cooling of water in an earthen pot?
[ ]
A. ice refrigeration
B. vapour absorption refrigeration system
C. air cooling
D. evaporative cooling

38 Bell Coleman cycle is a reversed
[ ]
A. Joule cycle
B. Brayton Cycle
C. Otto cycle
D. Carnot cycle

39 Boot strap system of refrigeration is used in
[ ]
A. Refrigerator
B. Air craft
C. Ship
D. None

40 Which of the following is correct in comparison of cooling and refrigeration
[ ]
A. Temperature achieved in cooling is higher than that in refrigeration
B. Pressure achieved in cooling is higher than that in refrigeration
C. Temperature achieved in cooling is lower than that in refrigeration
D. None of the above

41 The Ram effect causes the increase in
[ ]
A. Heat content of the aircraft cabin

B. Volume of the aircraft cabin
C. Density of the aircraft material
D. None of the above

42 A heat pump working on a reversed Carnot cycle has a C.O.P. of 5. It works as a refrigerator taking 1 kW of work input. The refrigerating effect will be
[ ]
A. 1 kw
B. 2 kw
C. 4 kw
D. 5 kw

43 The coefficient of performance is the ratio of the refrigerant effect to the
[ ]
A. Heat of compression
B. Work input to compressor
C. Enthalpy increase in compressor
D. All of the above

44 The coefficient of performance of Heat Pump is always
[ ]
A. Equal to one
B. Greater than one
C. Less than one
D. None of these

45 The desirable pressures to be maintained in condenser and evaporator for the given temperatures are
[ ]
A. Zero
B. Positive
C. Negative
D. None of the above

46 Sun is an _____ source of heat in air craft refrigeration system
[ ]
A. External
B. Internal
C. Either a or b
D. None of the above

47 In terms of efficiency, which of the following statement is correct for heat pump and electrical resistance heater
[ ]
A. heat pump is more efficient
B. electrical resistance heater is more efficient
C. both are equally efficient
D. Cannot be said

48 Which of the following statements with respect to DART, is correct
[ ]
A. DART increases with Mach number for all systems
B. DART increases with Mach number for all systems except reduced ambient system
C. DART is not influenced by Mach number
D. All of the above

49 For a Bootstrap refrigeration system
[ ]
A. ambient pressure < cabin pressure < Ram pressure
B. cabin pressure < ambient pressure < Ram pressure

C. Ram pressure < ambient pressure < cabin pressure
D. ambient pressure < Ram pressure < cabin pressure

50 On the basis of C.O.P, for VCRS and air refrigeration system which of the following statements is correct
[ ]
A. C.O.P of air refrigeration system is very high
B. C.O.P of VCRS is very high
C. C.O.P for both the systems are equal
D. None of the above

51 The temperature rise of the surface of an aircraft moving with 1000 km/h, will be
[ ]
A. 50^{o}C
B. 32.1^{o}C
C. 273.15^{o}C
D. None of the above

52 The refrigerant R-744 stands for
[ ]
A. Ammonia
B. Carbon-dioxide
C. Sulphur dioxide
D. Methyl chloride

53 Among the refrigerants, namely R-11, R-22, R-12 and R-717, the latent heat of vaporisation at a particular temperature is the highest for
[ ]
A. R-12
B. R-22
C. R-11
D. R-717

54 A good refrigerant should have
[ ]
A. Low specific heats ratio (γ)
B. High latent heat ratio
C. High thermal conductivity
D. All of the above

55 Low boiling point refrigerants are preferably suited for
[ ]
A. Reciprocating compressors
B. Large centrifugal compressors
C. Large axial flow rotary compressors
D. All of the above

56 Among the refrigerants R-717, R-22, R-12 and R-11, the ratio of condenser to evaporator pressures for -15^{o}C to 30^{o}C range is highest for
[ ]
A. R-717
B. R-22
C. R-12
D. R-11

57 Freon-12 is used with
[ ]
A. Reciprocating refrigerant compressors in small units like domestic refrigerators
B. Reciprocating refrigerant compressors in large units for central air-conditioning plants
C. Centrifugal refrigerant compressors for larger units for central air-conditioning plants

D. All of the above

58 The refrigerant which gives evaporator pressure
[ ]
A. As high as possible is desirable
B. As low as possible is desirable
C. Near atmospheric pressure but below atmospheric pressure is desirable
D. Near atmospheric pressure but above atmospheric pressure is desirable

59 COP of a refrigeration cycle for a fixed evaporator temperature and fixed condenser temperature
[ ]
A. Is higher for refrigerant having high latent heat of vaporisation and high ratio of specific heats
B. Is higher for refrigerant having small latent heat of vaporisation and small ratio of specific heats
C. Is higher for refrigerant having high latent heat of vaporisation and low ratio of specific heats
D. Is independent of the ratio of specific heats and latent heat of vaporisation

