MALLA REDDY COLLEGE OF ENGINEERING &TECHNOLOGY

(An Autonomous Institution – UGC, Govt. of India)

DEPARTMENT OF MECHANICAL ENGINEERING

ENGINEERING THERMODYNAMICS

MODEL PAPER-I

Time: 3 hours **Marks: 75**

Part – A **25 Marks**

1) What do you understand by path function and point function? [**2 Marks**]
2) What are exact and inexact differentials? [**3 Marks**]
3) What is a PMM I and PMM II? [**2 Marks**]
4) Explain the terms 'source' and 'sink'? [**3 Marks**]
5) What is the critical state? [**2 Marks**]
6) What are the applications of Mollier chart? [**3 Marks**]
7) Define mole and molar of a perfect gas mixtures .? [**2 Marks**]
8) Write the applications of psychometric chart.? [**3 Marks**]
9) Why dual cycle is called mixed cycle? [**2 Marks**]
10) Write the advantages and disadvantages of Bell-Coleman cycle. [**3 Marks**]

Part – B **5X10 = 50 Marks**

1) A stationary mass of gas is compressed without friction from an initial state of 0.35 m^3 and 0.11 MPa to a final state of 0.25 m^3 at constant pressure. There is a transfer of 48.67 kJ of heat from the gas during the process. How much does the internal energy of the gas change? [**10 Marks**]

OR

A system composed of 2 kg of the above fluid expands in a frictionless piston and cylinder machine from an initial state of 1MPa,100 °C to a final temperature of 30 °C. If there is no heat transfer, then find the network for the process.

2) [**10 Marks**]

A reversible heat engine operates between two reservoirs at temperature of 600 °C and 40°C. The engine drives a reversible refrigerator which operates between reservoirs at temperatures of 40°C and 20°C. The heat engine is 2000 kJ and the network output of the combined engine refrigerator plant is 360 kJ. Then,

(i) Evaluate the heat transfer to the refrigerant and the net heat transfer to the reservoir at 40°C. (ii.)Reconsider given that the efficiency of the heat engine and the COP of the refrigerator are each 40% of their maximum possible values.

OR

A rigid vessel of volume 0.86m3 contains 1 kg of steam at a pressure of 2 bar. Evaluate the specific volume, temperature, dryness fraction, internal energy,enthalpy and entropy of system

3) [**10 Marks**]

a) Explain Gravimetric and Volumetric analysis

b) State and explain i.) Dalton's law of partial pressures
ii.) Avogadro's Law

OR

5kg of steam with a dryness fraction of 0.9 expands adiabatically to the Law PV1.13constant. from a pressure of 8 bar to 1.5 bar determine i)final dryness fraction ii)heat transferred iii)work done

4) [**10 Marks**]

Air at 16^{o}C and 1.2 bar occupies a volume of $0.03m^{3}$.the air is heated at constant voulume until the pressure is 4.3 bar and then cooled at constant pressure back to the original temperature.calculate
i)The net heat flow to or from the air and
ii) the net entropy change. **OR**

The compression ratio in an air standard Otto cycle is 7.5.at the beginning of compression process the pressure is 120kN/m2 and the temperature is 300k.The heat added to the air per cycle is 1650kJ/kg of air. calculate a)the pressure and the temperatures at the end of each process of the cycle b)the thermal efficiency c)the MEP of the cycle and d)power out per kg of air.

5) [**10 Marks**]

a) In an ideal refrigeration cycle the temperature of of the condensing vapor is -40oC and the temperature during evaporation is – 15oC Calculate a) The COP of the cycle
b) The power required to produce one ton of refrigeration and Mass flow rate of the refrigeration for each ton of refrigeration consider the working fluids F 12 and ammonia

OR

Explain Cop of Bell Column cycle with the help of P-V and T-S diagrams

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DEPARTMENT OF MECHANICAL ENGINEERING

ENGINEERING THERMODYNAMICS
MODEL PAPER-II

Time: 3 hours **Marks: 75**

Part – A **25 Marks**

1) Explain what do you understand by thermodynamic equilibrium? [**2 Marks**]
2) State zeroth law of thermodynamics [**3 Marks**]
3) Why PMM I and PMM II are impossible to operate? [**2 Marks**]
4) What is the thermal energy reservoir? [**3 Marks**]
5) Explain the terms critical pressure, critical temperature and critical volume of water. [**2 Marks**]
6) State and explain Daltons' law of partial pressures and Amgot's law of additive volumes. [**3 Marks**]
7) Define mole fraction, mass fraction. [**2 Marks**]
8) Define DBT, WBT, RH. [**3 Marks**]
9) What is dual cycle? [**2 Marks**]
10) What is mean effective pressure? [**3 Marks**]

Part – B **50 Marks**

[**10 Marks**]

1) A cyclic heat engine operates between a source temperature of 800°C and a sink temperature of 30°C. What is the least rate of heat rejection per kW net output of the engine?

OR

A vessel of 0.04 m^3 contains a mixture of saturated water and saturated steam at a temperature of 250°C. The mass liquid present is 9 kg. Find the pressure, the mass, the specific volume, the enthalpy and entropy and the internal energy.

