MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

B. Tech IV Semester (MR18) I Mid Examination question Bank

Subject: Analog and Digital Communications(80409) Branch:ECE

Name of the faculty:N.PanduRanga Reddy, N.DurgaSowdhamini,K.Spandana

All the questions carry equal marks

MODULE-1

Q.No.	Question	Bloom's Taxonomy Level	CO
1.	Explain amplitude modulation and illustrate the equation for AM wave with spectrum.	Understanding	1
	OR		
2.	Explain briefly the following a) modulation index b)under modulation c)critical modulation d) over modulation e) bandwidth of AM.	Understanding	1
3.	Develop expression for DSB-SC wave and constructits spectrum	Applying	1
	OR		
4.	Identify the differences between modulation techniques of AM and identify applications of each system	Applying	1
5.	A message signalhaving A_m=4v, f_m=1 kHz and carrier signalhaving A_c =2v, f_c=10 kHz, then determine the total power of balanced modulator,and also outline spectrum	Evaluating	1
	OR		
6.	A carrier signal having A_C=2V, f_c=75 KHz is modulated with message signal having A_m=4v, f_m=10 kHz to generate AM. Determine carrier power, side band power and total power.	Evaluating	1
7.	Explain SSB-SC modulation and derive equation for single tone SSB-SC wave. Illustrate the spectrum.	Understanding	1
	OR		
8.	Explain VSB modulation and derive equation for VSB wave. Illustrate the spectrum	Understanding	1

MODULE-2

Q.No.	Question	Bloom's Taxonomy Level	CO
1.	Illustrate the expression for FM signaland also find its single tone equation.	Understanding	2
	OR		
2.	Explain Narrow band FM generation and draw its spectrum	Understanding	2
3.	Develop the expression for Wide band FM signal and identify the significance of modulation index on side bands of WBFM.	Applying	2
	OR		
4.	Build the Direct Method generation ofFM signal.	Applying	2
5.	Build the generation of FM signal using Armstrong's method	Applying	2
	OR		
6.	a). Identify the Transmission Band width required for FM wave b). A single tone FM is represented by the volatage equation as: $V(t) = 12 \cos [6*10^8 *t +5 \sin(1250*t)]$. solve the following i). carrier frequency ii). modulating frequency iii). modulation index iv).maximum deviation	Applying	2
7.	Analyse the demodulation of FM wave with the help of PLL.	Analyzing	2
	OR		
8.	a).Compare frequency modulation with amplitude modulation b).Analyse the demodulation of FM wave with the help of balanced frequency discriminator.	Analyzing	2

MODULE-3

Q.No.	Question	Bloom's Taxonomy Level	CO
1.	Explain AMtransmitter in detail	Understanding	3
	OR		
2.	Explain FM transmitter in detail.	Understanding	3
3.	What is narrowband noise? Analyse the properties of the quadrature components of narrowband noise?	Analysing	3
	OR		
4.	Categorize the various types of noise in detail.	Analysing	3

Signature of Faculty **Signature of HOD**

MALLAREDDY ENGINEERING COLLEGE (Autonomous)

B. Tech IV Semester (MR18) I Mid Examination question Bank

Name of the Subject: ANALOG & DIGITAL COMMUNICATIONS(80409)

Branch: ECE

Name of the faculty: N.PanduRanga Reddy, N.DurgaSowdhamini, K.Spandana

OBJECTIVE QUESTIONS

---

1 VSB can be used to transmit [ ]

a two side bands

b one side band

c one side band and vestigial side band

d Vestigial side band

2 In VSB vestigial band is useful for [ ]

a SSB

b DSB-SC

c AM

d None

3 The amplitude modulated wave form S(t) = AC [1 + (t)] cosωCt is fed to an ideal envelope detector The maximum magnitude of (t) is greater than 1 Which of the following could be the detector output? [ ]

a $Acm(t)$

b Ac 2 [1 + $Kam(t)$] 2

c $|AC$ [1 + $Kam(t)]|$

d None of above

4 The diagonal clipping in Amplitude Demodulation (using envelope detector) can be avoided if RC time-constant of the envelope detector satisfies the following condition, (here W is message bandwidth and ω is carrier frequency both in rad/sec) [ ]

a RC< 1/W

b RC> 1 /W

c RC< 1 /ω

d RC = 1/ ω

5 What is the carrier frequency in an AM wave when its highest frequency component is 850Hz and the bandwidth of the signal is 50Hz? [ ]

a 80 Hz b 695 Hz c 625 Hz d 825 Hz

7 The power saving due to suppression of carrier in AM Modulated wave is [ ]

a 66.6% b 33% c 44% d 100%

---

7 If modulation index is greater than 1 [ ]

a The baseband signal is not preserved in the envelope of the AM signal

b The recovered signal is distorted
c It is called over modulation
d All of the above

8 In an Amplitude Modulation [ ]
a Amplitude of the carrier varies
c Phase of the carrier varies
b Frequency of the carrier varies
d All of the above

9 What is the maximum transmission efficiency of an AM signal? [ ]
a 64.44% b 33.33% c 56.66%
d 75.55%

10 The power saving in a DSB-SC system modulated at 80% is [ ]
a 75.16% b 75.36% c 75.56% d 75.76%

11 The process of recovering information signal from received carrier is known as [ ]
a Detection
c Demultiplexing
b Modulation
d Sampling

12 AM demodulation techniques are [ ]
a Square law demodulator
c PLL detector
b Envelope detector
d Both a and b are correct

13 Square law modulators [ ]
a Have non linear current-voltage characteristics
b Are used for Amplitude Modulation
c Are used for frequency modulation
d Both a and b are correct

14 Bandwidth (B) of an AM signal is given by [ ]
a $B = 2\ \omega_m$
c Both a and b are correct
b ωm
d None of the above

15 USB (Upper Side Band) is the band of frequency [ ]
a Above the carrier frequency
c That lies in AM spectrum
b Includes the carrier frequency
d Both a and c are correct

16 The minimum antenna height required for transmission in reference to wavelength λ is [ ]
a λ b λ/4 c λ/2 d 4 λ

17 The Balance Modulator generates the [ ]

a SSB b DSB-SC c AM d VSB

18 Types of analog modulation are: [ ]

a Phase modulation c Amplitude modulation

b Frequency modulation d All of the above

19 An AM transmitter has an antenna current changing from 5 A un modulated to 58 A What is the percentage of modulation? [ ]

a 388% b 8314% c 468% d 252%

20 Calculate the modulation index when the un modulated carrier power is 15KW, and after modulation, carrier power is 17KW [ ]

a 68% b 51.63% c 82.58% d 34.66%

21 For over modulation, the value of modulation index m is [ ]

a $m < 1$ b $m = 1$ c $m > 1$ dNot predetermined

22 Modulation is required for [ ]

a Reducing noise while transmission c Reduction of Antenna height

b Multiplexing the signals d All of the above

23 What is the change in the value of transmitted power when the modulation index changes from 0 to 1? [ ]

a 100% c 50%

b Remains unchanged d 80%

24 The transmission Band width of SSB is ___ [ ]

a ωm b $2\omega m$ c $\omega m/2$ d $\omega m/4$

25 For Television signal broad casting the following modulation is useful [ ]

a SSB b DSB-SC c VSB d AM

26 The modulation is needed for ___ [ ]

a frequency translation
c for efficient transmission
b reduced the antenna
d all

27 VSB can be used to transmit [ ]
a Number of pulses
c both
b video signal
d neither ‘a’ nor ‘b’

28 .The bandwidth of VSB is [ ]
a fm-fv b fm + fv c fm ±fv d none

29 DSB can be used transmit [ ]
a two side bands
c one side band and vestigial side band
b one side band
d Vestigial side band

30 Calculate the depth of modulation when a transmitter radiates a signal of 98KW after modulation and 8KW without modulation of the signal [ ]
a 80% b 67% c 50% d 100%

31 Bandwidth required in SSB-SC signal is (f_m is modulating frequency): [ ]
a $2f_m$ b $< 2f_m$ c $> 2f_m$ d f_m

32 The total power in an Amplitude Modulated signal if the carrier of an AM transmitter is 800 W and it is modulated 50 percent [ ]
a 850 W b 10008 KW c 750 W d 900 W

33 All information contained at the output of the AM modulator is contained within the [ ]
a balanced modulators
c transmitter
b bandwidth
d sidebands

34 The function of multiplexing is [ ]
a To reduce the bandwidth of the signal to be transmitted
b To combine multiple data streams over a single data channel
c To allow multiple data streams over multiple channels in a prescribed format
d To match the frequencies of the signal at the transmitter as well as the receiver

35 A modulation index of 0.5 would be same as [ ]
a 0.5 of Modulation Depth
b 1/2% of Modulation Depth

c 5% of Modulation Depth d 50% of Modulation Depth

36 Calculate the bandwidth occupied by a DSB signal when the modulating frequency lies in the range from 100 Hz to 10KHz [ ]

a 28 KHz b 245 KHz c 386 KHz d 198 KHz

37 Amplitude modulation is [ ]

a Change in amplitude of the carrier according to modulating signal

b Change in frequency of the carrier according to modulating signal

c Change in amplitude of the modulating signal according to carrier signal

d Change in amplitude of the carrier according to modulating signal frequency

38 The AM spectrum consists of [ ]

a Carrier frequency c Lower side band frequency

b Upper side band frequency d All of the above

39 Standard intermediate frequency used for AM receiver is [ ]

a 455 MHz c 455 Hz

b 455 KHz d None of the above

40 Calculate the bandwidth occupied by a DSB signal when the modulating frequency lies in the range from 100 Hz to 10KHz [ ]

a 28 KHz b 245 KHz c 386 KHz d 198 KHz

41 SSB system is used for ___ [ ]

a Short-wave transmission c Medium-wave transmission d

b Long-wave transmission d None.

42 A 3 GHz carrier is DSB SC modulated by a signal with maximum frequency of 2 MHz The minimum sampling frequency required for the signal so that the signal is ideally sampled is [ ]

a 4 MHz b 6 MHz c 6004 GHz d 6 GHz

43 The bandwidth of SSB is ___ [ ]

a ωm b 2 ωm c ω m/2 d ωm/4

44 The total power in an Amplitude Modulated signal if the carrier of an AM transmitter is 800 W and it is modulated 50 percent [ ]

a 850 W b 10008 KW c 750 W d 900 W

45 Calculate the depth of modulation when a transmitter radiates a signal of 98KW after modulation and 8KW without modulation of the signal [ ]

a 80% b 67% c 50% d 100%

46 When AM signal is of 25KHz, calculate the number of channels required in Medium Frequency (MF) band of 300KHz-3000KHz [ ]

a 94 b 69 c 85 d 54

47 Calculate the power in one of the side band in SSBSC modulation when the carrier power is 124W and there is 80% modulation depth in the amplitude modulated signal [ ]

a 8933 W b 6485 W c 7936 W d 102 W

48 For low level modulation, amplifier used is [ ]

a Class A c Class A & C

b Class C d None of the above

49 Advantage of using a high frequency carrier wave is [ ]

a Signal can be transmitted over very long distances
b Dissipates very small power
c Antenna height of the transmitter is reduced
d All of the above

50 The most common used filter in SSB generation is [ ]

a Mechanical c RC

b lC d lPF

51 For a FM signal v(t) = 15 cos (10 * 108t + 10 sin 1220t), calculate
1 Carrier frequency 2 Modulating frequency [ ]

a 1591MHz, 1941Hz c 3501MHz, 2001Hz

b 1855MHz, 20015Hz d 1591Hz, 1941Hz

52 A 100MHz carrier is frequency modulated by 5 KHz wave For a frequency deviation of 100 KHz, calculate the carrier swing of the FM signal [ ]

a 2000 KHz b 100 KHz c 105 KHz d 200 KHz

53 Narrow band FM has the characteristics: [ ]

a The frequency sensitivity kf is small
c Both a and b
b Bandwidth is narrow
d None of the above

54 Wide band FM has the characteristics: [ ]
a The frequency sensitivity kf is large
c Both a and b
b Bandwidth is wide
d None of the above

55 Determine the Bandwidth of a FM wave when the maximum deviation allowed is 75KHz and the modulating signal has a frequency of 10KHz [ ]
a 170 KHz b 200 KHz c 100 KHz d 1000 KHz

56 A 100MHz carrier is frequency modulated by 10 KHz wave For a frequency deviation of 50 KHz, calculate the modulation index of the FM signal [ ]
a 100 b 50 c 70 d 90

57 For a FM signal v(t) = 25 cos (15 * 108t + 10 sin 1550t), calculate
Modulation index
Maximum frequency deviation [ ]
a 10, 30001Hz b 20, 15509Hz c 10, 24659Hz d 10, 20000Hz

58 Guard bands are provided in FM signal to [ ]
a Prevent interference from adjacent channels
b To increase the noise
c To increase bandwidth
d None of the above

59 Maximum frequency deviation and the maximum bandwidth allowed for commercial FM broadcast is [ ]
a 80KHz, 160Khz
c 60KHz, 170Khz
b 75KHz, 200Khz
d 75KHz, 250Khz

60 Calculate the modulation index in an FM signal when fm (modulating frequency) is 250Hz and Δf (frequency deviation) is 5KHz [ ]
a 20 b 35 c 50 d 75

61 What is the value of carrier frequency in the following equation for the FM signal?
v(t)= 5 cos(6600t+ 12sin2500t) [ ]

a 1150 Hz b 6600 Hz c 2500 Hz d 1050 Hz

62 Calculate the maximum frequency deviation for the FM signal
v(t) = 10 cos (6000t+ 5sin2200t) [ ]
a 2200 Hz b 6000 Hz c 1750 Hz d 11000 Hz

63 The ratio of maximum peak frequency deviation and the maximum modulating signal frequency is termed as [ ]
a Frequency deviation c Signal to noise ratio
b Deviation ratio d Frequency spectrum

64 Carson's rule is used to calculate [ ]
a Bandwidth of FM signal c Modulation index
b Signal to noise ratio d Noise figure

65 The increase or decrease in the frequency around the carrier frequency is termed as [ ]
a Figure factor c Modulation index
b Frequency deviation d Frequency Spectrum

66 The range of modulating frequency for Narrow Band FM is [ ]
a 30 Hz to 15 KHz c 30 Hz to 3 KHz
b 30 Hz to 30 KHz d 3 KHz to 30 KHz

67 The ratio of actual frequency deviation to the maximum allowable frequency deviation is called [ ]
a Multi tone modulation c Phase deviation
b Percentage modulation d Modulation index

68 What is the maximum modulating frequency allowed in commercial FM broadcastings? [ ]
a 40 KHz b 75 KHz c 15 KHz d 120 KHz

69 What is the maximum frequency deviation allowed in commercial FM broadcasting? [ ]
a 100 KHz b 75 KHz c 15 KHz d 120 KHz

70 What is the change in the bandwidth of the signal in FM when the modulating frequency increases from 12 KHz to 24KHz? [ ]

a 40 Hz c 24 Hz

b 58 Hz d Bandwidth remains unaffected

71 According to Carson's rule, Bandwidth B and modulating frequency fm are related as [ ]
a $B = 2(\Delta f + fm)$ Hz c $B < 2fm$ Hz

b $B = fm$ Hz d $B > 2fm$ Hz

72 The audio signal having frequency 500Hz and voltage 26V, shows a deviation of 52KHz in a Frequency Modulation system If the audio signal voltage changes to 86V, calculate the new deviation obtained [ ]
a 172 KHz b 196 KHz c 256 KHz d 146 KHz

73 What is the required bandwidth according to the Carson's rule, when a 100 MHz carrier is modulated with a sinusoidal signal at 1KHz, the maximum frequency deviation being 50 KHz [ ]
a 1 KHz b 50 KHz c 102 KHz d 150 KHz

74 The modulation index of FM is given by [ ]
a μ = frequency deviation/ modulating frequency
b μ = modulating frequency /frequency deviation
c μ = modulating frequency/ carrier frequency
d μ = carrier frequency / modulating frequency

75 FM is disadvantageous over AM signal because [ ]
a much wider channel bandwidth is required
b FM systems are more complex and costlier
c Adjacent channel interference is more
d Both a and b

76 FM signal is better than AM signal because [ ]
a Less immune to noise
b Less adjacent channel interference
c Amplitude limiters are used to avoid amplitude variations
d All of the above