60 A refrigerant R-764 stands for
[ ]
A. Ammonia
B. Carbon dioxide
C. Sulphur dioxide
D. Methyl Chloride

61 Ammonia is used with
[ ]
A. Reciprocating refrigerant compressors
B. Centrifugal refrigerant compressors
C. Axial flow refrigerant compressors
D. All of the above

62 Freon-22 is used with
[ ]
A. Reciprocating refrigerant compressors in large units such as package units or central air-conditioning plants
B. Centrifugal refrigerant compressors in large units and central air conditioning plants
C. Only small domestic refrigerators or water coolers
D. All of the above

63 Freezing point temperature for R-717 is
[ ]
A. -94^{o}C
B. -77^{o}C
C. -157.5^{o}C
D. -160^{o}C

64 For high COP
[ ]
A. Critical temperature in general should be low
B. Critical temperature in general should be high
C. Critical temperature is insignificant
D. Critical pressure is important

65 The following refrigerant is not miscible with oil
[ ]
A. R-717
B. R-11

C. R-22
D. R-12

66 For fixed pressure ratio the isentropic compression work is lowest for
[ ]
A. R-11
B. R-12
C. R-22
D. R-717

67 For vapour compression refrigeration system using R-717 the materials of pipes are
[ ]
A. Iron and steel
B. Copper
C. Brass
D. Aluminium

68 Dry evaporator is one
[ ]
A. In which the exit from evaporator is dry saturated refrigerant
B. In which the exit from evaporator is superheated refrigerant
C. In which the exit from the evaporator has refrigerant with high dryness fraction
D. In which the inlet to the evaporator has refrigerant with some dryness fraction.

69 The evaporator changes the low pressure liquid refrigerant from the expansion valve into
[ ]
A. High pressure liquid refrigerant
B. Low pressure liquid and vapour refrigerant
C. Low pressure vapour refrigerant
D. None of the above

70 The evaporator generally used for wine cooling and in petroleum industry for chilling oil is
[ ]
A. Plate evaporator
B. Finned evaporator
C. Tube-in-tube evaporator
D. Shell and tube evaporator

71 The evaporator generally used in home freezers, ice cream cabinets etc. is
[ ]
A. Plate evaporator
B. Finned evaporator
C. Shell and tube evaporator
D. Shell and coil evaporator

72 Direct expansion coil evaporator is
[ ]
A. Flooded type evaporator
B. Dry type evaporator
C. Wet type evaporator
D. None of the above

73 Flooded evaporator has to be fitted with
[ ]
A. Accumulator
B. Float valve
C. Liquid eliminator
D. All of these

74 In a liquid chiller when the liquid to be chilled is in the shell and refrigerant flows in the tubes it is fitted with

[ ]

A. Float valve
B. Thermostatic expansion valve
C. Capillary tube
D. None of these

75 With thermostatic expansion valve used as expansion device in vapour compression refrigeration system, if there is high suction pressure and high degree of superheat, the cause is

[ ]

A. Compressor undersized
B. Evaporator too large
C. Compressor discharge valve leaking
D. Any or all of these

76 Thermostatic expansion valve operates on

[ ]

A. The changes in pressure in the evaporator
B. The changes in temperature of the evaporator
C. The changes in the degree of superheat at the exit of evaporator
D. None of these

77 The thermostatic expansion valve is also called

[ ]

A. Constant pressure valve
B. Constant temperature valve
C. Constant superheat valve
D. None of these

78 For varying suction pressures and temperatures of the evaporator

[ ]

A. Same charge thermostatic expansion valve is recommended
B. Cross charge thermostatic expansion valve is recommended
C. Any one of the above is equally satisfactory
D. None of the above as varying pressure is not related to thermostatic expansion valve charge

79 The capillary tube used as expansion device in vapour compression refrigeration system works on the principle of

[ ]

A. Isothermal expansion causing pressure drop
B. Adiabatic expansion causing pressure drop
C. Throttle expansion causing pressure drop
D. Flow through pipe with friction causing pressure drop

80 Hunting of the thermostatic expansion valve is

[ ]

A. Variation of the evaporator load with the degree of superheat
B. Variation of the pressure of the evaporator with variation of load
C. Alternate overfeeding and starving of the refrigerant flow to the evaporator
D. Not there at all. The term is not used at all.