2) a) State Kelvin-Plank statements and Clausius statement [**10 Marks**] b) Prove that all reversible engines operating between the same two heat reservoirs have the same efficiency

OR

Two reversible heat engines operate on carnot cycle. They work in series between a maximum and minimum temperature of 550 C and 20 C. If the engines have equal thermal efficiencies and the first rejects 450 KJ to the second, calculate

i) The temperature at which heat is supplied to the second engine
ii) The work done by each engine
[**10 Marks**]

3. 10 kg of feed water is heated in a boiler at a constant pressure of 1.5 MN/m2 from 40 C. Calculate the enthalpy required and change of entropy when water is converted into following qualities of steam in each case

i) Wet steam at x=0.95 and ii) Super heated steam at 300 C

OR

Define dryness fraction of steam. Describe methods of finding dryness fraction of steam

4) a) Define saturated air, wet bulb temperature, specific humidity and relative humidity. [**10 Marks**]

b) State and explain i) Dalton's law of partial pressure ii) Avagadro's law

OR

What is the use of psychometric chart, compressibility charts and Mollier chart

5) Describe diesel gas power cycle with the help of P-V and T-S diagrams. Derive an expression for its air standard efficiency [**10 Marks**]

OR

Explain with neat sketch the working of vapour compression refrigeration cycle.

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DEPARTMENT OF MECHANICAL ENGINEERING

ENGINEERING THERMODYNAMICS
MODEL PAPER-III

Time: 3 hours **Marks: 75**

Part – A **25 Marks**

1) What do you understand by the terms microscopic thermodynamics and macroscopic thermodynamics? [**2 Marks**]
2) What is a constant volume gas thermometer? [**3 Marks**]
3) Explain PMM2. [**2 Marks**]
4) State clausius and Kelvin plank statements. [**3 Marks**]
5) Draw the phase equilibrium diagram for a pure substance on p-T coordinates. [**2 Marks**]
6) Define triple point temperature and dryness fraction. [**3 Marks**]
7) Define the terms vapour pressure and degree of saturation. [**2 Marks**]
8) State Helmholtz function. [**3 Marks**]
9) Enumerate the uses of diesel cycle. [**2 Marks**]
10) Discuss the effect of sub cooling on COP. [**3 Marks**]

Part – B **50 Marks**

1) 1 Kg of a fluid is compressed reversibly according to a law PV=0.25 where 'P' is in bar and 'V is in m3 /kg. The final volume is ¼ of initial volume. Calculate the work done on the fluid and sketch the process on a P-V diagram [**10 Marks**]

OR

Show that energy is a property of the system

[**10 Marks**]

2) A cyclic heat engine operates between a source temperature of 800°C and a sink temperature of 30°C. What is the least rate of heat rejection per kW net output of the engine?

OR

1 m^3 of air at 1.1 bar and 20^0 C is heated in a cylinder at constant pressure until its volume is 4.5 m^3. It is then compressed according to the law PV^n = constant till pressure and volume change to 5.5 bar and 0.6 m^3. Calculate change in entropy, work and heat transfer during the processes and the value of n.

[**10 Marks**]

3) A 4kg of CO2 at 50^oC and 1.4 bar are mixed with 8 kg of nitrogen at 150oC and 1 bar to form a mixture at a final pressure of 0.7 bar. the process occurs adiabatically in a steady flow apparatus calculate i) the final temperature of mixture ii)change of entropy

OR

A mixture of ideal gasses consists of 3 kg of nitrogen and 6 Kg of Co2 at a pressure of 250kpa and a temperature of 23^oC.Find a) The mole fraction of each constituent b) equivalent weight of the mixture c) equivalent gas constant of the mixture d) partial pressures and partial volumes e)volume and density of mixtures f) Cp and Cv of the mixture. If the mixture is heated at constant volume to 60oC find the internal energy, entropy and enthalpy of the mixture. Find the changes in internal energy enthalpy and entropy of the mixture if the heating is done at constant pressure take γ for CO_2 and N2 be 1.286 and 1.4

[**10 Marks**]

4) Atmospheric air enters a heater at 35 C and 55% relative humidity and leaves at temperature of 40 C. Calculate:
i) The enthalpy supplied to the air and ii) The final relative humidity.

OR

a.)Define degree of saturation, Adiabatic saturation, specific humidity and relative humidity
b) What is the use of psychometric chart, compressibility charts and Mollier chart

[**10 Marks**]

5) A diesel engine has a clearance volume of 250 cm3 and a bore and stroke of 15cm and 20cm respectively. The inlet conditions are 100KN/m2 and 20 C. The Maximum temperature of the engine is 1500 C. Calculate i) Ideal thermal efficiency of cycle and ii) m.e.p

OR

Describe a binary vapour cycle with the help of schematic diagram of the plant and T-S diagram of the cycle.

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DEPARTMENT OF MECHANICAL ENGINEERING

ENGINEERING THERMODYNAMICS
MODEL PAPER-IV

Time: 3 hours **Marks: 75**

Part - A **Marks:25**

1) What are the intensive and extensive properties? [**2 Marks**]
2) Explain the differences between macroscopic and microscopic view points? [**3 Marks**]
3) How zeroth law is useful for the evaluation of temperature measurement. [**2 Marks**]
4) What are the limitations of first law of thermodynamics? [**3 Marks**]
5) Explain about heat engine. [**2 Marks**]
6) Draw the phase equilibrium diagram for a pure substance on T-S. [**3 Marks**]
7) Differentiate between gravimetric and volumetric analysis. [**2 Marks**]
8) Define thermodynamic wet bulb temperature. [**3 Marks**]
9) Compare otto cycle and diesel cycle. [**2 Marks**]
10) Define the terms COP, TR. [**3 Marks**]

Part – B **50 Marks**

1) A closed system undergoes a reversible process at a constant pressure process of 3.5 bar and its volume changes from 0.15m3 to 0.06 m3. 25KJ of heat is rejected by the system during the process. Determine the change in internal energy of the system.