77 Determine the Bandwidth of a FM wave when the maximum deviation allowed is 75KHz and the modulating signal has a frequency of 10KHz. [ ]
a 200 KHz b 170 KHz c 100 KHz d 1000 KHz

78 Wide band FM has the characteristics: [ ]
a The frequency sensitivity k_f is large b Bandwidth is wide

c Both a and b d None of the above

79 Narrow band FM has the characteristics: [ ]
a The frequency sensitivity k_f is small c Both a and b

b Bandwidth is narrow d None of the above

80 A 100MHz carrier is frequency modulated by 10 KHz wave. For a frequency deviation of 50 KHz, calculate the modulation index of the FM signal. [ ]
a 100 b 50 c 70 d 90

81 A 100MHz carrier is frequency modulated by 5 KHz wave. For a frequency deviation of 100 KHz, calculate the carrier swing of the FM signal. [ ]
a 200 KHz b 100 KHz c 2000 KHz d 105 KHz

82 For a FM signal $v(t) = 20 \cos (10 * 10^8 t + 30 \sin 3000t)$, calculate the power dissipated by the FM wave in a 20Ω resistor. [ ]
a 100 Watts b 10 Watts c 200 Watts d 20 Watts

83 For a FM signal $v(t) = 25 \cos (15 * 10^8 t + 10 \sin 1550t)$, calculate
Modulation index
Maximum frequency deviation [ ]
a 10, 3000.1Hz c 10, 2465.9Hz

b 20, 1550.9Hz d 10, 2000.0Hz

84 The ratio of maximum peak frequency deviation and the maximum modulating signal frequency is termed as [ ]
a Frequency deviation c Signal to noise ratio

b Deviation ratio d Frequency spectrum

85 Carson's rule is used to calculate [ ]
a Bandwidth of FM signal c Modulation index

b Signal to noise ratio d Noise figure

86 The increase or decrease in the frequency around the carrier frequency is termed as [ ]
a Figure factor b Frequency deviation

c Modulation index d Frequency Spectrum

87 Phase-locked loop can be used as [ ]
a FM demodulator c FM receiver
b AM demodulator d AM receiver

88 Change in instantaneous phase of the carrier with change in amplitude of the modulating signal generates [ ]
a Direct FM b Indirect FM c SSB-SC d DSB-SC

89 VCO is used to generate [ ]
a Indirect FM b SSB-SC c DSB-SC d Direct FM

90 FM is advantageous over AM as [ ]
a The amplitude of FM is constant. So transmitter power remains unchanged in FM but it changes in AM
b The depth of modulation in FM can be changed to any value by changing the frequency deviation. So the signal is not distorted
c There is less possibility of adjacent channel interference due to presence of guard bands
d All of the above

91 The range of modulating frequency for Narrow Band FM is [ ]
a 30 Hz to 15 KHz c 30 Hz to 3 KHz
b 30 Hz to 30 KHz d 3 KHz to 30 KHz

92 The ratio of actual frequency deviation to the maximum allowable frequency deviation is called [ ]
a Multi tone modulation c Phase deviation
b Percentage modulation d Modulation index

93 What is the maximum modulating frequency allowed in commercial FM broadcastings? [ ]
a 40 KHz b 75 KHz c 15 KHz d 120 KHz

94 For a FM signal v(t) = 15 cos (10 * 10^8t + 10 sin 1220t), calculate
(i). Carrier frequency
(ii). Modulating frequency [ ]
a 159.1MHz, 194.1Hz c 350.1MHz, 200.1Hz
b 185.5MHz, 200.15Hz d 159.1Hz, 194.1Hz=

95 Guard bands are provided in FM signal to [ ]

a Prevent interference from adjacent channels

b To increase the noise

c To increase bandwidth

d None of the above

96 In frequency modulation, [ ]

a Armstrong method is used for generation

b Multiple side bands are generated

c The FM signal has infinite bandwidth

d All of the above

97 Calculate the modulation index in an FM signal when f_m (modulating frequency) is 250Hz and Δf (frequency deviation) is 5KHz. [ ]

a 20 b 35 c 50 d 75

98 The equation $v(t) = A \cos [\omega_c t + k_p \Phi(t)]$ represents the signal as [ ]

a Phase modulated signal

b SSBSC signal

c DSB SC signal

d None of the above

99 The amplitude of side bands in WBFM is determined by [ ]

a Modulation index

b Carrier amplitude

c Order of Bessel function

d All of the above

100 The frequency deviation in FM is 50Khz, what is the carrier swing in FM is [ ]

a 50 Khz b 100 Khz c 25 Khz d 10 Khz

101 The signal to noise of DSB – SC scheme is [ ]

a 3 b 4 c 1 d Zero

102 The signal to noise of SSB – SC scheme is [ ]

a 3 b 4 c 1 d Zero

103 The pre – emphasis, de – emphasis arrangement in FM results in [ ]

a Increase of B.W

b Decrease of B.W

c No effect on B.W

d None

104 The received noise component after demodulation in AM case is [ ]

a In phase component

b Quadrature Component

c Both

d None

105 The output noise power of DSB is [ ]

a 2WNo b WNo c 4WNo d None

106 The output noise power of SSB is [ ]

a 2WNo b WNo c 4WNo d None

107 The signal to noise of AM scheme is [ ]

a 3 b 4 c 1 d Zero

108 Internal Noise is due to [ ]

a Resistors b Diodes c Transistors d Above All

109 External Noise is due to [ ]

a Diodes

b Transistors

c Motors, generators, atmospheric sources

d Above All

110 Thermal noise is generated due to [ ]

a Thermal Motion

b Brownian Motion

c Both A&B

d Above All

111 Thermal noise also referred as [ ]

a White noise

b Internal Noise

c Both A&B

d Above All

112 Noise in Angle Modulated Systems [ ]

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

113 Threshold improvement can be obtained by [ ]

a Pre-emphasis

b De-emphasis

c Pre-emphasis and De-emphasis d Above All

114 pre-emphasis circuit is [ ]
a simple high pass filter c Both A&B

b simple low pass filter d Above All

115 Improving signal to noise ratio by increasing the magnitude of high frequency signal with respect to lower frequency signals is? [ ]
a Pre-emphasis c Pre-emphasis and De-emphasis

b De-emphasis d Above All

116 Improving signal to noise ratio by decreasing the magnitude of high frequency signals with respect to lower frequency signals [ ]
a Pre-emphasis c Pre-emphasis and De-emphasis

b De-emphasis d Above All

117 A simple low pass filter can operate as [ ]
a Pre-emphasis c Pre-emphasis and De-emphasis

b De-emphasis d Above All

118 A simple high pass filter can operate as [ ]
a Pre-emphasis c Pre-emphasis and De-emphasis

b De-emphasis d Above All

119 Noise is unwanted signal that affects …. [ ]
a wanted signal c Both A&B

b unwanted signal d Above All

120 De-emphasis circuit is? [ ]
a simple high pass filter c Both A&B

b simple low pass filter d Above All

121 Noise is random signal that exists in [ ]
a communication systems b De-emphasis circuit

c pre-emphasis circuit

d Both A&B

122 Noise level in system is proportional to [ ]

a Temperature and bandwidth

c Gain of circuit

b Amount of current

d Above All

123 Electronic noise that occurs when there are finite numbers of particles that carry energy such as electrons or photons is? [ ]

a Shot noise

c Johnson noise

b White noise

d Both A&B

124 Due to analogy of lead shots called? [ ]

a Shot noise

c Johnson noise

b White noise

d Both A&B

125 Uniform spectral density across the EM Spectrum is? [ ]

a Shot noise

b Johnson noise

c Both A&B

d Above All

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

B.Tech– IVSem (MR 18-2018-19 Admitted Students)
I Mid Examination Subjective Question Bank

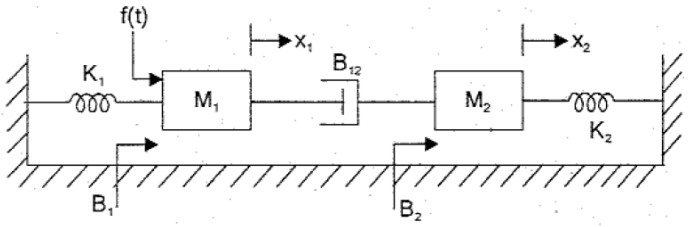
Subject: Control Systems **Branch :ECE**
Name of the faculty: B Anjaneyulu/Dr.A.Pradeep Kumar/R.Ravindra Reddy

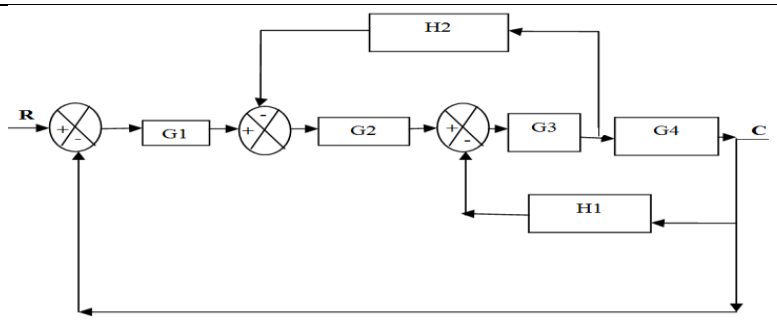
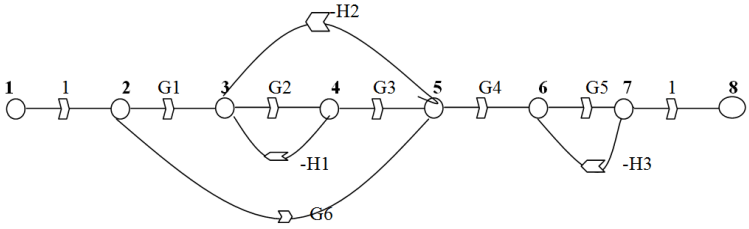
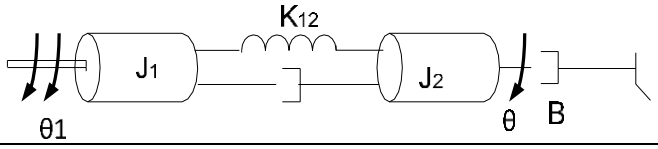
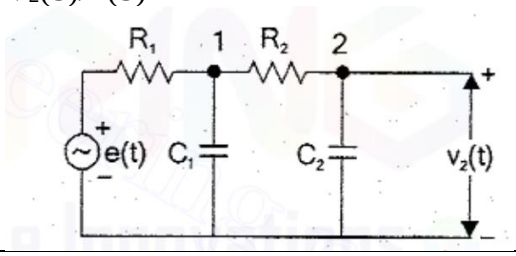
Descriptive questions

Instructions:

1. All the questions carry equal marks

2. Solve all the questions

Question No.	Questions	Bloom's Taxonomy Level	CO
	MODULE-I		
1.	Explain the differences between open loop and closed loop control systems with one example.	Understand	1
	OR		
2.	Classify the control systems.	Understand	1
3.	Contrast the effect of feedback on a) overall gain b) sensitivity of a system.	Analyze	1
	OR		
4.	Simplify the transfer function of the mechanical system as shown. 	Analyze	1
5.	Apply block diagram reduction technique to determine the overall transfer function (CS)/ R(S) of the following system	Apply	1

			
	OR		
6.	Apply signal flow graph (SFG) using Mason Gain Formula to Find the overall transfer function of the system. 	Apply	1
7.	Develop the transfer function $\theta(S)/\theta_1(S)$ for the given mechanical rotational system? 	Apply	1
	OR		
8.	Solve the transfer function of the electrical network $V_2(S)/E(S)$ 	Apply	1
	MODULE-II		
1.	Derive the response of a standard under damped second order system for unit step input.	Analyze	2
	OR		
2.	Derive the response of a standard undamped second order system for unit step input.	Analyze	2

3.	Explain steady state error with unit step input.	Understand	2
	OR		
4.	A unit feedback system has a open loop transfer function of G(s)=10/[(s+1)(s+2)]. Determine the steady state error for unit step input.	Understand	2
5.	The closed loop transfer function of a second order system is given by $200/(s^2+20s+200)$. Determine the damping ratio and natural frequency.	Analyze	2
	OR		
6.	Give the classification of second order systems depending on damping ratio and sketch respective response of systems for unit step input.	Analyze	2
7.	The open loop transfer function of a system is G(s) = 16/[s(s+0.8)] with a feedback element H(s)=Ks+1 .Determine the nature of response C(t) to the unit step input.	Analyze	2
	OR		
8.	A unity feedback control system has an open loop transfer function G(s)=10/[s(s+2)]. Find the rise time, percentage overshoot, peak time and settling time for step input of 12 units.	Analyze	2
	MODULE-III		
1.	Define the BIBO stability, what is the requirement for BIBO stability.	Understand	3
	OR		
2.	What is characteristic equation and how their roots are related to stability.	Understand	3
3.	Test the stability of the system with the following characteristic equation by Routh Stability Criterion $2s^5+3s^4+2s^3+s^2+2s+2$.	Analyze	3
	OR		
4.	Test the stability of the system with the following characteristic equation by Routh Stability Criterion $s^6+2s^5+8s^4+12s^3+20s^2+16s+16=0$.	Analyze	3

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

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

B.Tech– IV Sem (MR 18)

I Mid Examination Objective Question Bank January 2020

Subject: CONTROL SYSTEMS (80209) **Branch : ECE**

Name of the faculty: B Anjaneyulu/Dr.A.Pradeep Kumar/R.Ravindra Reddy

1. For open control system which of the following statements is incorrect ? required for maintaining the ( )

a) Less expensive
b) Recalibration is not required quality of the output
c) Construction is simple and maintenance easy
d) Errors are caused by disturbances

2. In an open loop control system ( )
a) Output is independent of control input
b) Output is dependent on control input
c) Only system parameters have effect on the control output
d) None of the above

3. A control system in which the control action is somehow dependent on the output is known as
a) Closed loop system b) Semi closed loop system ( )
c) Open system d) None of the above

4. In closed loop control system, with positive value of feedback gain the overall gain of the system will ( )
a) Decrease b) increase c) be unaffected d) any of the above

5. Which of the following is an open loop control system ? ( )
a) Field controlled D.C. motor b) Ward leonard control
c) Metadyne d) Stroboscope

6. Which of the following statements is not necessarily correct for open control system ? ( )
a) Input command is the sole factor responsible for providing the control action
b) Presence of non-linearities causes malfunctioning
c) Less expensive
d) Generally free from problems of non-linearities

7.In open loop system ( )
a) the control action depends on the size of the system
b) the control action depends on system variables
c) the control action depends on the input signal
d) the control action is independent of the output

8. Which system has a tendency to oscillate ( )
a) Open loop system b) Closed loop system c) Both d) Neither of these

9. Force balancing equation of a mass elements is (where x = displacement) ( )
a) M d^2x/dt^2 b) M dx/dt c) M *x d) any of the above

10. If two blocks having gains A and B respectively are in series connection, find the resultant gain using block diagram reduction technique? ( )
a) A+B b) A*B c) A-B d) A/B

11. In signal flow graph input node is node having only---------- ( )
a) incoming branches b) outgoing branches c) both 1 and 2 d) none of the above

12. A good control system has all the following features except ( )
a) good stability b) slow response c) good accuracy d) sufficient power handling capacity

13. A car is running at a constant speed of 50 km/h, which of the following is the feedback element for the driver? ( )
a) Clutch b) Eyes c) Steering wheel d) None of the above

14.The initial response when the output is not equal to input is called ( )
a) Transient response b) Error response c) Dynamic response d) Either of the above

15. A control system working under unknown random actions is called ( )
a) computer control system b) digital data system
c) stochastic control system d) adaptive control system

16. An automatic toaster is a _____ loop control system ( )
a) open b) closed c) partially closed d) any of the above

16. Any externally introduced signal affecting the controlled output is called a ( )
a) feedback b) stimulus c) signal d) gain control

17.A closed loop system is distinguished from open loop system by which of the following ?( )
a) Servo mechanism b) Feedback c) Output pattern d) Input pattern

18.-----is a part of the human temperature control system. ( )
a) Digestive system b) Perspiration system c) Ear d) Leg movement

19.By which of the following the control action is determined when a man walks along a path?( )
a) Brain b) Hands c) Legs d) Eyes

20.Identify the closed loop system. ( )
a) Auto-pilot for an aircraft b) Direct current generator c) Car starter d) Electric switch

