Code No.: **50327**

MR15 (2016-17 Batch Regular & 2015-16 Batch Supply)

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)

GundlapochampALLy (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

III B.TECH II SEMESTER REGULAR & SUPPLEMENTARY EXAMINATIONS, MAY-2019

Subject: **Thermal Engineering - II**

Branch: **ME**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. Why the Carnot cycle cannot be considered as the theoretical cycle for stream power plants even though its efficiency is maximum.
2. What is the purpose of drawing heat balance sheet in boiler plant.
3. Draw the schematic diagram of parallel flow jet condenser.
4. Define diagram efficiency?
5. Show P-V and T-S diagram for Ideal Brayton cycle?

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. a) Discuss the advantages of reheating the steam in high pressure steam plants.
   b) In a single regenerative heater system, the steam is supplied to the turbine at a rate of 68000 kg/hr and 15420 kg of steam isblowed per hour at 10 bar and the remaining ispassed to the condenser. Determine the enthalpy of steam at entry of regenerativeheater and entry condition at the entry of the condenser.
2. A Steam power plant operating on rankine cycle generates superheated steam at 10 bar and 380^0C. Condensation occurs at 0.06 bar. Calculate the thermal efficiency of the plant and compare tthis with the thermal efficiency of carnot cycle working between the same temperature limits?
3. a) With a neat sketch explain the working of locomotive boiler.
   b) A coal fired boiler plant consumes 400 kg of coal per hr. The boiler evaporates 3200 kg of water at 44.5°C into superheated steam at a pressure of 12 bar and 274.5°C. If the calorific value of fuel is 32760 KJ/kg, determine (i) Equivalent evaporation. ii) Thermal efficiency of boiler.
   Assume specific heat of superheated steam as 2.1 KJ/kg.K
4. Derive the condition for maximum discharge through a chimney.

5. a) With a neat sketch explain the working of low level parallel flow jet condenser.

   b) The vacuum in a condenser is 690mm of Hg and barometer reads 760mm of Hg. The mean condensate temperature is 30°C. Find the vacuum efficiency.

6. Derive the condition for maximum discharge through nozzle.

7. a) Show that condition for maximum blade efficiency of an Impulse Turbine is $\rho=(\cos\alpha)/2$

   [where ρ= Blade Speed Ratio, α= Nozzle Angle.]

   b) The following data refers to a particular stage of a reaction turbine:

   Speed of the Turbine=1500 rpm, Blade Outlet angle=20^0, Mean diameter of Rotor= 1m, Blade Speed Ratio = 0.7, Stage Efficiency = 80%. Determine the available enthalpy drop in the stage.

8. a) Derive an expression for Thermal Efficiency of a Simple Gas Turbine Plant in terms of Pressure Ratio and adiabatic index (γ).

   b) The exit velocity from a jet unit is 650m/s. For an air flow of 40kg/s through the unit, the air craft is flying at 250 km/hr. Calculate the Thrust developed, the Thrust Power, Propulsive Power and Propulsive Efficiency. Neglect the effect of fuel.

Code No.: **50H14**

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III B.TECH II SEMESTER REGULAR & SUPPLEMENTARY EXAMINATIONS, APRIL-2019

Subject: **Industrial Management**

Branch: **ME**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. Name five important functions of management
2. What is cellular organization?
3. Write any two objectives of material management.
4. What is project crashing? Define cost slope?
5. What is bench marking? How is it useful?

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. Discuss the concept of social responsibility. Explain the activities of any four of the business organizations which undertake activities related to community development in your town.
2. Discuss the utility of organization structure in an organization.
3. a) What are the objectives of Work study &Explain the procedurefor Method study
   b) Explain different types of quality control charts
4. Draw a PERT network for the following activities. And determine theprobability of completing the project in 48 days.

Jobs	Optimistic	Most likely	pessimistic
1-2	5	6	3
1-3	3	4	6
2-4	4	6	7
3-4	2	5	9
4-5	9	18	25
4-7	11	15	21
5-8	6	7	10

5. Explain the terms
   a) Objectives of strategic management b) Business process outsourcing
6. Mention the principles of management given by Fayol in brief.
7. What do you mean by Departmentation? Briefly discuss any three methods of departmentation.
8. Explain marketing strategies based on product lifecycle

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III B.TECH II SEMESTER REGULAR & SUPPLEMENTARY EXAMINATIONS,

MAY-2019

Subject: **Design of Machine Members - II**

Branch: **ME**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. Explain briefly about Hydrodynamic Lubricated Bearings
2. Explain the function of connecting rod.
3. Write the types of belt drives.
4. In a gear speed reducer, why is the dia of output shaft greater than input shaft?
5. Why are v threads not used in power screws?