OR

1 Kg of a fluid is compressed reversibly according to a law PV=0.25 where 'P' is in bar and 'V is in m3 /kg. The final volume is ¼ of initial volume. Calculate the work done on the fluid and sketch the process on a P-V diagram.

[**10 Marks**]

2) Air at 15 C and 1.05 bar occupies a volume of 0.02 m3. The air is heated at constant volume until the pressure is 4.2 bar and then cooled at constant pressure back to the original temperature . calculate (i) The net heat flow to or from the air and (ii) The net entropy change, sketch the process on T-S diagram. [**10 Marks**]

OR

500 kg of heat at constant temperature of 800^{o}k was removed and supplied to a system at a constant temperature of 700^{o}k find the net loss of available energy as a result of this irreversible heat transfer. The ambient temperature as 300^{o}k

3)A mixture of ideal gasses consists of 3 kg of nitrogen and 6 Kg of Co2 at a pressure of 250kpa and a temperature of 23^{o}C.Find a) The mole fraction of each constituent b) equivalent weight of the mixture c) equivalent gas constant of the mixture d) partial pressurs and partial volumes e)volume and density of mixtures f) Cp and Cv of the mixture. [**10 Marks**]

OR

If the mixture is heated at constant volume to 60^{o}C find the internal energy, entropy and enthalpy of the mixture. Find the changes in internal energy enthalpy and entropy of the mixture if the heating is done at constant pressure take γ for CO_2 and N_2 be 1.286 and 1.4 air (N_2=77% O_2= 23% by weight)at 27^{o}c and 13bar is contained in am vessel of capacity of 0.6m^3.some quantity of CO_2 is forced in to the vessel so that the temperature remains at 27^{o}C but the pressure rises to 19 bar. Find the masses of O_2, N_2 and CO_2 in the cylinder.

[**10 Marks**]

4) a) Define degree of saturation, Adiabatic saturation, specific humidity and relative humidity

b) What is the use of psychometric chart, compressibility charts and Mollier chart

OR

How does the Vander waal's equations differ from the ideal gas equation of the state?

5) Explain with neat sketch the working of vapour compression refrigeration cycle

[**10 Marks**]

OR

A diesel engine has a clearance volume of 250 cm3 and a bore and stroke of 15cm and 20cm respectively. The inlet conditions are 100KN/m2 and 20 C. The maximum temperature of the engine is 1500 C. Calculate i) Ideal thermal efficiency of cycle and ii) m.e.p

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DEPARTMENT OF MECHANICAL ENGINEERING

ENGINEERING THERMODYNAMICS
MODEL PAPER-V

Time: 3 hours **Marks: 75**

Part – A **25Marks**

1) Define i) Closed System ii) Open System iii) Isolated System. [**2 Marks**]
2) What are the positive and negative works inters actions. [**3 Marks**]
3) write Maxwell's equation [**2 Marks**]
4) Define clausius and Kelvin-Plank statements. [**3 Marks**]
5) write the clapeyron equation and point out its utility [**2 Marks**]
6) State Daltons law of partial pressure [**3 Marks**]
7) what is an equation of state [**2 Marks**]
8) Explain vaanderwall's equation of state [**3 Marks**]
9) List out different types of refrigeration systems. [**2 Marks**]
10) Draw p-V diagram of diesel cycle. [**3 Marks**]

Part – B **50 Marks**

1) a) Define Closed System, Open System and Isolated System. [**10 Marks**]
b) Gas from a bottle of compressed Helium is used to inflate an inelastic flexible balloon, originally folded completely flat to a volume of 0. 35 m^3 . If the barometer reads 760 mm of Hg, what is the amount of work done upon the atmosphere by the balloon? Sketch the system before and after the process

OR

a) What do you mean by Thermodynamic Equilibrium?
b) A certain quantity of gas having initial volume, temperature and pressure as 0.5 m^3 300^0 k , and 425 KN / m^2 respectively undergoes as an isothermal change of state and has the final pressure of 3.5 bar with a specific volume of 0.2 m^3/Kg. Calculate the Work done and Draw the process on P-V diagram

2) a)write Maxwell's equation [**10 Marks**]
b)a heat pump is used to maintain an auditorium hall at 23^{o}C when the atmospheric temperature is -6^{o}C.the heat load is 2300Kj/min.Calculate the power required to run the actual heat pump if the COP of the actual heat pump is 25% of the Carnot heat pump working between the same temperature limits.

OR

a) Define the terms available energy and un available energy
b) 500 kg of heat at constant temperature of 800^{o}k was removed and supplied to a system at a constant temperature of 700^{o}k find the net loss of available energy as a result of this irreversible heat transfer. The ambient temperature as 300^{o}k.