21.Which of the following devices are commonly used as error detectors in instruments ?
a) Vernistats b) Microsyns c)Resolvers d)Any of the above ( )

22.Which of the following should be done to make an unstable system stable ? ( )
a) The gain of the system should be decreased
b) The gain of the system should be increased
c) The number of poles to the loop transfer function should be increased
d) The number of zeros to the loop transfer function should be increased

23.As a result of introduction of negative feedback which of the following will not decrease?
a) Band width b) Overall gain c) Distortion d) Instability ( )

24.Regenerative feedback implies feedback with ( )
a) oscillations b) step input c) negative sign d) positive sign

25.The output of a feedback control system must be a function of ( )
a) reference and output b) reference and input
c) input and feedback signal d) output and feedback signal

26.Identify the open loop control system ( )
a) Ward Leonard control b) Field controlled D.C. motor c) Stroboscope d) Metadyne

27.A control system with excessive noise, is likely to suffer from ( )
a) saturation in amplifying stages b) loss of gain c) vibrations d) oscillations

28.Zero initial condition for a system means ( )
a) input reference signal is zero b) zero stored energy
c) system is at rest and no energy is stored in any of its components d) All the above

29.Transfer function of a system is used to calculate which of the following ? ( )
a) The order of the system b) The time constant
c) The output for any given input d) The steady state gain

30.The band width, in a feedback amplifier. ( )
a) remains unaffected
b) decreases by the same amount as the gain increase
c) increases by the same amount as the gain decrease
d) decreases by the same amount as the gain decrease

31.On which of the following factors does the sensitivity of a closed loop system to gain changes and load disturbances depend ? ( )
a) Frequency b) Loop gain c) Forward gain d) All of the above

32.the transient response with feedback system ( )
a) Rises quickly b) Rises slowly c) Decays quickly d) Decays slowly

33.Which of the following statements is correct for a system with gain margin close to unity or a phase margin close to zero ? ( )
a) The system is relatively stable b) The system is highly stable
c) The system is highly oscillatory d) none of the above

34. The motion of the mechanical element can be described as ( )
a) purely rotational b) purely translational c) rotational and translational d) a or b

35. Translational Motion is the motion ( )
a) a longer straight line b) about fixed axis's c) along a random path d) none

36. Rotational motion is the motion ( )
a) a longer straight line b) about fixed axis c) along a random path d) none

37. An element that stores the kinetic energy of translational motion is called ( )
a) Mass b) Spring c) Damper d) None

38 .The force of sliding friction between dry surfaces is called ( )
a) Coulomb friction b)Viscous friction c) stiction d)None

39. Friction force acts in the direction ( )
a) Opposite to that of motion b) Perpendicular to that motion
c) Along that of the motion d)none

40. Which of the following combination is correct electrical analogous element in force-current analogy? ( )
a) force-current b) mass-R c) K-C d) B-L

41. Which of the following combination is correct electrical analogous element in force-voltage analogy? ( )
a) force-current b) mass-R c) K-1/C d) B-L

42. Signal flow graph can be used to represent ( )
a) linear systems b) non linear systems c) both a &b d) none

43-The equation based on the signal flow graph is drawn must be ( )
a) differential equation
b) algebraic equations
c) algebraic equations in the form of cause and effect relations
d) differential equations in the form of cause and effect relations

44 .A node which have only outgoing signals is called ( )
a) input node b) output node c) mixed node d)none

45.A node which have only incoming signals is called ( )
a) input node b) output node c) mixed node d) none

46-A node which have both incoming and outgoing signals is called ( )
a) input node b) output node c) mixed node d) none-

47.Three blocks connected in cascade with gains 5,8,4,then the total gain is ( )
a)17 b) 160 c) 44 d) 37

48.Three blocks connected in parallel with gains 4,6,8,then the total gain is ( )
a)18 b) 196 c) 32 d) 52

49.A given system can be represented by ( )
a) Only one signal flow graph
b) Only two signal flow graph
c) Many different signal flow graph
d) None

50.A given block diagram can be represent ( )
a) Only one system b) 2 or 3 systems c) Many Systems d) None

51.Knowledge of transfer function of a system is necessary for the caluculation of ( )
a) Time constant b) Output for given input c) Order of the system d) None

52.Zero initial condition means that the system is ( )
a) Working with zero initial conditions
b) Working with zero reference signal
c) At rest and no energy is stored in the components
d) None

53. The transfer function is defined for ( )
a) Linear time invariant b) Linear time variant c) Non liner systems d) None

54. The transfer function is the ratio ( )
a) Output to input
b) The Laplace transformation of output to that of Laplace transformation of input
c) The Laplace transformation of input to that of Laplace transformation of output
d) Inverse of the Laplace transformation of output to that of Laplace transformation of input

55. With feedback, the transient response of the system is as compared to that without feedback
a) Decays slowly b) Rises at fast rate c) Rises at slower rate d) None ( )

56-The error signal in control system is ( )
a) The Difference between measured value to set value b) The Sum of measured value to set value c) Ratio between measured value to set value d) None

57-The unit impulse signal has the zero value everywhere except at t=0, where its magnitude is
a) Unity b) Small finite value c) Infinity d) None ( )

58. The area under a unit impulse function is ( )
a) Infinity b) Zero c) Unity d) None

59. The nature of transient response of a system depends on the-A ( )
a) Only on the system poles b) Only on inputs applied
c) A&B d) None

60. The Laplace transformation of impulse function is ( )
a) Zero b) One c) 1/s d) None

61. The system impulse sometimes referred as to as the ( )
a) Weighing function of the system b) Transfer function of the system
c) Transient Response of the System d) Steady state response of the system

62-The impulse response of the system is ( )
a) The inverse Laplace transform of its transfer function
b) The inverse Laplace transform of G(s)
c) The inverse Laplace transform of G(s) H(s) d) None

63. The large time constant corresponds of a ( )
a) Sluggish system b) Faster system c) Over damped system d) Under damped system

64. The steady state error of first order system to a ramp input is equal to ( )
a) The time constant of the system b) Zero c) Infinity d) None

65. Control systems are normally designed with damping factor ( )
a) $\zeta=0$ b) $\zeta=1$ c) $\zeta>1$ d) $\zeta<1$

66.For a stable second order under damped system, the poles are ( )
a) Purely imaginary b) Complex conjugate of each other
c) Real and equal d) Real and unequal

67. For a stable second order over damped system, the poles are ( )
a) Purely imaginary b) Complex conjugate of each other
c) Real and Equal d) Real and unequal

68. For a stable second order un-damped system, the poles are ( )
a) Purely imaginary b) Complex conjugate of each other
c) Real and equal d) Real and unequal

69. For a stable second order critically-damped system, the poles are ( )
a) Purely imaginary b) Complex conjugate of each other
c) Real and equal d) Real and unequal

70. For undamped system the damping ratio is ( )

a) $\zeta=0$ b) $\zeta=1$ c) $\zeta>1$ d) $\zeta<1$

71. For over damped system the damping ratio is ( )
a) $\zeta=\infty$ b) $\zeta=0$ c) $\zeta>1$ d) $\zeta=1$

72. For underdamped system the damping ratio is ( )
a) $\zeta=0$ b) $\zeta<1$ c) $\zeta<0$ d) $\zeta=1$

73. For critically damped system the damping ratio is ( )
a) $\zeta=0$ b) $\zeta<1$ c) $\zeta<0$ d) $\zeta=1$

74. For a second –order system as ζ is increased from zero, the response becomes ( )
a) Progressively more oscillatory b) Progressively less oscillatory
c) Zero d) Infinity

75. If the characteristic equation of the system is $s^2+2s+1=0$, the system is ( )
a) Undamped b) Overdamped
c) Critically damped d) Underdamped

76. If the characteristic equation of a system is $s^2+4s+10=0$, the system is ( )
a) Undamped b) Overdamped
c) Critically damped d) under damped

77. If the characteristic equation of a system is $s^2+6s+8=0$, the system is ( )
a) Undamped b) Underdamped
c) Critically damped d) Over damped

78. If the characteristic equation of a system is $s^2+2=0$, the system is ( )
a) Undamped b) Under damped
c) Critically damped d) Over damped

79. The response of the control system having damping factor as unity will be ( )
a) Oscillatory b) Underdamped
c) Critically Damped d) None of These

80. The rise time of a second order underdamped system is the time taken by the output to rise
a) From 10% To 90% of Its Final Steady State Value
b) From 0% To 100% of Its Final Steady State Value
c) From 5% To 95% of Its Final Steady State Value
d) From 0% To 50% of Its Final Steady State Value ( )

81. The rise time is the time taken by the output to rise from 10% to 90% of its final steady state value, in case of ( )
a) Undamped systems b) Underdamped systems
c) Over damped systems d) critically damped systems

82. In general, which of the following systems is preferred ( )
a) Overdamped b) Critically-damped
c) Undamped d) Underdamped

83. The settling time of the second order linear system is ( )
a) 4 times the time constant of the system b) 2 times the time constant of the system
c) 1/4 times the time constant of the system d) none of these

84. A system is critically damped. If the gain of the system is increased, the system will behave as ( )
a) Undamped b) Under damped c) Over damped d) No effect of gain

85. The steady state response of a system is dependent ( )
a) only on system poles b) only on the inputs applied
c) Both on the system poles and the inputs applied d) none of these

86. The type of a system indicates the number of integrations in the ( )
a) Open Loop transfer function b) Forward path transfer function-
c) Closed Loop transfer function d) None of these

87. As type of system is increased ( )
a) More errors are eliminated b) More errors are introduced
c) There is no effect on errors d) none of these

88. As type of system is increased ( )
a) Stabilization becomes more difficult b) Stabilization becomes very easy
c) There is no effect on stability d) None of these

89. The roots of the characteristic equation are the same as the poles of the ( )
a) Closed Loop transfer function b) Open Loop transfer function
c) Forward path transfer function d) None of these

90. The effect of increase in the forward path gain of a control system on the damping ratio is that the damping ratio is ( )
a) Increased b) Reduced
c) Not effected d) Made zero

91. Due to an increase in the forward path gain of a control system, the steady state error is ( )
a) Reduced b) Increased
c) Not effected d) Made infinity

92. Due to an increase in the forward path gain of a control system, the maximum overshoot is ( )
a) Reduced b) Increased
c) Not effected d) Eliminated

93. Due to derivative control, the steady state error is ( )

a) Reduced
b) Increased
c) Not effected
d) Made zero

94. Due to derivative control, the rise time is ( )
a) Reduced
b) Increased
c) Not effected
d) Made zero

95. Due to integral control, the order of a control system is ( )
a) Increased
c) Not effected
b) Decreased
d) None of these

96. In a type-1,second-order system ,the first undershoot occurs at a time ( )
a) $T_p=\pi/\omega_d$
c) $T_p=\pi/2\ \omega_d$
b) $T_p=2\pi/\ \omega_d$
d) $T_p= \omega_d\ /\ 2\pi$

97. The steady –state error of type-1,second order system to a unit –ramp input is ( )
a) $2\zeta\ \omega_n$
c) $2\zeta/\ \omega_n$
b) $\omega_n/2\zeta$
d) $2\omega_n/\zeta$

98. The position error constant of a type -2 canonical feedback system is given by ( )
a) $\lim_{s\to 0} G(s)$
b) $\lim_{s\to 0} sG(s)$
c) $\lim_{s\to \infty} sG(s)$
d) None

99. The velocity error constant of a type -2 canonical feedback system is given by ( )
a) $\lim_{s\to 0} G(s)$
b) $\lim_{s\to 0} sG(s)$
c) $\lim_{s\to 0} s^2G(s)$
d) None

100. The acceleration error constant of a type -2 canonical feedback system is given by ( )
a) $\lim_{s\to 0} G(s)$
b) $\lim_{s\to 0} sG(s)$
c) $\lim_{s\to 0} s^2G(s)$
d) None

101. If the system has non- repeated poles on the jω axis ,the system is ( )
a) Stable
c) Marginally stable
b) Unstable
d) Conditionally stable

102. If the system has multiple poles on the jω axis ,the system is ( )
a) Stable
c) Marginally stable
b) Unstable
d) Conditionally stable

103.If the system has G(s)=1/s(1+4s),the system is ( )
a) Stable b) Unstable c) Marginally stable d) Conditionally stable

104. Integrators are ( )
a) Stable c) Marginally stable
b) Unstable d) Conditionally stable

105. Sinusoidal oscillators are ( )
a) Stable c) Marginally stable
b) Unstable d) Conditionally stable

106. When the system is exited by an unbounded input and produces an unbounded output ( )
a) The system is stable b) The system is unstable
c) The system is conditionally stable
d) None

107. Marginally stable system have some roots with real part equal to zero ,but none with ( )
a) Positive real parts c) Zero real part
b) Negative real parts d) None

108. If all the roots of the characteristic equation have negative real part, then the system is ( )
a) Stable c) Conditionally stable
b) Unstable d) Marginally stable

109. The Routh stability criterion for testing the stability of the system is ( )
a) An algebraic method c) Both a and b
b) A graphical method d) None

110.
For the application of Routh's test, all the coefficients of the characteristic equation must be ( )
a) Real
b) Imaginary
c) Complex
d) None

111. The number of sign changes in the elements of the first column of Routh's array denotes ( )
a) The number of zeros of the closed loop system in the RHP
b) The number of poles of the closed loop system in the RHP
c) The number of zeros of the open loop system in the RHP
d) The number of poles of the open loop system in the RHP

112.
In the formulation of the routh array, when ever difficulty 1 or difficulty 2 arises, it can be concluded that the system is ( )
a) Stable
b) Unstable
c) Marginally stable
d) Conditionally stable

113. G(s) =e^{-2s}/s(s+4).the system with this transfer function is operated in closed loop with unity feedback. The closed loop system is ( )
a) Stable c) Marginally stable
b) Unstable d) Conditionally stable

114. The closed loop transfer function is T(s) =(s-2)/(s+1)(s+3)(s+4).The system is ( )
a) Stable c) Marginally stable
b) Unstable d) Conditionally stable

115. The closed loop transfer function is T(s)=K(s+1)/(1+s+2s^2-3s^3+s^4).The system is ( )
a) Stable b) Unstable c) Marginally stable d) Conditionally stable

116. The terms in the first column of the routh array of the characteristic equation of certain system are 2,1,8,-7,2,6.the number of roots of the characteristic equation in the right half of the s-plane is equal to ( )
a) 2 c) 1
b) 3 d) none

117. The terms in the first column of the routh array of the characteristic equation of certain system are 5,7,4,3,-2.the number of roots of the characteristic equation in the right half of the s-plane is equal to ( )
a) 2
b) 1
c) 3
d) none

118. The terms in the first column of the routh array of the characteristic equation of certain system are 4,7,6,-5,-3.the number of roots of the characteristic equation in the right half of the s-plane is equal to ( )
a) 2-
b) 1-
c) 3-
d) none-

119. The open loop transfer function of closed loop system is G(s)=K/s(s+2)(s+4).the range of K for stable operation is ( )
a) 0<K<48
b) 0<K<24-
c) 0<K<36-
d) None-

120. The characteristic equation of unity feedback system is given by s^3+s^2+2s+2=0. ( )
a) The system has one pole in the RH of s-plane
b) The system has two poles in the RH of s-plane
c) The system is asymptotically stable
d) The system exhibits oscillatory response

121. A closed loop transfer function of control system is given by G(s)=K(s+8)/S(s+4)(s+2),the smallest value of a for which the system is stable in closed loop for all positive values of K is ( )

a) 0 c) 8

b) 4 d) 12

122. The open loop transfer function of unity feedback control system is given by G(s)=K(s+4)/(s+2)(-6).For K>4,the stability characteristics of open loop and closed loop configuration of the system are respectively ( )

a) Stable and stable c) Stable and unstable

b) Unstable and stable d) Unstable and unstable

123. The characteristic equation 1+G(s)H(s)=0 of a system is given by s4+8s3+12s2+8s+K=0, for the system to remain stable ,the values of K should be ( )

a) Zero

b) 0<K<11

c) >11

d) Positive

124. The open loop transfer function of unity feedback control system is given by G(s)H(s)=22.5/ s(s+2)(s+T).where T is variable parameter.The closed loop system will be stable for all values of

a) T>0 c) T>2.5 ( )

b) 0<T<0.25 d) 2.5<T<5

125. The open loop transfer function of unity feedback control system is given by G(s) =5(s+1)/ s^2(s+2) .the stability characteristics of the open loop and closed loop configuration are ( )

a) Stable and stable

b) Unstable and stable

c) Stable and unstable

d) Unstable and unstable

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

B.Tech– III Sem (MR 18)