81 The highest temperature during the cycle, in a vapour compression refrigeration system, occurs after

[ ]

A. compression
B. condensation

C. expansion
D. evaporation

82 Heat is rejected by the refrigerant, during vapour compression refrigeration cycle, in [ ]
A. condenser
B. evaporator
C. throttle valve
D. compressor

83 The process of undercooling is generally brought about by [ ]
A. circulating more quantity of cooling water throught the condenser
B. using water colder than the main circulating water
C. employing a heat exchanger
D. any one of the above

84 In a simple saturated vapour compression cycle, the refrigerant is in superheated condition [ ]
A. before entering compressor
B. before entering condenser
C. before entering throttle valve
D. before entering evaporator

85 Vapour compression cycle using R-12 gives maximum C.O.P. when [ ]
A. suction state to compressor is in wet region
B. suction state to compressor is in superheated region
C. suction state to compressor is in dry saturated
D. None of the above

86 The net effect of superheating suction in VCRS using R-717 theoretically results in [ ]
A. reduction in refrigeration capacity of the system
B. increase in refrigeration capacity of system
C. keeping refrigeration capacity same for the system
D. None of the above

87 The effect of superheating the vapour before suction to compressor, in VCRS [ ]
A. increases the work of compression
B. increases the heat rejection in condenser
C. may increase or decrease the COP depending on the refrigerant used
D. all of the above

88 In vapour compression refrigeration system, if expansion cylinder is used in place of throttle valve, the COP will [ ]
A. increase
B. decrease
C. will remain same
D. cannot be predicted

89 In actual large VCR installations [ ]
A. all the pipes are lagged and insulated
B. only pipes between evaporator and compressor are lagged and insulated
C. only pipes between compressor and condenser are lagged and insulated

D. none of the pipes are lagged and insulated

90 In a VCRS, the lowest temperature during cycle occurs after [ ]

A. compression
B. condensation
C. expansion
D. evaporation

91 In a VCRS for ice making, the condensing temperature for better COP is desired to be [ ]

A. near critical temperature of refrigerant
B. above critical temperature of refrigerant
C. much below critical temperature of refrigerant
D. Any one of the above

92 A domestic window type air conditioner capacity may be approximately [ ]

A. 1 TR
B. 0.1TR
C. 5 TR
D. 10 TR

93 The order in which main components of VCRS are used is [ ]

A. compressor – evaporator – condenser – throttle valve
B. compressor – condenser – evaporator – throttle valve
C. compressor – condenser – throttle valve – evaporator
D. compressor – throttle valve – evaporator – condenser

94 Liquid-suction heat exchanger is used in VCRS to [ ]

A. improve COP of the cycle
B. avoid useless superheating in pipes
C. reduce heat rejection in condenser
D. none of the above

95 Use of Liquid-suction heat exchanger or liquid-vapour regenerative heat exchanger in VCRS is justified because [ ]

A. COP of the cycle improves irrespective of the refrigerant used
B. horse power per ton decreases irrespective of the refrigerant used
C. suction volume per ton decreases irrespective of the refrigerant used
D. superheating in liquid-suction exchanger is preferable over superheating in evaporator itself

96 Wet compression VCRS means [ ]

A. vapour compression takes place in wet region
B. vapour compression in dry region, but evaporation in wet region
C. vapour compression in wet region, but leaves in superheated region
D. none of the above

97 With reciprocating compressor in VCRS, wet compressor is not desirable because [ ]

A. liquid trapped up in the head of cylinder may damage the compressor valves
B. COP of the cycle decreases
C. volumetric efficiency of compressor decreases
D. mass flow rate per ton of refrigerant increases

98 In VCRS, with simple saturated cycle, the isentropic expansion of Carnot cycle is replaced by throttling process because
[ ]
A. positive work of expander is very small to justify cost of expander
B. throttling device gives better COP
C. throttling device is easy to operate
D. throttling device increases refrigeration capacity

99 In VCRS the heat is absorbed from the environment to be cooled by
[ ]
A. evaporator
B. condenser
C. compressor
D. throttle valve

100 The effect of liquid sub-cooling in VCRS is
[ ]
A. to reduce the rate of flow of refrigerant per TR
B. to reduce the volume of vapour handled by compressor per TR
C. to reduce the power per TR
D. all of the above

101 COP of domestic air conditioner as compared to that of domestic refrigerator will be
[ ]
A. lower
B. higher
C. same
D. unpredictable

102 An Electrolux refrigerator is a
[ ]
A. single fluid absorption system
B. two fluids absorption system
C. three fluids absorption system
D. None of the above

103 In a lithium bromide absorption refrigeration system
[ ]
A. lithium bromide is used as a refrigerant and water as an absorbent
B. water is used as a refrigerant and lithium bromide as an absorbent
C. lithium bromide is used as a refrigerant and ammonia as an absorbent
D. ammonia is used as a refrigerant and lithium bromide as an absorbent