3) Steam at 0.8 MPa 250^{o}C and flowing at a rate of 1 kg /s passes in to a pipe carrying wet steam at 0.8 Mpa, 0.9 dry after adiabatic mixing the flow rate is 2.5 kg /s. Determine the condition of steam after mixing .the mixture in now expanded in frictionless nozzle isentropic ally to a pressure of 0.4 Mpa. Determine the velocity of the steam leaving the nozzle, neglect the velocity of steam in the pipe line [**10 Marks**]

OR

a) Prove that partial pressure fraction = Mole fraction = Volume fraction of constituent of mixture of gasses

b) A 4kg of CO2 at 50^{o}C and 1.4 bar are mixed with 8 kg of nitrogen at 150oC and 1 bar to form a mixture at a final pressure of 0.7 bar. the process occurs adiabatically in a steady flow apparatus calculate i) the final temperature of mixture ii)change of entropy

4) a) Draw a P-V and T-S diagrams for water starting from its liquid phase to superheated steam.

b)A vessel of volume 0.5m^{3} contains a mixture of saturated water and saturated steam at a temperature of 300^{o}C .the mass of liquid preempt is 10kg.find the presuure, the mass the specific volume ,the enthalpy, the entropy and the internal energy. [**10 Marks**]

OR

a)explain the influence of pressure on the following properties of steam preferably with the help of T-S diagram

i)enthalpy of evaporation

ii)enthalpy of dry saturated steam

b)5 kg of steam with a dryness fraction of 0.9 expands adiabatically to the Law PV1.13constant. from a pressure of 8 bar to 1.5 bar determine i)final dryness fraction ii)heat transferred iii)work done

5) The compression ration in an air standard Otto cycle is 7.5.at the beginning of compression process the pressure is 120kN/m2 and the temperature is 300k.The heat added to the air per cycle is 1650kJ/kg of air. calculate a)the pressure and the temperatures at the end of each process of the cycle b)the thermal efficiency c)the MEP of the cycle and d)power out per kg of air. [**10 Marks**]

OR

a) In an ideal refrigeration cycle the temperature of of the condensing vapor is -40oC and the temperature during evaporation is – 15oC Calculate a) The COP of the cycle

b) The power required to produce one ton of refrigeration and Mass flow rate of the refrigeration for each ton of refrigeration consider the working fluids F 12 and ammonia .

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DEPARTMENT OF MECHANICAL ENGINEERING

MATERIAL SCIENCE MODEL PAPER-I

Time: 3 hours **Marks: 75**

Note: This question paper contains two parts A and B.

Part A is Compulsory which carries 25 marks .Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a,b,c, as sub Questions

PART-A

I) Answer all the Questions **Marks: 25**

1) Define **(3 Marks)**

   a. Ionic bond b. Covalant bond c. Metallic bond.

2) What is meant by unit cell? **(2 Marks)**

3) Write short notes on different types of point defects and line defects. **(3 Marks)**

4) What is substitutional solid solution? **(2 Marks)**

5) Write a short note on gray cast iron and white cast iron along with diagram **(3 Marks)**

6) Discuss Normalizing heat treatment. **(2 Marks)**

7) What are the properties of glass **(3 Marks)**

8) Define a ceramic material. **(2 Marks)**

9) Explain polymers? **(3 Marks)**

10) Explain Thermo setting Plastics? **(2 Marks)**

PART-B

II) Answer all the Questions Marks: 25

1) Draw the unit cell of FCC, HCP and BCC crystal structures and discuss about number of atoms and atomic packing factor of each crystal. [**10 Marks**]

OR

a) Distinguish between family of planes and family of directions

b) How does different types of bonding influence the properties of crystal

2) Describe about eutectic, peritectic and eutectoid reactions. [**10 Marks**]

OR

a) Discuss Gibbs phase rule and its importance

b) Discuss the Hume-Rothery rules for solid solubility of two different elements.

3) Define alpha ferrite, austenite, cementite and delta ferrite along with appropriate diagram. [**10 Marks**]

OR

What is harden ability and explain Jomeny end quench test used for determining the hardenability of steels

4) Classify ceramic materials with examples. [**10 Marks**]

OR

Discuss different types of composites.

5) Distinguish between Thermosetting plastics and Thermo plastic pastics? [**10 Marks**]

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DEPARTMENT OF MECHANICAL ENGINEERING

MATERIAL SCIENCE MODEL PAPER-II

Time: 3 hours ***Marks: 75***

Note: This question paper contains two parts A and B.
Part A is Compulsory which carries 25 marks .Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a,b,c, as sub Questions

PART-A

I) Answer all the Questions **Marks: 25**

1) Describe the structure of a diamond. **(3 Marks)**

2) What is meant by space lattice? **(2 Marks)**

3) Write short notes n the following **(3 Marks)**

a) Intermediate alloy phases?

b) Intermediate compounds?

4) Write short notes on necessity of alloying? **(2 Marks)**

5) Discuss the microstructure of nodular cast iron. **(3 Marks)**

6) Write a short note on solid carburizing. **(2 Marks)**

7) What are the properties of aluminium that make it a useful engineering material? **(3 Marks)**

8) Give some applications of glass. **(2 Marks)**

9) What is Lever rule? **(3 Marks)**

10) Explain Gibbs phase rule? **(2 Marks)**

PART-B

II) Answer all the Questions Marks: 50

1) Discuss briefly about Bravais lattice. [**10 Marks**]

OR

Give a brief description about primary bonds.