I Mid Examination Subjective Question Bank

Subject: ELECTRONIC CIRCUITS & PULSE CIRCUITS **Branch : ECE**

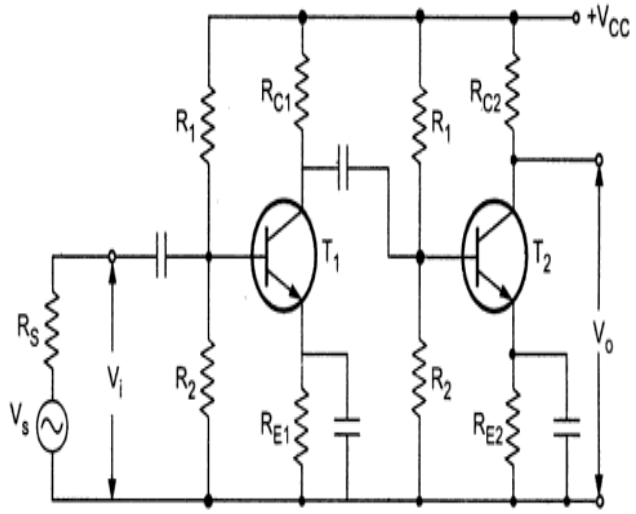
Subject Code: 80410 **Max Marks:25**

Instructions:

1. All the questions carry equal marks

2. Solve all the questions

Module I			
Q.No.	**Question**	**Bloom's Taxonomy Level**	**CO**
1	An Common Emitter circuit has the following parameters: R_S= 50Ω, hfe=50, hie = 1kΩ, hre = 2.5 X 10^{-4}, hoe = 50kΩ, R_1 = 100kΩ and R_2 = 10kΩ. Solve for Ri, Ro, Av, A_I, A_{vs} , $A_{IS.}$	Applying	I
	OR		
2	Develop the expressions for the Current gain, input impedance and overall voltage gain of Darlington pair.	Applying	I
3	For the circuit shown in figure, R_S= 1KΩ, R_1 = 200kΩ, R_2 = 20kΩ for first stage , R_{E1} = R_{E2}= 100Ω , R_1 = 47kΩ, R_2 = 4.7kΩ for second stage , R_{C1} = 15kΩ , R_{C2} = 4kΩ hie = 1.2kΩ, hfe = 50, hre =2.5X10^{-4} , hoe = 25x10^{-6} A/V .	Applying	I

	Solve A_v, A_I , Ri, Ro, A_{vs} , A_{IS}  		
	OR		
4	Develop the expression for short circuit current gain of common emitter configuration using the hybrid-Π model. Solve the relation between f_β and f_T.	Applying	I
5	Explain the different coupling schemes used in multistage amplifiers with frequency response.	Understanding	I
	OR		
6	a) Explain the working of a cascade amplifier with the help of a neat circuit diagram. b) Discuss the effect of coupling capacitors of a CE amplifier on the overall frequency response of the amplifier.	Understanding	I
7	Explain the operation of RC coupled amplifier with neat sketch. Outline its advantages and disadvantages.	Understanding	I
	OR		
8	Explain the operation of transformer coupled amplifier with neat sketch. Outline its advantages and disadvantages.	Understanding	I
Module -II			
1	a) Classify amplifiers based on operating point selection. Compare them in terms of efficiency and distortion.	Understanding	II
	OR		

2	Explain the working of Direct coupled class A power amplifier with the help of neat circuit diagram.	Understanding	II
3	Simplify the expressions for maximum theoretical efficiency of: (i) Direct coupled class-A amplifier (ii) Transformer coupled class-A amplifier.	Analyze	II
	OR		
4	Analyze the working of Transformer coupled class A power amplifier with the help of neat circuit diagram.	Analyze	II
5	Explain about the harmonic distortion present in power amplifiers. Develop the expression for the second order harmonic distortion present in the amplifiers.	Understanding & Applying	II
	OR		
6	A Power amplifier has the following harmonics: B1=120mA, B2=10mA, B3=4mA, B4=2mA, B5=1mA. Solve for the %Total Harmonic distortion	Applying	II
7	Explain the operation of class B push pull amplifier with the help of neat sketch. Outline its merits and demerits.	Understanding	II
	OR		
8	Explain the operation of class B complementary symmetry push pull amplifier with the help of neat sketch. Outline its merits and demerits.	Understanding	II
Module -III			
1	Develop the expression for the upper cut off frequency of a low pass RC circuit for sinusoidal input.	Applying	III
	OR		
2	Develop an expression for rise time of low pass RC circuit excited by pulse input.	Applying	III
3	Illustrate the output waveform of an RC high-pass circuit with a square wave input under different time constants.	Understanding	III

OR			
4	Illustrate the output waveform of an RC low-pass circuit with a square wave input under different time constants.	Understanding	III

Signature of the Faculty **Signature of HOD**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

B.Tech– III Sem (MR 18)

I Mid Examination Objective Question Bank November 2019

Subject: ELECTRONIC CIRCUITS & PULSE CIRCUITS **Branch : ECE**

Subject Code: 80410

1. A radio receiver has ..... of amplification. ( )

a) one stage b) two stages

c) three stages d) more than three stages

2. RC coupling is used for ..... amplification. ( )

a) voltage b) current

c) power d) none of the above

3. In an RC coupled amplifier, the voltage gain over mid-frequency range ..... ( )

a) changes abruptly with frequency b) is constant

c) changes uniformly with frequency d) none of the above

4. The total gain of a multistage amplifier is less than the product of the gains of individual stages due to _____ ( )

a) Power loss in the coupling device

b) Loading effect of the next stage

c) The use of many transistors

d) The use of many capacitors

5. An advantage of RC coupling scheme is the ..... ( )

a) good impedance matching b) economy

c) high efficiency d) none of the above

6. The best frequency response is of ..... coupling. ( )

a) RC b) transformer

c) direct d) none of the above

7. Transformer coupling is used for ..... amplification. ( )

a) power b) voltage

c) current d) none of the above

8. In an RC coupling scheme, the coupling capacitor C_C must be large enough ..... ( )

a) to pass d.c. between the stages b) not to attenuate the low frequencies

c) to dissipate high power d) none of the above

9. In RC coupling, the value of coupling capacitor is about ..... ( )

a) 100 pF b) 0.1 μF

c) 0.01 μF d) 10 μF

10. The noise factor of an ideal amplifier expressed in db is ..... ( )

a) 0 b) 1

c) 0.1 d) 10

11. When a multistage amplifier is to amplify d.c. signal, then one must use ..... coupling. ( )

a) RC b) transformer

c) direct d) none of the above

12. ..... coupling provides the maximum voltage gain. ( )

a) RC b) transformer

c) direct d) impedance

13. In practice, voltage gain is expressed ..... ( )

a) in db b) in volts

c) as a number d) none of the above

14. Transformer coupling provides high efficiency because ..... ( )

a) collector voltage is stepped up b) d.c. resistance is low

c) collector voltage is stepped down d) none of the above

15. Transformer coupling is generally employed when load resistance is ..... ( )

a) large b) very large

c) small d) none of the above

16. If a three-stage amplifier has individual stage gains of 10 db, 5 db and 12 db, then total gain in db is ..... ( )

a) 600 db b) 24 db c) 14 db d) 27 db

17. The final stage of a multistage amplifier uses..... ( )

a) RC coupling b) transformer coupling

c) direct coupling d) impedance coupling

18. The ear is not sensitive to..... ( )

a) frequency distortion b) amplitude distortion

c) frequency as well as amplitude distortion d) none of the above

19. RC coupling is not used to amplify extremely low frequencies because ..... ( )

a) there is considerable power loss b) there is hum in the output

c) electrical size of coupling capacitor becomes very large d) none of the above

20. In transformer coupled amplifiers, we use ..... transformer for impedance matching. ( )

a) step up b) step down c) same turn ratio d) none of the above

21. The lower and upper cut off frequencies are also called ..... frequencies. ( )

a) sideband b) resonant c) half-resonant d) half-power

22. A gain of 1,000,000 times in power is expressed by ..... ( )

a) 30 db b) 60 db c) 120 db d) 600 db

23. A gain of 1000 times in voltage is expressed by ..... ( )

a) 60 db b) 30 db c) 120 db d) 600 db

24. Amplifier voltage gain is expressed in ……( )

a) meters b) hertz c) decibel d) decibels

25. voltage gain of amplifier in decibels is expressed as ( )

a)20logxvoltage gain b)10logxvoltage gain

c)10log/voltage gain d)20log/voltage gain

26. The frequency response of transformer coupling is ..... ( )

a) good b) very good c) excellent d) poor

27. In the initial stages of a multistage amplifier, we use ..... ( )

a) RC coupling b) transformer coupling c) direct coupling d) all of the above

28. The total gain of a multistage amplifier is less than the product of the gains of individual stages due to ..... ( )

a) power loss in the coupling device

b) loading effect of next stage

c) the use of many transistors

d) the use of many capacitors

29. The gain of an amplifier is expressed in db because ..... ( )

a) it is a simple unit b) calculations become easy

c) human ear response is logarithmic d) none of the above

30. If the power level of an amplifier reduces to half, the db gain will fall by ..... ( )

a) 0.5 db b) 2 db c) 10 db d) 3 db

31. A current amplification of 2000 is a gain of ..... ( )

a) 3 db b) 66 db c) 20 db d) 200 db

32. An amplifier receives 0.1 W of input signal and delivers 15 W of signal power. What is the power gain in db ? ( )

a) 8 db b) 6 db c) 5 db d) 4 db

33. The power output of an audio system is 18 W. For a person to notice an increase in the output (loudness or sound intensity) of the system, what must the output power be increased to ? ( )

a) 2 W b) 6 W c) 68 W d) none of the above

34. The output of a microphone is rated at − 52db. The reference level is 1 V under specified sound conditions. What is the output voltage of this microphone under the same sound conditions? ( )

a) 5 mV b) 2 mV c) 8 mV d) 5 mV

35. RC coupling is generally confined to low power applications because of ....( )

a) large value of coupling capacitor b) low efficiency

c) large number of components d) none of the above

36. The number of stages that can be directly coupled is limited because ..... ( )

a) changes in temperature cause thermal instability b) circuit becomes heavy and costly

c) it becomes difficult to bias the circuit d) none of the above

37. The purpose of RC or transformer coupling is to ..... ( )

a) block a.c. b) separate bias of one stage from another

c) increase thermal stability d) none of the above

38. The upper or lower cut off frequency is also called ..... frequency. ( )

a) resonant b) sideband c) 3 db d) none of the above

39. The bandwidth of a single stage amplifier is ..... that of a multistage amplifier.( )

a) more than b) the same as c) less than d) data insufficient

40. The value of emitter capacitor C_E in a multistage amplifier is about ..... ( )

a) 0.1 μF b) 100 pF c) 0.01 μF d) 50 μF

41. The Cascode amplifier is a multistage configuration of …….. ( )

a) CC-CB b)CE-CB c)CB-CC d)CE-CC

42. Cascading two amplifiers will result in ( )

a) reduction in overall gain and increase in overall bandwidth

b) reduction in overall gain and reduction in overall bandwidth

c) increase in overall gain and increase in overall bandwidth

d) increase in overall gain and reduction in overall bandwidth

43. The Configuration commonly used in intermediate stages of a multistage amplifier is ( )

a) CE b) CB c) CC d) all the three

44. The cascade amplifier finds wide application as ( )

a) audio amplifier b)narrow-band amplifier c)video amplifier d) all the above

45. An RC coupled amplifier is also called an audio amplifier because ( )

a) a speaker is connected at its output

b)a coupling capacitor couples the two stages

c) it has almost constant gain in the audio-frequency range

d) none of the above

46. In a multistage RC coupled amplifier the coupling capacitor ( )

a) limits the low –frequency response b) limits the high –frequency response

c)does not affect the frequency response

d) blocks the dc component without affecting the frequency response

47. In an RC coupled common emitter amplifier ( )

a) coupling capacitance affects the high-frequency response and bypass capacitance affects the low frequency response

b)both coupling and bypass capacitances affect the high frequency response only

c)both coupling and bypass capacitances affect the low frequency response only

d)coupling capacitance affects the low frequency response

48. The gain of a cascaded amplifier is equal to the ( )

a)product of individual gains b) low output voltage

c) low voltage gain d)high input impedance

49. The β cut-off frequency is found from ( )

a) CC configuration b) CE configuration c) CB configuration d) None of the above

50. The Darlington –Pair amplifier is a multistage configuration of ( )

a) CC-CB b)CE-CB c)CC-CC d)CE-CC

51. The output stage of a multistage amplifier is also called …… ( )

a) Mixer stage b) Power stage c) Detector stage d) Voltage stage

52. ……. coupling is generally employed in power amplifiers ( )

a) Transformer b) RC c) Direct d) Both a & b

53. A class A power amplifier uses …… ( )

a) Two transistors b) Three transistors

c) One transistor d) None of the above

54. The maximum efficiency of direct coupled class A power amplifier is …….. ( )

a)5% b) 50% c) 30% d) 25%

55. The maximum efficiency of transformer coupled class A power amplifier is ……( )

a) 30% b) 50% c) 80% d) 45%

56. Class……. power amplifier has the highest collector efficiency ( )

a) C b) A c)B d) AB

57. Power amplifiers handle ……. signals compare to voltage amplifiers ( )

a)Small b)Very small c)Large d)None of the above

58. In class A operation, the operating point is generally located ……. of the d.c. load line. ( )

a) At cut off point b)At the middle

c) At saturation point d) None of the above

59. Class C amplifiers are used as ……. ( )

a) AF amplifiers b) Detectors c) Tuned amplifiers d) None of the above

60. A power amplifier has comparatively …….. β ( )

a) Small b) Large c)Very large d) None of the above

61. The maximum collector efficiency of class B operation is …… ( )

a) 25% b)50% c)75% d)100%

62. A two-transistor class B power amplifier is commonly called …….. amplifier. ( )

a) Dual b) Push-pull c) Symmetrical d) Differential

63. If a transistor is operated in such a way that output current flows for 180^o of the input signal, then it is …… operation ( )

a) Class A b) Class B c) Class C d)None of the above

64. If the zero signal dissipation of a transistor is 1W, then power rating of the transistor should be

at least ……. ( )

a) 5 W b) 33 W c) 75 W d) 1W

65. When a transistor is cut off…….. ( )

a) Maximum voltage appears across transistor

b) Maximum current flows

c) Maximum voltage appears across load

d) None of the above

66. A class A power amplifier is sometimes called …… amplifier ( )

a) Symmetrical b) Series-Fed

c) Reciprocating d) Differential

67. Class …….. operation gives the maximum distortion ( )

a) A b) B c) C d) AB

68. The output stage of a multistage amplifier usually employs …… ( )

a) Push-pull amplifier b) Power amplifier

c) Voltage amplifier d) None of the above

69. The size of a power transistor is made considerably large to …… ( )

a) Provide easy handling b) Dissipate heat

c) Facilitate connections d) None of the above

70. Low efficiency of a power amplifier results in …… ( )

a) Low forward bias b) Less battery consumption

c) More battery consumption d)None of the above

71. The driver stage usually employs…… ( )

a) Class A power amplifier b) Push-pull amplifier

c) Class C amplifier d) None of the above

72. If the power rating of a transistor is 1W and collector current is 100mA, then maximum allowable collector voltage is …….. ( )

a) 1V b) 100V c) 20V d) 10V

73. When no signal is applied, the approximate collector efficiency of class A power amplifier is ……. ( )

a) 10% b) 0% c) 25% d) 50%

74. What will be the collector efficiency of a power amplifier having zero signal power dissipation of 5 watts and a.c. power output of 2 watts? ( )

a) 20% b) 80% c) 40% d) 50%

75. The output signal voltage and current of a power amplifier in rms values are 5V and 200 mA. What is the power output? ( )

a) 1 W b) 2 W c) 4 W d) None of the above

76. The maximum a.c. power output from a class A power amplifier is 10 W. What should be the minimum power rating of the transistor used ? ( )