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. Design a journal bearing for a centrifugal pump from the following data:
   Load on the journal = 20000N, Speed of the journal=900 r.p.m. Type of oil is SAE 10, for which the absolute viscosity at 55°C =0.017 kg / m-s, Ambient temperature of oil = 15.5°C, maximum bearing pressure for the pump = 1.5N/mm^2.Calculate also mass of the lubricating oil required for artificial cooling, if rise of temperature of oil be limited to 10°C. Heat dissipation coefficient is 1232 W/m^2/°C.
2. Write design procedure of a connecting rod with neat sketch.
3. a) Explain advantages and disadvantages of V belts over flat belt drive.
   b) Design fabric belt to transmit 12 KW from an engine running at 1200 rpm to machine shaft at 480rpm.The diameter of engine shaft pulley is 300mm and the distance of engine shaft from machine shaft is 2m.Coefficient of friction is 0.2.
4. a) State the applications of helical gears.
   b) Explain the design procedure of helical gears.
5. A double threaded worm drive has an axial pitch of 25 mm and a pitch circle diameter of 70 mm. The torque on the worm gear shaft is 1400 N-m. The pitch circle diameter of the worm gear is 250 mm and the tooth pressure angle is 25°. Find i) tangential force on the worm gear ii) torque on the worm shaft iii) separating force on the worm, iv)velocity ratio and v)efficiency of the drive, if the coefficient of friction between the worm thread and gear teeth is 0.04.
6. Define the following terms related to rolling bearing', 1) Rating life 2) Median life 3)Dynamic load carrying capacity 4)Load life relationship?
7. Explain the various types of I.C engine piston
   a) Ribs b) Piston rings c) Piston skirt d) Piston pin
8. A leather belt, 125 mm wide and 6 mm thick, transmits power from a pulley 750mm dia which runs at 500 rpm. The angle of lap is 150° and ja = 0.3. If the mass of 1 m^3 of leather is 1 Mg and the stress in the belt is not to exceed 2.75 MN/m^2, find the maximum [power that can be transmitted?

Code No.: **50333**

MR15 (2016-17 Batch Regular)

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III B.TECH II SEMESTER REGULAR EXAMINATIONS, MAY-2019

Subject: **Maintenance and Safety Engineering**

Branch: **ME**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. Classify the types of maintenance.
2. Define work in process inventory and replacement parts inventory.
3. Define Modern Maintenance.
4. What are the various reasons for maintenance costing?
5. Define Reliability.

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. Recall the following terms.
   (i)Maintenance plan (ii) Overhaul (iii) Inspection (iv) Maintenance person (iv) Maintenance Engineering.
2. Explain broad indicators in maintenance management control Indices.
3. A maintenance department uses 10 types of items. The below table present their annual usage and cost per unit. Determine the following (i)The annual dollar usage for each item (ii) the ordered list of items with respect to their annual dollar usage (iii)the cumulative yearly dollar usage and cumulative percent of items (iv) The A,B,C classification of items. (Evaluating)

Item NO.	Annual usage(units)	Cost per unit($)
1	400	10
2	200	40
3	1000	5
4	100	15
5	50	80
6	1700	5
7	500	10
8	600	50
9	700	200
10	900	4

4. Define modern maintenance and write in detail about the principles of modern maintenance.
5. Demonstrate the important steps for establishing a Preventive Maintenance Program.
6. a) Explain the purposes of Inventory
   b) Explain the control policies for ABC inventory control method.
7. a) Write a short note on PMT activities.
   b) What is the safety officer's role in maintenance work?
8. Build and expression for MTTF in series and parallel network in reliability network.

Code No.: **50332**

MR15 (2016-17 Batch Regular & 2015-16 Batch Supply)

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III B.TECH II SEMESTER REGULAR & SUPPLEMENTARY EXAMINATIONS, MAY-2019

Subject: **Power Plant Engineering**

Branch: **ME**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. What are the methods used for starting a diesel engine?
2. Explain the function of moderator?
3. Name four coal handling equipments.
4. Define Spill way? Classify different types of spill ways
5. What is the significance of load curves?

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. Draw an explanatory line diagram of an ash handling system employed in steam power plants and also explain the difficulties encountered in the handling of ash in a thermal power station?
2. Draw a neat diagram of a regenerative gas turbine and re-heater and also explain it working with a help of a p-v diagram.
3. How are the turbines classified? Explain anyone with a suitable sketch.
4. a) Why the various engine parts are to be lubricated? Indicate and explain briefly the different types of engine lubrication systems with suitable diagrams. [5M]

   b) Supercharging-explain with advantages and disadvantages
5. a) What are the different types of Energy resources and development of power in India?[5M]

   b) With a neat sketch explain the working of travelling grate stoker firing system.
6. What you mean by storage and pondage? Why are they required?
7. a) Write short notes on what is nuclear breeding? [5M]

   b) What are the general problems of reactor operation?
8. A power station has to supply load on daily basis as follows [10M]

Time (Hr)	0-6	6-12	12-14	14-18	18-22	22-24
Load (MW)	30	100	60	80	100	60

   a) Draw the load curve

   b) Draw the load duration curve

   c) Calculate load factor, capacity of the plant and plant capacity factor

Code No.: **50H03**

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III B.TECH II SEMESTER REGULAR & SUPPLEMENTARY EXAMINATIONS,

MAY-2019

Subject: **Technical Communication and Presentation Skills**

Branch: **Common to CE, ME & MINING**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. Explain the three levels of formality.
2. Discuss the significance of formal style in Technical writing.
3. What is the importance of pictorial representation in Technical reports?
4. Choose any two types of oral presentations and explain in brief.
5. What are the types of reading?

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. a) Give rules for Past tense and Plural markers in English pronunciation with examples.
   b) Suggest the various ways of improving vocabulary.
2. a) Write a note on methodology of writing.
   b) Write short notes on Components of a circular.
3. a) Write a note on routine and special reports.
   b) Differentiate between informational and analytical reports.
4. a) Discuss the elements of effective presentation.
   b) Discuss the strategies used to control and handle stage fright while giving presentations.
5. Explain in detail the SQ3R approach to effective reading.
6. Elaborate the following terms with examples.
   a) Blending b) Clipping c) Borrowing d) Coinage(Creating) 10m
7. Model a Congratulatory Memo towards an employee of your organization.
8. Identify the motive behind pictorial presentation in a project report.

256
199
126
461
462