2) What is solid solution? Explain about different types of solid solutions with neat sketch and give different rules for the formation of solid solution. [**10 Marks**]

OR

(a)Explain cooling of Bi- Cd eutectic type I system

(b)Discuss cooling of Pb-Sn eutectic type II system

3) .Explain the phase reactions in iron-iron carbide phase diagram with the help of a diagram [**10 Marks**]

OR

Explain briefly anneling type of heat treatment processes.

4) Classify ceramic materials with examples. [**10 Marks**]

OR

Differentiate between particle reinforced composites and dispersion strengthened composites.

5) Explain the different types of Cast Irons with properties and applications?

[**10 Marks**]

MATERIAL SCIENCE MODEL PAPER-III

Time: 3 hours ***Marks: 75***

Note: This question paper contains two parts A and B.
Part A is Compulsory which carries 25 marks .Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a,b,c, as sub Questions

PART-A

I) Answer all the Questions **Marks: 25**

1) Explain different characteristic features of covalent bond along with examples[**2 Marks**]
2) What are interstitial sites. [**3 Marks**]
3) Differentiate between random and ordered solid solution. [**2 Marks**]
4) At an invariant point the liquid will transform into two solids on while solidification. What is that invariant point called? [**3 Marks**]
5) Differentiate between phase diagram and cooling curve. [**2 Marks**]
6) Write a short note on nichrome. [**3 Marks**]
7) Describe about the structure of ceramics. [**2 Marks**]
8) What is meant by composite material? [**3 Marks**]
9) Explain TTT diagram? [**2 Marks**]
10) What is Austempering? [**3 Marks**]

PART-B

II) Answer all the Questions Marks: 50

1) Write a short note on [**10 Marks**]

a) Metallic bonding
b) Space lattice and unit cell
c) Coordination number and atomic packing factor
d) Crystal structure

OR

How is the strength of different crystal structures determined? Explain with different examples.

2) Describe briefly about formation of grains and grain boundary also effect of grain boundaries on the properties of metal/alloy. [**10 Marks**]

OR

a. Name the different methods used in determining grain size.
b. If the ASTM grain size number is 8, calculate the average grain diameter in microns assuming the grain to be spherical

3) a. Describe structural changes that take place when plain carbon steels: 0.8 %C,0.4%C,1.2%C are cooled from austenite region to room temperature [**10 Marks**]

b) What is the eutectic in iron –iron carbide system

OR

a. Discuss about tempering heat treatment process.
b. What are the defects that are caused due to heat treatment process?

4) What are glass ceramics and explain applications of various types of glasses. [**10 Marks**]

OR

Explain about different types of laminates.

5) Explain Iron-carbon phase diagram?

[**10 Marks**]

MATERIAL SCIENCE MODEL PAPER-IV

Time: 3 hours ***Marks: 75***

Note: This question paper contains two parts A and B.
Part A is Compulsory which carries 25 marks .Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a,b,c, as sub Questions

PART-A

I) Answer all the Questions **Marks: 25**

1) Define Atomic Packing factor and co-ordinate number [**2 Marks**]
2) What is vanderwall bond? [**3 Marks**]
3) What is meant by lever rule? [**2 Marks**]
4) Differentiate between fine grains and coarse grains. [**3 Marks**]
5) What are the factors that affect the electrical conductivity of a metal? [**2 Marks**]
6) What is alclad? Explain its advantages. [**3 Marks**]
7) What are the properties of ceramic materials that made ceramics a very important material in present life? [**2 Marks**]
8) What is Portland cement? How is it different from white cement? [**3 Marks**]
9) What is Space Lattice and Unit cell? [**2 Marks**]
10) Derive atomic radius for BCC,FCC,HCP? [**3 Marks**]

PART-B

II) Answer all the Questions **Marks: 50**

1) Give a brief description about secondary bonds in solids. [**10 Marks**]

OR

Draw the structure of NaCl, CsCl and pervoskite. Also specify the number of atoms present in each crystal.

2) What is meant by recovery, recrystalisation and grain growth? [**10 Marks**]

OR

a) Discuss the effect of grain boundaries on the properties of metal/alloys?
b) What is ASTM grain size number? Calculate the number of grains per square millimeter when number of equivalent grains observed at 200X was 62.

3) What are the invariant reactions in iron- iron carbide equilibrium diagram? Explain them.

OR **[10 Marks]**

What are the different surface hardening methods of steels? Explain with help of neat diagrams.

4) a) what are ceramic materials? Why are they so important? [**10 Marks**]
b) Discuss the mechanical behavior of ceramic materials.

OR

What are the different types of composites?

5) Define Allotropy of Iron? What is Martempering and Austempering? [**10 Marks**]

MATERIAL SCIENCE MODEL PAPER-V

Time: 3 hours ***Marks: 75***

Note: This question paper contains two parts A and B.
Part A is Compulsory which carries 25 marks .Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a,b,c, as sub Questions

PART-A

I) Answer all the Questions **Marks: 25**

1) Draw the structure of graphite? [**2 Marks**]
2) What is hydrogen bond? [**3 Marks**]
3) What are the different line defects that appear in crystals? [**2 Marks**]
4) Define peretectoid reaction? [**3 Marks**]
5) Write a short note on brass? [**2 Marks**]
6) Write short notes on Medium Carbon Steels? [**3 Marks**]
7) Write a short note on cement? [**2 Marks**]
8) What are the advantages and disadvantages of ceramics? [**3 Marks**]
9) What are point defects? [**2 Marks**]
10) Explain Line defects? [**3 Marks**]

PART-B

1) Answer all the Questions **Marks: 50**

1) What is a metallic bond? How the type of bonding does influences the properties of crystals? Distinguish between a family of planes and family of directions? [**10 Marks**]

OR

Prove that FCC is closely packed than BCC by calculating atomic packing factor for both?