a) 10 W b) 15 W c) 5 W d) 20 W

77. The configuration which employs two similar type of transistors for class B operation is called …… ( )

a) Push-pull amplifier b) Preamplifier

c) Complimentary amplifier d) None of the above

78. The push-pull circuit must use …… operation ( )

a) Class A b) Class C c) Class B d) Class AB

79. The class B push-pull circuit can deliver 100 W of a.c. output power. What should be the minimum power rating of each transistor? ( )

a) 20 W b) 40 W c) 10 W d) 80 W

80. What turn ratio (N_p/N_s) of transformer is required to match 4 Ω speaker to a transistor having an output impedance of 8000 Ω? ( )

a) 2 b) 7 c) 3 d) None of the above

81. A transformer coupled class A power amplifier has a load of 100 Ω on the secondary. If the turn ratio is 10:1, what is the value of load appearing on the primary? ( )

a) 5 kΩ b) 20 kΩ c) 100 kΩ d)10 kΩ

82. Power amplifiers generally use transformer coupling because transformer permits… ( )

a) Cooling of the circuit b) Impedance matching

c) Distortionless output d) Good frequency response

83. Transformer coupling can be used in …… amplifiers ( )

a) Either power or voltage b) Only power

c) Only voltage d) None of the above

84. The output transformer used in a power amplifier is a ……. Transformer ( )

a) 1:1 ratio b) Step-up c) Step-down d) None of the above

85. The most important consideration in power amplifier is ……. ( )

a) Biasing the circuit b) Collector efficiency

c) To keep the transformer cool d) None of the above

86. The configuration which employs two complimentary type of transistors for class B operation is called …… ( )

a) Push-pull amplifier b) Preamplifier

c) Complimentary amplifier d) None of the above

87. The distortion produced in the output waveform due to harmonic components is called_____ distortion. ( )

a) Amplitude b) Harmonic c) Frequency d) None of the above

88. The disadvantage of impedance matching is that it …… ( )

a) Gives distorted output b) Gives low power output

c) Requires a transformer d) None of the above

89. If the gain versus frequency curve of a transistor amplifier is not flat, then there is distortion produced called as …… ( )

a) Amplitude b) Intermodulation c) Frequency d) None of the above

90. The most costly coupling is …… coupling ( )

a) RC b) Direct c) Impedance d) Transformer

91. Which of the following audio speaker will be hard to be driven by a power amplifier? ( )

a) 4ohm b) 8ohm c) 12ohm d) 2ohm

92. What does class A amplifier do? ( )

a) Delivers KV of voltage to load b) Delivers KW of power

c) Delivers Kilo Pascal pressure d) Delivers more resistance

93. What is the efficiency of Class A amplifiers? ( )

a) 30 or less b) 50 or less c) 100 d) 75

94. Which of the following statement is true about class A amplifiers? ( )

a) Distortion is less. b) They supress noise signals

c) More efficient d) Delivers 100% power to load

95. Why there is a need for heat sinks in Class A amplifier? ( )

a) To control the external temperature

b) To avoid temperature changes affecting the transistor

c) To control heat dissipation

d) To increase output resistance

96. What is the conduction angle of class B amplifier? ( )

a) 90 b) 180 c) 270 d) 360

97. If DC power for a Class A amplifier is 500W and AC power is 150W, what is its efficiency?

a) 50% b) 75% c) 20% d) 30%

98. What is the conduction angle of class A amplifier? ( )

a) 90 b) 180 c) 270 d) 360

99. _____ distortion is introduced in complimentary symmetry class B power amplifiers: ( )

a) Harmonic b) Cross-over

c) Linear d) None of above

100. For ac power its voltage can be expressed as _____ ( )

a) rms b)ms

c) rm d)rs

101. The process whereby the form of a non-sinusoidal signal is altered by transmission through linear network is called _____ ( )

a)Non-sinusoidal wave shaping

b) Linear wave shaping

c)Non-linear wave shaping

d) None of these

102. The waveform which preserves its shape when transmitted through a linear network is a _____. ( )

a) Sine wave b) Step signal c) Impulse signal d) Ramp signal

103. At very low frequencies, the capacitor acts as a _____. ( )

a) Short circuit b) Open circuit c) Constant reactance d) None of these

104. At very high frequencies, the capacitor acts as a _____. ( )

a) Short circuit b) Open circuit c) Constant reactance d) None of these

105. The time taken by the output waveform of Low Pass circuit to rise from 10% to 90% of its final steady state value is termed as _____. ( )

a) Fall time b) Rise time

c) Decay time d) Peak time

106. The process of converting pulses into spikes by means of circuit of short time constant called as _____ ( )

a) Piping b) Pulsing c) Peaking d) None of these

107. For perfect differentiation, the phase shift between the input and output must be _____( )

a) 0˚ b) 90˚ c) 180˚ d) Infinite

108. The capacitor in the high pass RC circuit is called as _____ ( )

a) Blocking capacitor b) Series capacitor

c) Input capacitor d) Coupling capacitor

109. Attenuators are compensated so that attenuation is made _____ ( )

a) Independent of frequency b) Increase with frequency

c) Decrease with frequency d)None of these

110. The condition for perfect compensation of an attenuator is _____ ( )

a) R1C1<R2C2 b) R1C1>R2C2 c) R1C1=R2C2 d) None

111. An attenuator is said to be over compensated if _____ ( )

a)R1C1<R2C2 b) R1C1>R2C2 c) R1C1=R2C2 d) None

112. An attenuator is said to be under compensated if _____ ( )

a) R1C1<R2C2 b) R1C1>R2C2 c) R1C1=R2C2 d) None

113. The High Pass circuit acts as differentiator if the time constant of the circuit is _____( )

a) very small b) very large c) Infinite d) Equal to T

114. The Low Pass circuit acts as Integrator if the time constant of the circuit is _____( )

a) very small b) very large c) Infinite d) Equal to T

115. A_____ circuit passes low frequency signals and attenuates the high frequency signals.( )

a) Low pass b) High pass c) Band pass d) Band reject

116. A _____circuit passes high frequency signals and attenuates the low frequency signals. ( )

a) Low pass b) High pass c) Band pass d) Band reject

117. The capacitor _____ the dc signal. ( )

a) Blocks b) Bypasses c) Attenuates d) Suppress

118. At the end of a ramp input, the difference between the input and output divided by the input is called as _____ ( )

a) Slope speed error b) Displacement error

c) Transmission error d) None of these

119. The relationship between the rise time(tr) and time constant(RC) given as _____( )

a) tr=1.1RC b) tr=2.2RC c) tr=3.3RC d) None

120. The upper cutoff frequency of a low pass RC circuit is _____ ( )

a) Zero b) $1/2\pi RC$ c) ∞ d) None of these

121. The lower cutoff frequency of a low pass RC circuit is _____

a) Zero b) $1/2\pi RC$ c) ∞ d) None of these

122. An RC low pass circuit has R = 1.5KΩ and C =0.2μF. The rise time of the output waveform when excited by a step input is _____ ( )

a) 0.3ms b) 0.66ms c) 0.75ms d) 7.5ms

123. An RC low pass circuit has R = 1KΩ and C =0.5μF. Its lower cutoff frequency is ____( )

a) Zero Hz b) 318.3Hz c) 1KHz d) Infinity

124.An RC low pass circuit has R = 1KΩ and C =0.1μF. Its upper cutoff frequency is _____( )

a) Zero Hz b) 159.15Hz c) 687.3Hz d) Infinity

125. The bandwidth of a low pass RC circuit is 1KHz. The rise time of the output for a step input is _____ ( )

a) 0.35ms b)1ms c) 0.35s d)None of these

Code: 80H04 **2019-20**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

III B.Tech I Semester I Mid Question Bank (MR 18)

Subject: Engineering Economics & Accountancy **Branch: EEE,ECE,IT**

Name of the Faculty:K. Dhanalakshmi, Abhinav Swaroop

Instructions:

1. **All the questions carry equal marks.**
2. **Solve all the questions.**

MODULE-I			
Q.No	**Questions**	**Blooms taxonomy questions**	**Co**
1.	What do you understand by joint stock company? Explain with merits and demerits.	Understanding	I
	Or		
2.	Examin Explain partnership & Discuss how is Sole trader different from Partnership?	Understanding	I
	Or		
3.	Classify the different forms of business environment & Discuss the factors effecting the business organization.	Analyzing	I
	Or		
4.	Examine the different forms of Public enterprises?	Analyzing	I
	Or		
5.	Identify demand forecasting & Explain the techniques of demand Forecasting?	Applying	I
	Or		
6.	Identify the factors determining demand?	Applying	I
	Or		
7.	Explain Managerial Economics? Explain the Nature and Scope of managerial Economics?	Understanding	I
	Or		
8.	What do you mean by elasticity of demand? How do you measure it?	Understanding	I
MODULE-II			
1.	Explain production function & the production function with one variable graphically.	Understanding	II
	Or		
2.	Explain about the ISO costs and MRTS?	Understanding	II
	Or		

3.	Analyze the COBB-DOUGLAS production function?	Analyzing	II
	Or		
4.	Classify the different types of costs?	Analyzing	II
	Or		
5.	A firm has a fixed cost of Rs 50,000; selling price per unit is Rs 50 and variable cost per unit is Rs25. Present level of production is 3500 units. Determine BEP in terms of volume and also sales value.	Applying	II
	Or		
6.	Construct graphical presentation of BEA. Explain Break-Even Analysis (BEA) and determine it.	Applying	II
	Or		
7.	Explain the types of economies of scale briefly?	Understanding	II
	Or		
8.	What do you understand by the laws of returns with explain briefly.	Understanding	II
MODULE-III			
1.	Compare the features of perfect competition and monopolistic competition?	Understanding	III
	Or		
2.	Explain Perfect Competition and explain how price is determined under perfect competition in short run?	Understanding	III
	Or		
3.	Analyze the Price Output determination in Monopoly?	Analyzing	III
	Or		
4.	Examine the different market structures?	Analyzing	III
	Or		
5.	Write down the features of perfect markets?	Understanding	III
	Or		
6.	Illustrate price determining in case of Monopoly.	Understanding	III

Signature of faculty **Signature of HOD**

Code: 80H04 | **MR18**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)
(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Maisammaguda, Dhulapally, (Post via Kompally), Secunderabad-500 100.

III B.TECH II SEMESTER& II B.TECH II SEMESTER

SUBJECT: ENGINEERING ECONOMICS & ACCOUNTANCY
(BRANCH :Common to CSE,ECE,EEE,ME&IT)
Name of the faculty: K.DHANALAKSHMI,ABHINAVSWAROOP(MBA DEPARTMENT)

---

1. Which of the following is not a factor affecting the choice of a business organization?
   [ ]
   a) Liability
   b) Agreement
   c) Quick decision making

d) Flexibility

2. Decision making is faster in
[ ]
a) Joint stock company
b) Departmental undertaking
c) Partnership
d) Sole trader

3. The advantage of sole trader form of business organization___
[ ]
a) Unlimited liability
b) Large requirement of capital
c) More competition
d) Low rate of taxation

4. Which of the following is not a feature of partnership?
[ ]
a) Relationship
b) There should be a business
c) Agreement
d) No partner can act for other partners

5. The closure of partnership is called_____ [ ]
a) Resolution
b) Revolution
c) Solution
d) Dissolution

6. The written agreement among partners is [ ]
a) Trading deed
b) Demand draft
c) Partnership deed
d) Bill of exchange

7. To start a partnership firm a minimum of _____ and maximum of _____ is required to carry on non-banking business. [ ]
a) 2 and 10
b) 7 and unlimited
c) 2 and 50
d) 2 and 20

8. Which among the following is not an achievement of public enterprise? [ ]
a) Generating large employment opportunities
b) Encouraging the growth of private monopolies
c) Stimulating diversified growth in private sector
d) Creating viable infrastructure.

9. The advantage of departmental undertaking is [ ]
a) Delayed decisions
b) Incidence of more taxes
c) Effective control
d) No incentives to maximum earnings

10. Indian company Act was enacted in [ ]
a) 1956
b) 1936
c) 1947

d) 1950

11. Which of the following is not a feature of the company [ ]
    a) Transferability of shares
    b) Unlimited liability
    c) Common seal
    d) Winding up
12. The minimum paid up capital in a public company is [ ]
    a) Rs.2 lakhs and higher
    b) Rs.10 lakhs and higher
    c) Rs.24 lakhs and higher
    d) Rs.5 lakhs and higher
13. The Indian partnership Act was enacted in [ ]
    a) 1932
    b) 1942
    c) 1952
    d) 1962
14. A partner who lends his name to the firm without having any real interest is called as [ ]
    a) Ostensible partner
    b) Sleeping partner or dormant partner
    c) Nominal partner
    d) Partner by Estoppels
15. An agreement to share profit implies: [ ]
    a) To share only profits
    b) To share only negative profits
    c) To share both profits and losses
    d) Neither to share profit nor losses
16. The term implied refers to [ ]
    a) Written agreement
    b) Oral agreement
    c) Inferred from the course of dealing
    d) All the above
17. Working partner is also called [ ]
    a) Nominal partner
    b) Minor partner
    c) Sleeping partner
    d) Active partner
18. In a partnership firm ,the partners liability is [ ]
    a) Limited
    b) Medium
    c) Unlimited
    d) Large
19. According to Law of demand - when price falls of a commodity demand goes on [ ]
    a) Decreasing
    b) Increasing
    c) Remains constant
    d) Not related
20. From the following factors which one does not impact on demand [ ]
    a) Price
    b) Income.
    c) Taste of consumers'
    d) Weather
21. Demand for petrol [ ]
    a) Elastic
    b) Inelastic

c) Perfectly elastic
d) Perfectly inelastic

22. When PE <1 (PE=Price elasticity) we call it [ ]
a) Perfectly elastic demand
b) Perfectly inelastic demand
c) Relatively elastic demand
d) Relatively inelastic demand

23. When PE =1 (PE=Price elasticity) we call it [ ]
a) Perfectly elastic demand
b) Perfectly inelastic demand
c) Relatively elastic demand
d) Unit elastic demand

24. When PE =0 (PE=Price elasticity) we call it [ ]
a) Perfectly elastic demand
b) Perfectly inelastic demand
c) Relatively elastic demand
d) Relatively inelastic demand

25. Giffen goods, Veblen goods and speculations are exceptions to___ [ ]
a) Cost function
b) Production function
c) Law of Demand
d) Finance function

26. When PE = infinity(Price Elasticity of Demand is infinite), we call it ___ [ ]
a) Relatively Elastic
b) Perfectly Inelastic
c) Perfectly Elastic
d) Unit Elastic

27. Income Elasticity of demand when less than 'O' (IE = O), it is termed as __ [ ]
a) Income Elasticity less than unity
b) Zero income Elasticity
c) Negative Income Elasticity
d) Unit Income Elasticity

28. The other name of inferior goods is _____ [ ]
a) Veblen goods
b) Necessaries
c) Giffen's goods
d) Diamonds

29. Estimation of future possible demand is called _____ [ ]
a) Sales Forecasting
b) Production Forecasting
c) Income Forecasting
d) Demand Forecasting

30. How many major methods are employed to forecast the demand [ ]
a) Three
b) Four
c) Two
d) Five

31. What is the formula for Price Elasticity of Demand? [ ]
a) % of change in the Price / % of change in the Demand
b) % of change in the Demand / % of change in the Income
c) % of change in the Demand /% of change in the Price
d) % of change in the Demand of 'X'/% of change in the Price of 'Y'

32. When a small change in price leads great change in the quantity demand, we call it [ ]
a) Inelastic Demand

b) Negative Demand
c) Elastic Demand
d) None

33. When a great change in price leads small change in the quantity demand, we call it [ ]
a) Elastic Demand
b) Positive Demand
c) Inelastic Demand
d) None

34. "Coffee and Tea are the _____ goods". [ ]
a) Relative
b) Complementary
c) Substitute
d) None

35. Consumers Survey method is one of the Survey Methods to forecast the__. [ ]
a) Sales
b) Income
c) Demand
d) Production

36. What is the formula for Income Elasticity of Demand? [ ]
a) % of change in the Income / % of change in the Demand
b) % of change in the Demand / % of change in the Price
c) % of change in the Demand /% of change in the Income
d) % of change in the Demand of 'X' /% of change in the Price of 'Y'