104 The refrigerant commonly used in vapour absorption system is
[ ]
A. water
B. ammonia
C. freon
D. aqua-ammonia

105 In VARS, the compressor from VCRS is replaced with
[ ]
A. an absorber and a liquid pump
B. an absorber, a generator, a liquid pump and a pressure reduction valve
C. an absorber, an evaporator, a liquid pump and an expansion valve
D. a generator, an evaporator, a liquid pump and an expansion valve

106 A vapour absorption system
[ ]
A. has noisy operation

B. has quiet operation
C. requires more power consumption
D. cools below 0°C

107 In Electrolux refrigerator
[ ]
A. ammonia is absorbed in hydrogen
B. ammonia is absorbed in water
C. ammonia evaporates in hydrogen
D. hydrogen evaporates in ammonia

108 The fluids used in the Electrolux refrigerator are
[ ]
A. water and hydrogen
B. ammonia and hydrogen
C. ammonia, water and hydrogen
D. none of the above

109 In aqua-ammonia and Li-Br water absorption refrigeration systems, the refrigerants are respectively
[ ]
A. water and water
B. water and Li-Br
C. ammonia and water
D. ammonia and Li-Br

110 In aqua-ammonia absorption system, incomplete rectification leads to accumulation of water in
[ ]
A. condenser
B. evaporator
C. absorber
D. any of these

111 In an ammonia-water absorption system, a rectification column is used mainly
[ ]
A. to improve the COP of the system
B. to reduce the operating pressures
C. to minimize the concentration of water in refrigeration circuit
D. All of the above

112 In a reflux condenser
[ ]
A. Heat is extracted so that vapour leaving is rich in ammonia
B. Heat is supplied so that vapour leaving is rich in ammonia
C. Heat is extracted so that vapour leaving is rich in water
D. Heat is supplied so that vapour leaving is rich in water

113 Due to requirement of rectification
[ ]
A. the required generator pressure increases
B. the required generator temperature increases
C. the required generator heat input increases
D. All of the above

114 In pumpless VARS
[ ]
A. the evaporation process is non-isothermal
B. the system pressure is not same everywhere
C. a pressure equalizing fluid is required to increase condenser pressure

D. a pressure equalizing fluid is required to decrease condenser pressure

115 Which of the following statements regarding pumpless VARS is true?
[ ]
A. Pumpless systems can use a wide variety of heat sources
B. Pumpless systems are not reliable
C. Pumpless systems offer high COPs
D. Pumpless systems operate at very low pressures

116 Compared to compression systems, absorption systems:
[ ]
A. contain very few moving parts
B. are compact for large capacities
C. offer less noise and vibration
D. All of the above

117 Presence of water vapour in refrigerant circuit of an aqua-ammonia system
[ ]
A. Decreases evaporator temperature
B. Increases evaporator temperature
C. Increases COP
D. Maintains isothermal conditions in condenser

118 Compared to Water-LiBr system, an ammonia-water system
[ ]
A. requires additional components due to requirement of rectification
B. yields higher COP
C. gives lower evaporator temperature
D. decrease design complexity and system cost

119 Which of the following statements regarding aqua-ammonia solution is TRUE
[ ]
A. The bubble point temperature is always higher than the dew point temperature
B. The bubble point temperature is always lower than the dew point temperature
C. A strong solution of $NH_3 – H_2O$ implies a solution weak in refrigerant
D. None of the above

120 When a binary solution of $NH_3 – H_2O$ is throttled adiabatically
[ ]
A. temperature always remains constant
B. pressure always remains constant
C. temperature may decrease
D. temperature always increases

121 In an ammonia-water system, a rectifier is used mainly to
[ ]
A. improve the COP of the system
B. reduce the operating pressures
C. minimize the concentration of water in refrigeration circuit
D. All of the above

122 In a reflux condenser
[ ]
A. Heat is extracted, so that the vapour leaving is rich in ammonia
B. Heat is supplied, so that the vapour leaving is rich in ammonia
C. Heat is extracted, so that the vapour leaving is rich in water
D. Heat is supplied, so that the vapour leaving is rich in water

123 Due to the requirement of rectification
[ ]
A. the required generator pressure increases

B. the required generator temperature increases
C. the required generator heat input increases
D. All of the above

124 In pumpless VARS
[ ]
A. The evaporation process is non-isothermal
B. The system pressure is almost same everywhere
C. A pressure equalising fluid is required to increase the condenser pressure
D. All of the above

125 In water – LiBr system, crystallisation is likely to occur in
[ ]
A. the absorber
B. the solution heat exchanger
C. when generator temperature falls
D. None of the above

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