2) (a) Draw a new sketch of cooling curves of pure metal and alloys? [**10 Marks**]

(b) What are the binary phase diagrams and explain any one of them?

OR

(a)Explain the process of solidification of metals to form polycrystalline structure?

(b)What are the parameters which control the grain size on solidification?

3) Explain iron carbon phase diagram? [**10 Marks**]

OR

a. Define the term allotropy and draw a neat sketch of allotropic forms of Pure Iron.

b. Explain the significance of TTT diagram in heat treatment of steel

4) Discuss about different types of Heat Treatment? [**10 Marks**]

OR

What is Hardenability?Discuss about Jominy End Quench Test ?

[**10 Marks**]

5) Explain different types of Cast Irons?

OR

Explain about the properties and applications of Malleable Cast Iron?

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DEPARTMENT OF MECHANICAL ENGINEERING

ELECTRICAL AND ELECTRONICS ENGINEERING
MODEL PAPER-I

Time: 3 hours **Marks: 75**

Note: This question paper contains two parts A and B.

Part A is Compulsory which carries 25 marks .Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a,b,c, as sub Questions

PART-A

I) Answer all the Questions **Marks: 25**

1) State and explain Ohm's law. [**2 Marks**]
2) What is meant by energy storing elements? Name them [**3 Marks**]
3) Why transformer rating in KVA. [**2 Marks**]
4) What is mean by regulation in transformer. [**3 Marks**]
5) Define Deflection torque and controlling torque. [**2 Marks**]
6) Write down the advantages of PMMC. [**3 Marks**]
7) Write down applications of diode. [**2 Marks**]
8) Define form factor and peak factor. [**3 Marks**]
9) Write down applications of CRO. [**2 Marks**]
10) What are the different measurements by using CRO. [**3 Marks**]

PART-B **Marks: 50**

1)

a) With a neat diagram explain the working principle of permanent magnet moving coil instrument. [**10 Marks**]

b) Write the advantages and disadvantages of PMMC instruments.

OR

Determine the current in the unbalanced bridge circuit shown in Figure 1. Find the value and direction of current through the galvanometer. Neglect the internal resistance of the battery.

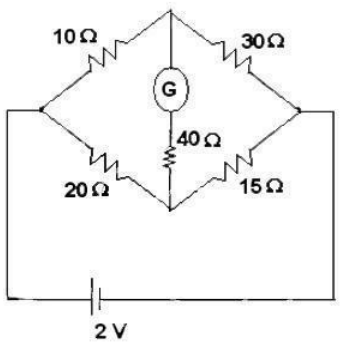

Figure 1

2) [**10 Marks**]

a) Derive the Torque equation of DC Motor
b) Explain the basic principle of operation of D.C Motor

OR

A 25kW,250v dc shunt generator has armature and field resistance of 0.06Ω and 100Ω respectively.Determine the total armature power developed and efficiency when working

a) As a generator delivering 25kW output and
b) as a motor taking 25kW input.

3) [**10 Marks**]

a) Explain the working principle of a single phase transformer with a phasor diagram.
b) Define voltage regulation and efficiency of a transformer.
c) The full load copper and iron losses of a 15KVA, 1-Ø transformer are 320W and200W respectively. Calculate the efficiency on
   i) full load
   ii) half load

   When load power factor is 0.8 lagging in each case.

OR

Explain how regulation of an alternator can be estimated by synchronous impedance method

4) Explain the principle of operation of half wave bridge rectifier and draw the wave forms. [**10 Marks**]

OR

Draw the basic band structure of NPN and PNP transistors and explain its operation.

5) Derive the expression for magnetic deflection sensitivity of a Cathode ray tube. [**10 Marks**]

OR

With the help of block diagram explain the working principle of a CRT.

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MODEL PAPER-II

Time: 3 hours **Marks: 75**

Note: This question paper contains two parts A and B.

Part A is Compulsory which carries 25 marks .Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a,b,c, as sub Questions

PART-A

I) **Answer all the Questions** **Marks: 25**

1) Define resistivity. [**2 Marks**]
2) Derive an expression for the capacitance of a parallel circuit. [**3 Marks**]
3) Draw the Phasor diagram for the ideal transformer. [**2 Marks**]
4) Define Slip and Slip speed. [**3 Marks**]
5) What are the different types of instruments? [**2 Marks**]
6) What are the different types of dampings? [**3 Marks**]
7) Define TUF. [**2 Marks**]
8) Applications of SCR. [**3 Marks**]
9) Applications of CRO. [**2 Marks**]
10) What is the function of pre and post accelerating anodes? [**3 Marks**]

PART-B **Marks: 50**

1) [**10 Marks**]

a) A 10Ω resistor is in series with a parallel combination of two resistors 15Ω and 5Ω. If the current in the 5Ω resistor is 6A, what is the total power dissipated in the three resistors?

b) b)State and explain Kirchhoff's laws

OR

a) What are the different types of electrical measuring instruments?

b) Explain about different types controlling torques.