37. What is the formula for Cross Elasticity of Demand? [ ]
a) % of change in the Price of 'X' / % of change in the Demand of X
b) % of change in the Demand of 'Y" /% of change in the Price Y
c) % of change in the Demand of 'X' /% of change in the Price of 'Y'
d) % of change in the Demand X /% of change in the Income Y

38. Which of the following is not a part of Trend projection method? [ ]
a) Least square method
b) Moving average method
c) Test marketing
d) Exponential smoothing

39. When increase in income of an individual results with negative change in demand of product what do you call this----------
[ ]
a) Negative income elasticity
b) Zero income elasticity
c) Unit income elasticity
d) Income elasticity greater than unity

40. When increase in income of an individual results with positive change in demand of product what do you call this----------
[ ]
a) Negative income elasticity
b) Zero income elasticity
c) Unit income elasticity
d) Income elasticity greater than unity

41. When increase in income of an individual results with equal change in demand of product what do you call this----------
[ ]
a) Negative income elasticity
b) Zero income elasticity
c) Unit income elasticity
d) Income elasticity greater than unity

42. The features of good demand forecasting method is [ ]
    a) Complexity
    b) Economy
    c) Demographics
    d) Unavailability
43. If no change in price brings huge change in demand is called as---------- [ ]
    a) Perfectly elastic
    b) Perfectly inelastic
    c) Relatively elastic
    d) Relatively inelastic
44. Price elasticity is always _____ [ ]
    a) Positive
    b) Negative
    c) Consistent Declining
    d) None
45. Advertising elasticity is always _____ [ ]
    a) Positive
    b) Negative
    c) Consistent Declining
    d) None
46. Unit income elasticity refers to (Ey = income elasticity) [ ]
    a) Ey>0
    b) Ey<0
    c) Ey=0
    d) Ey=1
47. To forecast demand for a particular product or service we use some relevant indicator known as _____
    [ ]
    a) Correlation
    b) Simultaneous equation
    c) Barometer
    d) None
48. Census method is also called ---------- method [ ]
    a) Total enumeration
    b) Accountability
    c) Regression
    d) Correlation
49. Sales force opinion survey method includes---------- [ ]
    a) Owners
    b) Marketing Employees
    c) Customers
    d) Outside experts
50. Expert opinion survey method includes---------- [ ]
    a) Owners
    b) Marketing Employees
    c) Customers
    d) Outside experts
51. Production function is also known as [ ]
    a) Output-costs relationship
    b) Input-costs relationship
    c) Input-output relationship
    d) Output-input relationship

52. How many stages are there in 'Law of Variable Proportions'? [ ]
    a) Five
    b) Two
    c) Three
    d) Four
53. Long run cost curves are called [ ]
    a) Operating curves
    b) Fixed curves
    c) Variable curves
    d) Planning curves
54. When a firm expands its Size of production by increasing all factors, it secures certain advantages, known as
    [ ]
    a) Optimum Size
    b) Diseconomies of Scale
    c) Economies of Scale
    d) None
55. When producer secures maximum output with the least cost combination of factors of production, it is known as_____
    [ ]
    a) Consumer's Equilibrium
    b) Price Equilibrium
    c) Producer's Equilibrium
    d) Firm's Equilibrium
56. The 'Law of Variable Proportions' is also called as _____. [ ]
    a) Law of fixed proportions
    b) Law of returns to scale
    c) Law of variable proportions
    d) None
57. _____ is a 'group of firms producing the same are slightly different products for the same market or using same raw material'. [ ]
    a) Plant
    b) Firm
    c) Industry
    d) Size
58. When proportionate increase in all inputs results in constant output, then we call [ ]
    a) Increasing Returns to Scale
    b) Decreasing Returns to Scale
    c) Constant Returns to Scale
    d) None
59. When different combinations of inputs yield the same level of output Known as [ ]
    a) Different Quants
    b) Output differentiation
    c) Isoquants
    d) Production differentiation
60. Conversion of inputs in to output is called as _____. [ ]
    a) Sales
    b) Income
    c) Production
    d) Expenditure
61. When Proportionate increase in all inputs results in more than equal Proportionate increase in output, then we call _____.
    [ ]

a) Decreasing Returns to Scale
b) Constant Returns to Scale
c) Increasing Returns to Scale
d) None

62. When Proportionate increase in all inputs results in less than Equal Proportionate increase in output, then we call _____.
[ ]
a) Increasing Returns to Scale
b) Constant Returns to Scale
c) Decreasing Returns to Scale
d) None

63. A curve showing equal amount of outlay with varying Proportions of Two inputs are called [ ]
a) Total Cost Curve
b) Variable Cost Curve
c) Isocost Curve
d) Marginal Cost Curve

64. Which of the following indicated profit?
[ ]
a) Contribution+fixed cost
b) Contribution-fixed cost
c) Selling price-variable price
d) None of the above

65. The excess of actual sales revenue over the Break Even sales in known as [ ]
a) P/V ratio
b) Margin of safely
c) Angle of Incidence
d) Contribution

66. Variable costs are known as
[ ]
a) Total Cost
b) Prime/Direct
c) Book Cost
d) None

67. Break-even point means where
[ ]
a) Total sales revenue is equal to total cost
b) No profit no loss
c) Only a
d) Both a and b

68. If the proportionate increase in output is more than the proportionate increase in input, this situation can be called
[ ]
a) Law of decreasing returns to scale
b) Law of Increasing returns to scale
c) Constant Returns to scale
d) None

69. When different combinations of inputs yield the same level of output Known as [ ]
a) Different Quants
b) Output differentiation
c) Isoquants
d) Production differentiation

70. A curve showing equal amount of outlay with varying Proportions of Two inputs are called [ ]

a) Total Cost Curve
b) Variable Cost Curve
c) Isocost Curve
d) Marginal Cost Curve

71. When a firm expands its Size of production by increasing all factors, It secures certain advantages, called ___
[ ]
a) Optimum Size
b) Diseconomies of Scale
c) Economies of Scale
d) None

72. The law of returns is also called _____
[ ]
a) Law of fixed proportion
b) Law of variable proportion
c) Law of constant returns
d) Law of increasing returns

73. Which of the following level of production denotes break-even point? [ ]
a) Minimum
b) Maximum
c) Constant
d) Diminishing

74. Production function is not a factor of
[ ]
a) Land
b) Labor
c) Cost of capital
d) Organization

75. If the level of production increases the total cost changes and thus the isocost curve [ ]
a) Moves downward
b) Moves upward
c) Moves in a linear fashioner
d) Moves in a haphazard manner

76. Isoquant are also called_____ [ ]
a) Isoproduct curve
b) Isocost curve
c) Price indifference curve
d) Indifference curve

77. In Cobb-Douglas production function "k" refers to [ ]
a) Land
b) Labour
c) Capital
d) Organization

78. The transformation of physical inputs into output is known as [ ]
a) Production
b) Supply
c) Demand
d) Cost

79. When the total cost curve cuts the total revenue curve in the BEP it is called [ ]
a) Angle of incidence
b) Angle of suppression
c) Angle of depression
d) None of the above

80. Which of the following is not a type of internal economies? [ ]

a) Managerial economies
b) Financial economies
c) Technical economies
d) Marginal economies

81. In the production function, at any given time, the output from a given set of input is [ ]
a) Always fixed
b) Always variable
c) Semi fixed
d) Semi variable

82. What do - decreasing returns imply? [ ]
a) Increasing marginal product curve
b) Increasing average product
c) Decreasing marginal product curve
d) Constant total product curve

83. Contribution margin is defined as [ ]
a) Selling price-variable cost
b) Selling price per unit-variable cost per unit
c) Selling price*variable cost
d) None of the above

84. Fixed cost per unit changes with---------- [ ]
a) Volume of sales
b) Profit
c) Separable costs
d) Volume of production

85. Such costs that involve an immediate outflow of cash are called [ ]
a) Implicit costs
b) Imputed costs
c) Explicit cost
d) Joint cost

86. Short- run cost curves are called---------- [ ]
a) Operating curves
b) Fixed curves
c) Variable curves
d) Planning curves

87. Implicit or imputed costs are also called as---------- [ ]
a) Future costs
b) Controllable costs
c) Book costs
d) Joint costs

88. Historical costs are also called as---------- [ ]
a) Future costs
b) Joint costs
c) Separable costs
d) Past costs

89. Explicit costs are called ---------- [ ]
a) In house costs
b) Non cash costs
c) In pocket costs
d) Out of pocket costs

90. The cost of the next best alternative foregone is known as [ ]
a) Implicit costs
b) Sunk costs
c) Opportunity costs
d) Marginal costs

91. The cost that must be considered for decision making is---------- [ ]
    a) Outlay costs
    b) Opportunity cost
    c) Incremental cost
    d) Sunk cost
92. The cost that is to be paid currently if the asset were to be replaced are called [ ]
    a) Past costs
    b) Historical costs
    c) Replacement costs
    d) Joint costs
93. When do the fixed costs vary? [ ]
    a) In the short run
    b) In the long run
    c) In two years
    d) Less than two years
94. The total variable cost---------- proportionally with production [ ]
    a) Increases
    b) Decreases
    c) Constant
    d) No relation
95. Production is governed by certain laws of returns to scale, are called as---------- [ ]
    a) Diseconomies of scale
    b) Economies of scale
    c) Nominal scale
    d) Ordinal scale
96. Those costs which are essential for the sustainability of the business are called-- [ ]
    a) Escapable costs
    b) Economic costs
    c) Urgent costs
    d) Unavoidable costs
97. Which of the following is ascertained for a change in the level of activity [ ]
    a) Marginal
    b) Incremental
    c) Controllable
    d) Opportunity
98. Which of the following refers expenditure incurred to produce a product [ ]
    a) Profit
    b) Price
    c) Capital
    d) Cost
99. Which of the following includes cost of raw material, labor ---- [ ]
    a) Demand
    b) Total revenue
    c) Total cost
    d) Profit
100. The difference between the total revenue and total cost is called--------- [ ]
    a) Cost of product
    b) Cost of capital
    c) Profit
    d) Capital
101. The structure of the market is not based on [ ]
    a) Degree of seller concentration
    b) Degree of buyer concentration
    c) Degree of product differentiation

d) Condition of exit from the market

102. Which of the following is said to exist when conditions are ideal and not realistic [ ]
a) Imperfect competition
b) Perfect competition
c) Monopoly
d) Monopolistic

103. Under perfect competition the price is equal to [ ]
a) AR=MR
b) AR>MR
c) MR> AR
d) MR not equal to AR

104. A monopolist can either control the price or _____ but not both [ ]
a) Cost
b) Output
c) Input
d) Profit

105. Based on number of buyers, imperfect markets can be classified as_____ [ ]
a) Monopsony
b) Duopsony
c) Oligopsony
d) All the above

106. To attain equilibrium in a perfect competition, MC curve should cut the MR curve [ ]
a) Straight line
b) From above
c) From below
d) As a parabola

107. The nature of demand curve in monopoly is_____ [ ]
a) Perfect elastic
b) Unit elastic
c) Inelastic
d) None of the above.

108. In a perfect competition, the firm's demand curve is also known as_____ [ ]
a) Average price curve
b) Marginal cost curve
c) Average cost curve
d) Average revenue curve.

109. Which of the following refers to the practice of selling the same product at different price to different buyers? [ ]
a) Product differentiation
b) Price in differentiation
c) Price discrimination
d) Product discrimination

110. Perfect competition is based on [ ]
a) Few number of buyers and sellers
b) Heterogeneous products and services
c) Each firm is a price maker
d) Perfect mobility of factors of production.

111. Which of the following is not a factor of monopoly? [ ]
a) Single firm
b) Includes no close substitutes nor competitors
c) Differential pricing
d) None of the above

112. Which of the following refers to the characteristics of a market that influence the behavior and performance of firms that sell in that market? [ ]

a) Market power
b) Market conduct
c) Market performance
d) Market structure.

113. Based on which of the following the market can be divided into perfect markets and imperfect markets. [ ]
a) Degree of concentration
b) Degree of differentiation
c) Degree of condition
d) Degree of competition.

114. Price in the long run is called [ ]
a) Standard price
b) Retail price
c) Market price
d) Normal price

115. The case of monopoly exists [ ]
a) MR>AR
b) MR=AR
c) MR<AR
d) None of the above.

116. The basis of price discrimination is not due to [ ]
a) Purchasing power
b) Quality bought
c) Customers
d) Quality sold

117. The average revenue curve for a firm under monopoly is a [ ]
a) Upward sloping
b) Linear
c) Down ward
d) Parabola

118. In the short period equilibrium ,the price at which available stock can be sold is called[ ]
a) Standard price
b) Retail price
c) Market price
d) Normal price

119. The cause for monopoly is not due to [ ]
a) Government policy
b) Control over outputs
c) Mergers
d) R&D

120. In a perfect competition the demand curve for an individual curve is horizontal and [ ]
a) Perfectly inelastic
b) Perfectly elastic
c) Unit elastic
d) None if the above

121. Which of the following refers to the change in revenue by selling one more unit [ ]
a) Total revenue
b) Average revenue

c) Marginal revenue
d) Marginal cost

122. In perfect competition the industry demand curve represents [ ]
a) The total demand of all sellers at various prices
b) The total demand of all buyers at various prices
c) The total demand of all consumers at various prices
d) The total demand of all investor at various prices

123. In a perfect competition, given a market price, how do you find the demand curve for the output of the individual firm
[ ]
a) Vertical line
b) Horizontal line
c) Hyperbola
d) Parabola

124. In short period equilibrium , the at which the available stock can be sold is called [ ]
a) Standard price
b) Retail price
c) Market price
d) Normal price

125. In long run equilibrium , a firm can effect changes to all its factors of production to _____ the cost of production taking the advantage of the latest technology [ ]
a) Maximize
b) Zero
c) One
d) Minimize

Signature of faculty **Signature of HOD**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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

Subject: EMWT **Branch: ECE**
Subject Code: 80408 **Max. Marks: 25**

MODULE I

Q.No.	Question	Bloom's Taxonomy Level	CO
1.	a) State and explain Coulomb's law. b)Two Point charges 6nc and -3 nC are located at (3, 2,-1) and (-1,-1, 4) respectively i) Determine the force on a 1nc point charge located at (0, 3, 1)	Understanding	1

	ii) Find electric field intensity at that point.		
	OR		
2.	a) Develop the relation between electric field, E and Scalar potential, V. b) Determine electric flux density at (4,0,3) if there is a point charge -5πmC at (4,0,0) and a line charge 3πmC/m along Y-axis.	Understanding	1
3.	An infinitely long uniform line charge is located at y= 3, z= 5 . If ρ_l =30 nC/m , compute field intensity at origin.	Understanding	1
	OR		
4.	a) Explain briefly linear , homogeneous and isotropic dielectrics. b) Develop an expression for continuity equation and relaxation time.	Understanding	1
5.	Develop the expressions for electric field intensity and electric flux density due to an infinite sheet of conductor of charge density ρ_s C/m^2 using Gauss's law.	Applying	1
	OR		
6.	State and develop the two Maxwell's equations for electro static Fields	Applying	1
7.	a) Develop Poisson's and Laplace's equations from fundamentals. b) Solve for the capacitance of a parallel-plate capacitor with dielectric material, mica filled Between plates ε_r of mica is 6. The plates of the capacitor are square in shape with 0.254cm side. Separation between the two plates is 0.254cm.	Applying	1
	OR		
8.	Develop the expressions for the capacitance of coaxial capacitor with neat diagrams.	Applying	1

MODULE II

Q.No.	Question	Bloom's Taxonomy Level	CO
1.	State & Explain Biot-Savart's Law relating the magnetic field produced at a point due to current in a small elemental wire.	Understanding	2
	OR		
2.	Develop an expression for Energy density in the magnetic field in terms of field quantities.	Understanding	2

3.	State and explain Ampere's Circuit Law and develop expression for **H** due to infinite sheet of conductor.	Understanding	2
	OR		
4.	State and demonstrate magnetic boundary conditions.	Understanding	2
\			
5.	a) Distinguish between magnetic scalar potential and Vector potential b) Compare magnetic field intensity and flux density.	Analyzing	2
	OR		
6.	Analyse **D**, **B** and **H** using Maxwell equations in free space, given $E=E_m \sin(wt-\beta z)a_y$.	Analyzing	2
7.	Develop the two Maxwell's equations for Magneto static Fields.	Applying	2
	OR		
8.	a) Develop an expression for the magnetic field at any point on the axis at a distance 'h' from the center of a circular loop of radius 'a' and carrying current I. b) Determine the magnetic field intensity at point(1.5,2,3) caused by a current filament of 24A aligned along z-axis and extending from z=0 to z=6.	Applying	2

MODULE III

Q.No.	Question	Bloom's Taxonomy Level	CO
1.	State and Explain Faraday's Law for time varying fields.	Understanding	3
	OR		
2.	a) Explain the inconsistency of Ampere law. b) Explain about displacement current density.	Understanding	3
3.	Develop Maxwell's equations for time varying fields in integral form.	Applying	3
	OR		
4.	Develop the expression for transformer emf for stationary loop in time varying fields and moving loop in time varying fields	Applying	3

Signature of Faculty **Signature of HOD**

MALLAREDDY ENGINEERING COLLEGE (Autonomous)

B. Tech IV Semester (MR18) I Mid Examination Question Bank

Name of the Subject: ELECTROMAGNETIC WAVE THEORY

Branch: ECE **Name of the Faculty: Dr.G.S.K.Gayatri Devi**

---

1 Given A= $-6a_x+3a_y+2a_z$, the projection of A along ay is [ ]
(a) 3 (b) 1 (c) 10 (d) None

2 The distance between point A(4,-6,3) and B(2,3,-1) is [ ]
(a) Sqrt of(101) (b) 10 (c)Sqrt of(133) (d)9

3 Given the vector M= $8a_x+4a_y-8a_z$ and N= $8a_x+6a_y-2a_z$. The unit vector in the direction of M+2N is [ ]
(a) (2/3,2/3,2/3) (b) (2/3,1/3,2/3) (c) (2/3,2/3,1/3) (d) (2/3,1/3,1/3)

4 Which of the following is a vector quantity? [ ]
(a) Potential (b) Charge (c) Mass (d)Electric Filed

5 A theorem which relates a surface integral with a volume integral is called [ ]
(a) Gauss divergence theorem (b) Stokes's Theorem
(c) Thevenin theorem (d) Norton's Theorem

6 A theorem which relates a line integral with a surface integral is called [ ]
(a) Gauss divergence theorem (b) Stokes's Theorem
(c) Thevenin theorem (d) Norton's Theorem

7 A field **F** is said to be solenoidal if [ ]
(a) $\nabla \times \mathbf{F} = 0$ (b)$\nabla . \mathbf{F} = 0$ (c)$\nabla . \nabla\mathbf{F} = 0$ (d)$\int \mathbf{F} . d\mathbf{l} = 0$

8 Which of the following statements are ture [ ]
(a) $a_x.a_y=1$(b)$a_x.a_x=1$(c)$a_x \times a_z=a_x$(d)$a_y.a_z=1$

9 Coulomb's force is proportional to [ ]
(a) r (b) r^2 (c) 1/r (d)$1/r^2$

10 The unit of electric field is [ ]
(a) Newton (b)Coulomb/Newton (c)Newton/Coulomb (d)Coulomb/meter

11 If the direction of Coulomb's force on a unit charge is a_x, the direction of E is [ ]
(a) $-a_x$ (b) a_y (c) a_x (d) a_z

12 The unit of electric flux is [ ]
(a) Coulomb (b) Coulomb/meter (c) Weber (d) Weber/m^2

13 Electrostatic field due to a dipole consists of [ ]

(a) $1/r$ (b) $1/r^2$ (c) $1/r^3$ (d) $1/r^4$

14 Potential at all the points on the surface of a conductor is [ ]
(a) The same (b) Not the same (c) Zero (d) Infinity

15 The unit of electric dipole moment is [ ]
(a) C/m (b) C-m (c) C/m^2 (d) $C\text{-}m^2$

16 Point form of Gauss's law is [ ]
(a) $Del.D=\rho_V$ (b) $Del.D=\rho_s$ (c) $Del.D=\rho_V/\varepsilon_o$ (d) Del.D=Q

17 The force magnitude between Q1 = 1C and Q2 = 1C when they are separated by 1m in free space is [ ]
(a) 9×10^9 N (b) 8.854×10^{-12} N (c) 9×10^{-9} N (d) None

18 When the force on 2C due to fixed charge of 4C is 2N, the electric field at the charge of 2C is [ ]
(a) 1 N/C (b) 4 N/C (c) 8 N/C (d) 16 N/C

19 If a pair of (+)ve and (-)ve charges of 1C each are separated by a distance of 1μm, what is dipole moment is [ ]
(a) 2 C-μm (b)1 C-μm (c) 0 C-μm (d)10 C-μm

20 If dipole moment of 1 C-m in a dielectric material of volume 0.1 m^3 exists, the polarization is [ ]
(a) 10 C/m^2 (b) 0.1 C/m^2 (c) 10 C/m (d) 0.1 C/m

21 If a charge element, $\rho_V = 2.0$ C/m^2, is moving with a velocity of $3a_x$ m/s, the current density is [ ]
(a) $6\ a_x$ A/m^2 (b) $6\ a_x$ A/m (c) $1.5\ a_x$ A/m^2 (d) $1.5\ a_x$ A/m

22 Two point charges Q_1 = 1C and Q_2 = 3C are separated by 1m. The force on Q_1 is [ ]
(a) Zero (b) Repulsive (c) Attractive (d) Increasing linearly

23 A charge density of 10 nC/m^2 is distributed on a plane z=10 m, the electric field intensity at the origin is [ ]
(a) $-180\pi a_z$ V/m (b) $-10\pi a_z$ V/m (c) $-360\pi a_z$ V/m (d) $-18\pi a_z$ V/m

24 If a potential of 1 V is applied across a capacitor of 10 Pf, the energy stored is [ ]
(a) 5 PJ (b) 10 PJ (c) 100 PJ (d) 0.01 PJ

25 Example of non-polar type of dielectric is [ ]
(a) Water (b)Hydrochloric acid(c)Sulphur dioxide(d)Oxygen

26 Examples of polar type of dielectric is [ ]
(a) Oxygen (b)Water (c)Hydrogen (d)Nitrogen

27 If the voltage applied across a capacitor is increased, the capacitance value [ ]
(a) Increases (b)Decreases (c)Remains constant (d)Becomes infinity

28 If the electric filed intensity is 1 V/m in free space, the energy density is [ ]
(a) 4.427 PJ/m^3 (b) 8.854 PJ/m^3 (c) 4.427 PJ (d) 8.854 PJ

29 The unit of electric flux is [ ]
(a) Coulomb (b) Coulomb/m (c)Weber (d)Tesla

30 Gauss's law is [ ]
(a) $\int D.ds=Q$ (b) $\oint D.ds = Q$ (c) $\oint D.ds = I$ (d)None

31 Equation of continuity is [ ]
(a) $\int J.ds = I$ (b) $\oint J.ds = I$ (c) $\oint J.ds = Q$ (d) None

32 Relaxation time is [ ]
(a) ε/σ (b)σ/ε (c)$\sigma/\omega\varepsilon$ (d)$\omega\varepsilon/\sigma$

33 Potential has the unit of [ ]
(a) Joules/Coulomb (b)Joules (c)$Joules/m^3$ (d)$Joules/m^2$

34 If a total charge of 10 C is uniformly distributed along a filament of length 10m, the line charge density is [ ]
(a) 1 C/m (b) 100 C-m (c) 100 C/m (d) 1 C-m

35 If a charge of 10 C is uniformly distributed on the surface of a conductor of area 10 m^2, the surface charge density is [ ]
(a) 1 $C\text{-}m^2$ (b) 100 C/m^2 (c) 1 C/m^2 (d) 100 $C\text{-}m^2$

36 If a charge of 1 C is contained in a tiny sphere of volume 0.1 m^3, the volume charge density is [ ]
(a) 10 C/m3 (b) 0.1 C/m^3 (c) 10 $C\text{-}m^3$ (d) 10 C/m^2

37 Electric flux density due to point charge Q is [ ]
(a) $Q/4\pi\varepsilon_0 r^2$ (b) $Q/4\pi r^2$ (c) $Q/4\pi r^2\ a_r$ (d) $Q/4\pi\varepsilon_0 r^2\ a_r$

38 Electric flux lines [ ]

(a) Originate at (+)ve charge (b) Originate at (-)ve charge
(c) Are closed loops (d) Originate at(+)ve charge and terminate at (+)ve Charge

39 A good conductor is one which obeys [ ]
(a) $\sigma << 1$ (b) $\sigma >> 1$ (c) $\sigma = 0$ (d) None

40 Potential due to a charge at a point situated at infinity is [ ]
(a) Infinity (b) Zero (c) One (d) None

41 Relaxation time of a medium with $\varepsilon_r = 3$ and $\sigma = 3$ mho/m is [ ]
(a) 8.854 Picoseconds (b)9 Picoseconds (c) 7.9686 Picoseconds (d) 1 second

42 The proportionality constant in coulomb's law has unit of [ ]
(a) Farads (b)Farads/meter (c)Newton (d)Meter/farad

43 The electric field on x-axis due to a line charge extending $-\infty$ to is∞ [ ]
(a) $\rho_l/2\pi\varepsilon_0\rho$ (b)$\rho_l/2\varepsilon_0\rho$ (c)$\rho_l/2\rho$ (d)$\rho_l/\varepsilon_0\rho$

44 Equipotential surfaces about a point charge are in which one of the following forms? [ ]
(a) Spheres (b)Planes (c) Cylinders (d)Cubes

45 A parallel plate capacitor of 5 pF capacitance has a charge of 01μC on its plates What is the energy stored in the capacitor? [ ]
(a) 1 nJ (b)1 μJ (c)1 mJ (d)1 pJ

46 Laplacian of a scalar function V is [ ]
(a) Gradient of V (b) Divergence of V
(c) Gradient of the gradient of V (d) Divergence of the gradient of V

47 Plane z = 10 m carries surface charge density 20 nC/m^2, What is the electric field at the origin? [ ]
(a) $-10\ a_z$ V/m (b)$-18\pi\ a_z$ V/m (c) $72\ \pi\ a_z$ V/m (d) $-360\pi\ a_z$ V/m

48 An insulated metal sphere of 10 cm radius is charged by rubbing with a charge of 2×10^{-8} The potential developed is [ ]
(a) 2700 V (b) 900 V (c) 1800 V (d) 450 V

49 A point is represented in Cartesian coordinates as P(3,4,5), the radial component ρ in Cylindrical coordinates will be_____ r in spherical coordinates [ ]
(a) Less than (b) Greater than (c) Equal to (d) Unrelated to

50 Curl of vector can be used to state whether there is a rotation associated with a vector field [ ]
(a) FALSE (b) TRUE (c) Insufficient data (d) None

51 One of the following is not source of magnetostatics field [ ]
(a) A dc current in wire (b) a permanent magnet
(c) An accelerated charge (d) an electric field linearly changing with time

52 The z-axis carries filamentary current 10πA along a_z Which of these is incorrect? [ ]
(a) H= $-a_x$ A/m at (0,5,0) (b) H= $-08a_x$-06 a_y A/m at(-3,4,0)
(c) H= $-a_\varphi$ A/m at (0,π/4,0) (d) H= $-a_\varphi$ A/m at A/m (0,3π/2,0)

53 Which of these statements are not characteristics of a static magnetic field? [ ]
(a) It is solenoidal (b) It is conservative
(c) It has no sinks or source (d) Magnetic flux lines are always closed

54 Two identical co-axial circular coils carries same current I but in opposite directions. The magnitude of the magnetic field B at a point on axis midway between coils is [ ]
(a) Zero (b) The same as that produced by one coil
(c) Twice that produced by one coil (d) Half that produced by one coil

55 What is the unit of magnetic charge? [ ]
(a) Ampere-meter squared (A/m^2) (b) Ampere (A) (c) Coulomb (C)(d) Ampere-meter (A-m)

56 Which of these materials requires the lowest value of magnetic field strength to magnetize it? [ ]
(a) Nickel (b) Silver (c) Tungsten (d) Sodium chloride

57 Two thin parallel wires carry currents along the same direction The force experienced by one due to other is [ ]
(a) Parallel to the lines (b) Perpendicular to the lines and attractive
(c) Perpendicular to the lines and repulsive (d) Zero

58 Which of the fallowing statements are not true about electric force Fe and magnetic force Fm on charged particle? [ ]
(a) Both Fe and Fm depend on the velocity of the charged particle

(b) Both Fe and Fm can perform a work
(c) Both Fe and Fm are produced when a charged particle moves at a constant velocity
(d) Both a and b

59 The flux through each of the turn of a 100-turns coil is (t^3-2t) mWb, where t is in seconds The induced emf at t=2, [ ]
(a) 1V (b) 1V (c) 4mV (d) 4V

60 The concept of displacement current was major contribution attributed to [ ]
(a) Faraday (b) Lenz (c) Maxwell (d) Lorenz

61 Ampere's circuit law gives the relation as_____ [ ]
(a) The circulation of H equals I enclosed (b) $\oint H\, dl = I_{enc}$
(c) Only a and b (d) None of these

62 If the rate of attenuation is high for good conductors at radio frequency, where does an input have get reduced to? [ ]
(a) Zero (b) Infinity (c) Minor proportion of its initial strength value
(d) Major proportion of its final strength value

63 In magnetism, Biot-Savart's law is well-known as _____ law of current element [ ]
(a) Coulomb's (b) Ampere's (c) Joules (d) Ohm's

64 The total flux through a closed surface in a magnetic field is [ ]
(a) 0 (b) J (c) 1(d) ρ_v

65 A time-harmonic field is one that _____ [ ]
(a) Varies periodically or sinusoidally with time (b)Does not varies periodically with time
(c) Varies with frequency and phase (d) None of these

66 The unit of a (X H) [ ]
(a) Ampere (A) (b) Ampere/meter(A/m)
(c) Ampere/meter squared(A/m^2) (d) Ampere-meter(A-m)

67 Materials made of atoms than do not have permanent magnetic moments are [ ]
(a) Paramagnetic materials (b) Ferromagnetic materials
(c) Diamagnetic materials (d) None of these

68 Displacement current density is [ ]
(a) Time rate of change of electric flux density
(b) Time rate of change of magnetic flux density
(c) Time rate of change of potential
(d) Time rate of change of magnetic potential

69 In a transformer EMF induced in a stationary loop is caused by [ ]
(a) Time-varying magnetic field (b) Time-invarying magnetic field
(c) Current in first loop (d) None of these

70 Dielectric constant and dielectric strength are [ ]
(a) Different (b) One is dimensionless and the other is KV/mm (c) Same
(d) One is number and other indicates when the breakdown of the dielectric occurs when a potential difference is applied

71 The properties of medium are [ ]
(a) Permittivity, permeability, Insulation (b) Permittivity, permeability, conductivity
(c) Permeability, resistivity, inductivity (d) permeability, flux magnetism

72 A field exists if it satisfies [ ]
(a) Gauss's law (b) Faraday's law (c) Coulomb's law (d) All Maxwell's equations

73 Maxwell's equations give the relations between [ ]
(a) Different boundary conditions (b) Different fields
(c) Different sources (d) None of the above

74 The cosine of the angle between of the two vectors is [ ]
(a) Sum of the productions of the directions of two vectors
(b) Difference of the products of the directions of two vectors
(c) Product of the products of the directions of the two vectors
(d) None of the above

75 The electric field just above a conductor is always [ ]
(a) Tangential to surface (b) Zero (c) Normal to the surface (d) Infinity

76 The unit of magnetic susceptibility is [ ]
(a) Nil (b) Amp (c) H/m (d) Wb

77 Maxwell's second equation of static fields is a point form of [ ]
(a) Ampere's law (b) Gauss's law (c) Lenz's law (d) Biot-savert's law

78 Which one of these equations is not Maxwell's for a static electromagnetic field in a linear homogenous medium? [ ]
(a) $\nabla.\bar{B} = 0$ (b) $\nabla.\bar{D} = 0$ (c) $\nabla^2 A = \mu_0 J$ (d) $\oint D.ds = Q$

79 Faradays law states that the induced emf is given by (N=1) [ ]
(a) $V_{emf} = \frac{\partial \psi}{\partial t}$ (b) $V_{emf} = -\int \frac{\partial B}{\partial t}\, ds$ (c) $V_{emf} = -\int u \times b\, dl$ (d) all of the above