2) [**10 Marks**]

a) Explain the basic principle of D.C generator.

b) A 6 pole wave wound D.C generator is having 50 slots with 25 conductors per slot and rotating at 1500 rpm.The flux per pole is 0.015 Wb, calculate the emf generated.

OR

a) Write the similarities and dissimilarities between the motor and generator.

b) The power input to a 230v dc shunt motor is 8477kw.The field resistance is 230Ωand armature resistance is 0.28Ω find input current, armature current and back emf.

3) [**10 Marks**]

A 3phase 6 pole, 50 Hz cage motor is running with a slip of 4%. Find,

a) Speed of rotating field relative to stator winding.
b) Motor speed.
c) Slip speed.
d) Frequency of the emf induced in the rotor.
e) Speed of rotation of rotor mmf relative to rotor winding.
f) Speed of rotor mmf relative to stator winding

OR

a) Explain the principle of operation and derive the emf equation of transformer.
b) A single phase 2300/230 V, 50 Hz core type transformer has core section of 0.05 m^2. If the permissible maximum Flux density is 1.1wb/m2, calculate the number of turns on primary & secondary sides

4) [**10 Marks**]

Draw V-I characteristics of p-n diode and justify your answer with the help of a neat circuit diagram explain the working principle of Single phase full wave rectifier.What is ripple factor and obtain the ripple factor for single phase full wave rectifier.

OR

a) Mention any four applications of PNP transistors.
b) Explain the principle of operation of SCR.

5) Derive the expression for magnetic deflection sensitivity of a Cathode ray tube. [**10 Marks**]

OR

Name different components of CRT and write the function of each component.

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MODEL PAPER-III

Time: 3 hours **Marks: 75**

Note: This question paper contains two parts A and B.

Part A is Compulsory which carries 25 marks .Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c, as sub Questions

PART-A

1) Answer all the Questions **Marks: 25**

1) What are dependent sources? [**2 Marks**]
2) Define conductance and derive the expression. [**3 Marks**]
3) What are the different losses in transformer? [**2 Marks**]
4) Draw the slip-torque characteristics of induction motor. [**3 Marks**]
5) Define damping torque. [**2 Marks**]
6) Write the advantages and disadvantages of PMMC instruments. [**3 Marks**]
7) What is p-n junction and write its applications. [**2 Marks**]
8) Draw the V-I characteristics of SCR and justify your answer. [**3 Marks**]
9) How to measure voltage and frequency with CRO. [**2 Marks**]
10) Draw the block diagram of CRO. [**3 Marks**]

PART-B **Marks: 50**

1) Discuss the different types of torques required in an indicating instruments [**10 Marks**]

OR

a) Three resistances are connected in star, determine its equivalent delta configuration.
b) Derive the relation for conversion from delta to star connection.

2) [**10 Marks**]

a) Explain back emf in DC motor
b) A 4 pole lap wound dc machine has 628 armature conductors. The flus per pole is 0.04wb.the total armature current is 110A.find the torque developed

OR

a) A long shunt compound generator delivers a load current of 5A at 500V and has armature,series, field and shunt field resistance of 0.05Ω, 0.03Ω and 250Ω respectively.Calculate the generated voltage and the armature current .allow 1v per brush for contact drop.
b) Explain the OC characteristics of DC generator.

3) A single phase 10 KVA, 2000/200 V, 50Hz transformer has impedance drop of 10% and resistance drop of 5 %. Find the voltage regulation: [**10 Marks**]

a) At full load at 0.8 power factor lagging.

b) At half the F.L at 0.6 Pf leading

c) An ideal 25kVA transformer has 500turns on the primary winding and 40 turns on the secondary winding. The primary is connected to a 3000V, 50Hz supply. Calculate

i) Primary and secondary currents on full load

ii) Secondary emf

iii) The maximum core flux.

OR

a) Explain the construction and working principle of three phase alternator.

b) Draw the slip-torque characteristics of a 3-phase Induction motor and justify your answer with the suitable formulae.

4) [**10 Marks**]

a) Explain the operation of a full wave bridge rectifier.

b) A single phase 230V, 1 kW heater is connected across single-phase 230V, 50Hzsupply through a diode. Calculate the power delivered to the heater element

OR

a) Discuss the characteristics of P-N junction diode

b) Explain the transistor as an amplifier

5) Explain the working of CRT with a block diagram [**10 Marks**]

OR

Discuss voltage, current and frequency measurement using CRO.

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ELECTRICAL AND ELECTRONICS ENGINEERING

MODEL PAPER-IV

Time: 3 hours **Marks: 75**

Note: This question paper contains two parts A and B.

Part A is Compulsory which carries 25 marks .Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c, as sub Questions

PART-A

1) Answer all the Questions **Marks: 25**

1) State ohm's law. What are its limitations? [**2 Marks**]
2) What is the function of commutator and brushes in d.c machines [3 **Marks**]
3) Define slip and rotor frequency [**2 Marks**]
4) What do you mean by transformation ratio? Write its significance [**3 Marks**]
5) Define controlling torque [**2 Marks**]
6) Advantages of moving iron [**3 Marks**]
7) What is ripple factor and PIV [**2 Marks**]
8) Mention any four applications of PNP transistors [**3 Marks**]
9) Give four applications of [**2 Marks**]
10) Write the principle of operation of CRT [**3 Marks**]

PART-B **Marks: 50**

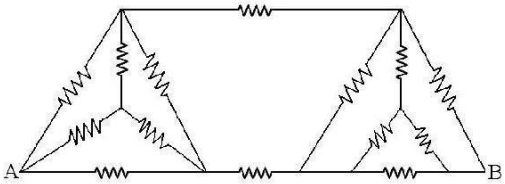
1) [**10 Marks**]

a) Explain the construction details and working principle of attraction type moving iron instruments with the help of neat diagram.