80 A static electric field E cannot exist in the absence of static magnetic field H [ ]
(a) True (b) False (c) Data insufficient (d) None of these

81 The unit of magnetic dipole moment is [ ]
(a) A-m (b) A-m^2 (c) A/m (d) None of these

82 The magnetic field in an ideal conductor is
(a) 0 (b) 1 (c) infinite (d) same as its outside field

83 In non-homogenous region, the Poisson's equation can be given as [ ]
(a) $\nabla(\epsilon\, \nabla V) = -\rho_v$ (b) $\nabla^2 V = 0$ (c) $\rho_v = 0$ (d) None of the above

84 Which one of these equations is not Maxwell's equation for a static electromagnetic field in a linear homogenous medium? [ ]
(a) $\nabla.B = 0$ (b) $\nabla \times D = 0$ (c) $\oint D.ds = Q$ (d) $\nabla^2 \mu_o J = 0$

85 Out of the fallowing is not a source of magnetic fields [ ]
(a) A dc current in a wave (b) A permanent magnet
(c) An accelerated charge (d) An electric field linearly changing with time

86 For a free space
(a) $\sigma = \infty$ (b) $\sigma = 0$ (c) J = 0 (d) None

87 If a charge of 2.0C is placed in an electric field of 2.0V/m, the force on the charge is [ ]
(a) 4N (b) 1N (c) 2N (d) 0

88 A modified form of ampere's law is [ ]
(a) ∇ X H= J_C+J_D (b)∇ X H= I_C+I_D (c) ∇ . H= J_C+J_D (d) None of these

89 The Maxwell's $\nabla \times H = J + \frac{\partial D}{\partial t}$ is based on [ ]
(a) Gauss's law (b) Ampere's law (c) Faraday's law (d) Coulomb's law

90 For static magnetic field [ ]
(a) $\nabla \times B = \rho$ (b) $\nabla \times B = \mu J$ (c) $\nabla \times B = 0$ (d) $\nabla . B = \mu_0 J$

91 Conservative nature of electromagnetic field is given as [ ]
(a) $\nabla \times E = 0$ (b) $\nabla \times D = \rho_v$ (c) $\nabla \times B = 0$ (d) None of the above

92 A material is said to be nonmagnetic if [ ]
(a) $\chi_m = 0$ (b) $\chi_m = 1$ (c) $\chi_m = \infty$ (d) None of these

93 Identify the statement that is not true of ferromagnetic materials [ ]
(a) They have large χm (b) They have a fixed value of u_r
(c) Energy loss proportional to the area of the hysteresis loop
(d) They lose their nonlinearity property above the curie temperature

94 What is the unit of magnetic flux density [ ]
(a) Wb/m^2 (b) Wb (c) Joules (d) Joules/coulombs

95 Magnetic flux density in free space is [ ]
(a) B= μ_0H (b) B= ∇ X A (c) B= 0 (d) None of the above

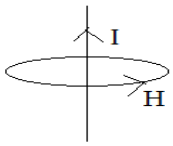
96 The Lorentz force equation [ ]
(a) F = QE (b) F=Q(E + u x B)= m $\frac{du}{dt}$ (c) F = 0 (d) None of the above

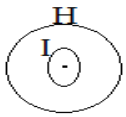
97 Energy in magnetostatic field is given by [ ]
(a) $W_m = \frac{1}{2}\int B.H\, dv$ (b) W_m= Fdl (c) W_m = 0 (d) None of the above

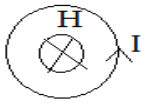
98 A loop is rotating about the y-axis in a magnetic field B=B_0sinwt a_x Wb/m^2 the voltage induced in the loop is due to [ ]
(a) Motional emf (b) Transformer emf
(c) A combination of transformer and motional emf (d) None of the above

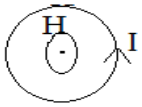
99 What is unit of magnetic flux [ ]
(a) Joules (b) Ampere (c) Watts (d) W b

100 Assuming that each loop is stationary and the time–varying magnetic field B induces current I, which of the configurations in figure 6 Are correct [ ]

(a) 

(b) 

(c) 

(d) 

101 The magnetic field strength of a plane wave is 1A/m What is the strength of electric field in free space? [ ]
(a) 120V/m (b) 400V/m (c) 0V/m (d) 377V/m

102 Value of intrinsic impedance in free space is [ ]
(a) $120\pi\ \Omega$ (b) $400\ \Omega$ (c) $200\ \Omega$ (d) $300\ \Omega$

103 In uniform plane wave, $\bar{E}$ and $\bar{H}$ are [ ]
(a) Orthogonal (b) Having same direction
(c) Neither orthogonal nor in same direction
(d) None of the above

104 In a good conductors [ ]
(a) E leads H by 45^0 (b) E leads H by 90^0
(c) H leads E by 45^0 (d) H leads E by 90^0

105 In uniform plane wave, $\bar{E}$ and $\bar{H}$ gives [ ]
(a) Direction in which wave $\bar{E}$-filed exists (b) Direction in which wave $\bar{H}$ -filed exists
(c) Direction in which wave travels (d) None

106 Velocity of electromagnetic wave in free space is [ ]
(a) 300KM/hr (b) 300m/s (c) 200miles/hr (d) $3X10^8$ m/s

107 In a circularly polarized uniform wave travelling in x-direction, the phase difference between E_z and E_y is [ ]
(a) 30° (b) 45° (c) 90° (d) 180°

108 The distance at which the electric field becomes 1/e times of its initial value is known as [ ]
(a) Depth of penetration (b) Skin depth (c) A and B (d) All of the above

109 Poynting vector is given by [ ]
(a) **EH** (b) **H** X **E** (c) **E** X **H** (d) None

110 Pointing vector gives [ ]
(a) The rate of energy flow (b) Direction of polarization
(c) Electric field (d) Magnetic field

111 For a uniform plane in the x-direction [ ]
(a) $E_x = 0$ (b) $H_x = 0$ (c) $E_x = 0$ and $H_x = 0$ (d) $E_z = 0$

112 Depth of penetration in free space [ ]
(a) ∞ (b) $1/\alpha$ (c) 0 (d) Small

113 EH of a uniform plane wave is [ ]
(a) 1 (b) 0 (c) E^2 (d) H^2

114 Uniform plane wave is [ ]
(a) Longitudinal in nature (b) Transverse in nature
(c) Neither transverse nor longitudinal (d) x-directed

114 The direction of propagation of electromagnetic wave is obtained form [ ]
(a) **E** X **H** (b) **EH** (c) **E** (d) **H**

115 The velocity of an electromagnetic wave is [ ]
(a) Inversely proportional to β (b) Inversely proportional to α
(c) Directly proportional to β (d) Directly proportional to α

116 Velocity of the wave in an ideal conductor is [ ]
(a) 0 (b) Very large (c) Moderate (d) Small

117 If E is a vector, then [ ]
(a) is (b) 1 (c) Does not exists (d) None of these

118 Velocity of an electromagnetic wave in free space is [ ]

(a) Zero (b) Decreases with increase in frequency
(c) Increase with increase in frequency (d) Independent of frequency

119 The direction of propagation of an electromagnetic wave is given by [ ]
(a) The direction of E (b) The direction of H
(c) The direction of (E X H) (d) The direction of EH

120 For uniform plane wave propagating in z-direction [ ]
(a) $E_x = 0$ (b) $H_x = 0$ (c) $E_y = 0, H_y = 0$ (d) $E_z = 0, H_z = 0$

121 Electric field just above a conductor is always [ ]
(a) Normal to the surface (b) Tangential to the surface (c) Zero (d) ∞

122 Velocity of propagation of electromagnetic wave is [ ]
(a) $\sqrt{\frac{\epsilon_0}{\mu_0}}$ (b) $\frac{\mu_0}{\varepsilon_0}$ (c) $\frac{1}{\sqrt{\epsilon_0 \mu_0}}$ (d) $\frac{\varepsilon_0}{\mu_0}$

123 Which of the following statements is not true of waves in general [ ]
(a) The phenomenon may be a function of time delay
(b) The phenomenon may be a sinusoidal or cosinusoidal
(c) The phenomenon must be a function of time and space
(d) For practical reasons, it must be finite in extent

124 What is the major factor for determining whether a medium is free space, a lossless dielectric, a lossy dielectric, or a good conductor? [ ]
(a) Attenuation constant (b) Constitutive parameters (σ, ε, μ)
(c) Loss tangent (d) Reflection coefficient

125 Electromagnetic waves travel faster in conductors than in dielectrics [ ]
(a) True (b) False (c) Data in sufficient (d) None of the above

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

B.Tech– IV Sem (MR 18-2018-19 Admitted Students)
I Mid Examination Subjective Question Bank

Subject: Environmental Science **Branch /Specialization: CSE/ECE/EEE/IT**

Name of the faculty: K USHA RANI

Instructions:

1. All the questions carry equal marks

2. Answer all the questions

Q.No.	Question	Bloom's Taxonomy Level	CO
1.	Outline the structure of Ecosystem?	Understanding	1
	OR		
2.	Explain Flow of energy through various trophic levels in an ecosystem is unidirectional and noncyclical.	Understanding	1
3.	Compare Detritus food chain with grazing food chain.	Analyzing	1
	OR		
4.	Classify different types of ecosystems.	Analyzing	1
5.	Explain the scope and importance of ecosystem.	Understanding	1
	OR		
6.	Outline the functional features of aquatic ecosystem.	Understanding	1
7.	Construct a food web in any one ecosystem.	Applying	1
	OR		
8.	Develop two ecological pyramids basing on number of species and amount of biomass produced.	Applying	1
Module II			
1.	Illustrate in- situ and ex-situ conservation of biodiversity?	Understanding	2
	OR		
2.	Classify different types of energy resources with examples?	Understanding	2
3.	Construct the flow chart on impacts of mining activities**?**	Applying	2
	OR		
4.	Identify the values of biodiversity.	Applying	2
5.	Summarize with the help of case study how big dams have affected forests and the tribal.	Understanding	2
	OR		
6.	Outline the major threats to biodiversity.	Understanding	2
7.	Discuss aquifers and its types?	Creating	2
	OR		

8.	Discuss briefly about droughts and floods with respect to their occurrence and impacts.	Creating	2
Module III			
1.	Summarize all possible methods to Control Air Pollution in the Environment**?**	Understanding	3
	OR		
2.	Compare point sources with non-point sources of pollution.	Understanding	3
3.	Explain the adverse effects and control of water pollution.	Understanding	3
	OR		
4.	Illustrate major sources of surface water pollution and ground water pollution.	Understanding	3
5.	Identify the control methods of automobile and industrial pollution.	Applying	3
	OR		
6.	Identify the sources of primary and secondary pollutants.	Applying	3

Signature of the Faculty **Signature of the HOD**

(K USHA RANI)

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Department Of Chemistry
II B.TECH II SEM (MR 18)

ENVIRONMENTAL SCIENCE

(Common to EEE, ECE, CSE & IT)

OBJECTIVE QUESTION BANK FOR I MID

MODULE I

Multiple Choice Questions:

1. The food relation from grass--> deer-->tiger-->decomposer is called [ ]

   A) Eco pyramid
   B) Food chain
   C) Trophic level
   D) Energy flow

2. Pond eco-system food chain can be represented as: [ ]

   A) Grass→ Grasshopper→Lizard→ Eagle
   B) Grass→ Mouse→ Snake→ Hawk
   C) Phytoplanktons→ Zooplanktons→ Small fish→ Big fish
   D) None of the above

3. Identify the correct statement about ecosystem? [ ]

   A) Primary consumers are least dependent upon producers
   B) Primary consumers depend on carnivores
   C) Producers are more than primary consumers
   D) Secondary consumers are the largest and most powerful

4. Pyramid of numbers deals with the number of [ ]

   A) Species in area
   B) Subspecies in a community
   C) Individuals in a community
   D) Individuals in a tropic level

5. Food chain in which microorganisms breakdown the food by primary producers is [ ]

   A) Detritus food chain
   B) Grazing food chain
   C) Consumer food chain
   D) Predator food chain Always inverted

   consumer is [ ]

   A) An organism that produce its own food
   B) An organism that does not need food for survive
   C) An abiotic organism
   D) An organism that cannot produce its own food

7.Ecology deals with the study of [ ]

A) Living beings
B) Living and Non-living components interacting with environment
C) Reciprocal relationship between biotic and abiotic components
D) Environment

8. Feeding levels in food chain are called as: [ ]

A) Production levels

B) Eltonian pyramids

C) Food web

D) Tropical levels

9. Single channel energy flow model explains the flow of energy through [ ]

A) Grazing food chain

B) Detritus food chain

C) Both A& B

D) None

10. The interlocking pattern of food chain is called [ ]

A) Food chain

B) Food web

C) Ecological pyramid

D) Energy flow

MODULE-II

Multiple Choice Questions:

1. The value is based on the concept of live & let live called [ ]

A) Social value
B) Option value
C) Ethical value
D) Spiritual value

2. A renewable exhaustible natural resource is: [ ]

A) Petroleum
B) Forest
C) Coal
D) None

3. Which of the following types of coal has maximum carbon and calorific value? [ ]

A) Anthracite

B) Bituminous

C) Lignite

D) Wood coal

4.The energy harnessed from the hot rocks present inside the earth is called [ ]

A) Geothermal energy

B) Wind energy

C) Ocean thermal energy

D) Tidal energy

5. Which of the following is critical mineral? [ ]

A) Cobalt

B) Iron

C) Chromium

D) Magnesium

6. World environmental day is celebrated on the following day [ ]

A) November 13th

B) July 20 th

C) June 5th

D) April 7th

7. Land Subsidence occurs due to [ ]

A) Withdrawal of more ground water than its recharge

B) More recharge of ground water than its withdrawal

C) Equal rates of recharge and withdrawal

D) None

8. Aquifer which are sandwiched between two impermeable layers of rocks or sediments Called [ ]

A) Unconfined

B) Confined

C) Both

D) None

9. Identify the effects of over utilization of water resources: [ ]

A) Land subsidence
B) Lowering water table
C) Salt water intrusion
D) All

10. When variations occurs within a species due to new combination of genes called [ ]

A) Genetic diversity
B) Species diversity
C) Eco system diversity
D) None

MODULE III

Multiple Choice Questions:

1. Example for secondary pollutants is [ ]

A) Smog
B) PAN
C) Ozone
D) All

2. Carbon dioxide content in atmosphere [ ]

A) 70%
B) 0.03%
C) 0.5%
D) 2%

3. Oxidation of sulphur in the fossil fuels mainly produces [ ]

A) NO_2
B) SO_2
C) SO_3
D) Both B & C

4. Separation of heavy inorganic solids is known as [ ]

A) Sedimentation
B) Floatation
C) Neutralization
D) None

5. More BOD in water indicates [ ]

A) Poor quality
B) Good quality
C) Maintains quality
D) None

MODULE I

Fill in the blanks:

1. Grazing food chain starts from_____

2. The flow of energy in an eco-system is always_____

3. The pyramid of energy in a food chain is always _____

4. As energy flows through a food chain, energy in each successive level _____

5. The animals that feed on primary consumers directly are known as _____

6. Tropical grasslands in Africa are typically known as _____

7. The concept of ecological pyramid was first proposed by _____

8. _____ indicates who eats whom

9. Pyramid of numbers in a parasitic ecosystem is _____

10. Graphical representation of relationship of producers and consumers in terms of pyramids is known as _____

MODULE II

Fill in the blanks:

1. The percentage of water usage in agriculture sector globally is__.

2. _____ resources are not generated

3. Solar cells are made up of thin wafers of semiconductors materials like_& _____

4. Natural gas contains 95% of_____.

5. Quinine is obtained from the _____

6. The minimum wind speed required for the working of a wind generator is___ Km/hr

7. _____ is the technique of conservation of all levels of biological diversity outside their natural habitats
.

8. _____ can be extracted from bauxite

9. _____ conservation is the on-site conservation or the conservation of genetic resources in

natural populations of plant or animal species

10. The hydro power potential of India is estimated to be about _____ Kw/hr

MODULE III

Fill in the blanks:

1. Photo chemical smog is produced by_____and sun light

2.Any single identifiable source of pollution from which pollutants are discharged is Called_____source.

3. Itai Itai disease occurred due to consumption of_____contaminated rice

4. The most commonly used devices to control particulate emissions are_____& _____

5. P^H value to be maintained for drinking water is _____