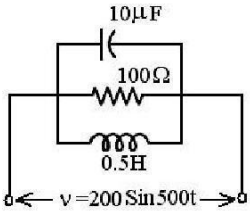
b) Explain the eddy current damping with neat diagram.

OR

a) Find the equivalent resistance across AB in the circuit shown below. All the resistances are equal to 5Ω.



b) For the circuit shown in the fig find the total current and the magnitude of the impedance.



2) With a neat sketch explain the purpose of 3-point starter used in dc motor. [**10 Marks**]

OR

a) Describe with the suitable sketches the main parts of a DC machine.Explain the main functions of each part making specific reference to the properties of the material used for the construction of each part.

b) A 250v short shunt compound generator is delivering 80 A.the armature series andshunt field resistance are 0.05Ω and 0.03Ω respectively calculate the voltage induced allowing a brush drop of 2v.

3) Explain the working principle of a 3 phase induction motor [**10 Marks**]

OR

a) Define voltage regulation and efficiency of a transformer.

b) A single phase 2200/250 V, 50 Hz transformer has a net core area of 36 sq.cm and a maximum flux density of 6 Wb/m2. Calculate the number of turns of primary and secondary windings.

4) [**10 Marks**]

a) Explain the principle of operation of SCR

b) Explain how a transistor is used as an amplifier

OR

Explain the working principle of full bridge rectifier and obtain the formula for its ripple factor

5) Write the principle of operation of CRT [**10 Marks**]

OR

Derive the expression for electrostatic deflection sensitivity of a Cathode ray tube

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MODEL PAPER-V

Time: 3 hours **Marks: 75**

Note: This question paper contains two parts A and B.

Part A is Compulsory which carries 25 marks .Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c, as sub Questions

PART-A

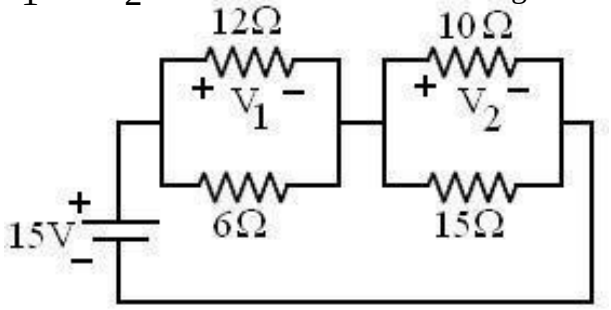
1) Answer all the Questions **Marks: 25**

1) What is meant by electrical conductance? What are its units? [**2 Marks**]
2) Explain the effect of temperature on resistance? [**3 Marks**]
3) What is the condition for maximum regulation in transformer [**2 Marks**]
4) Write the applications of 3-phase induction motor [**3 Marks**]
5) What are the different types of instruments [**2 Marks**]
6) Give some applications of M.I and M.C instruments? [**3 Marks**]
7) Draw V_I characteristics of p-n diode [**2 Marks**]
8) Define latching current and holding current [**3 Marks**]
9) What is mean by CRO [**2 Marks**]
10) Applications of CRO [**3 Marks**]

PART-B

Marks: 50

1) Find V_1 and V_2 in the circuit shown in the fig [**10 Marks**]



Explain KCL ,KVL and ohms law

OR

Discuss the different types of torques required in an indicating instruments

2) [**10 Marks**]

a) Give the applications of dc compound motors.

b) A four pole 220v dc shunt motor has 540 lap wound conductors.it takes 32A from the supply mains and develops power of 5.59kw.the field winding takes 1A. The armature resistance is 0.9Ω and the flux per pole is 30 mwb calculate the speed and torque developed

OR

A 4 pole long shunt lap wound generator supplies 25 kw at a terminal voltage of 500v. The armature resistance is 0.03Ω, series field resistance is 0.04Ω and shunt field resistance is 200Ω. The brush dropis taken as 1v determine

a) the emf generated
b) cu losses and iron losses
c) efficiency at full load

3) [**10 Marks**]

a) Explain different types of losses in a transformer and write their significance in deciding the rating of a transformer.
b) A 25 KVA,2200/220v 50Hz single phase transformer has the following resistance and leakage reactance R_1=0.8Ω,X_1=3.2Ω,R_2=0.01Ω, X2=0.03Ω calculate the equivalent resistance and reactance refered to secondaryside.

OR

a) Explain the working principle of a Alternator
b) Explain the working principle of a 3 phase induction motor

4) Draw the basic band structure of SCR and explain its operation [**10 Marks**]

OR

Explain the principle of operation of half wave bridge rectifier and draw the wave forms

5) Explain the application of CRO in the field of electrical measurements. [**10 Marks**]

OR

Discuss how voltage, current and frequency are measured with CRO

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STRENGTH OF MATERIALS

MODEL PAPER-I

PART-A

I Answer the following

1. Define Poisson's ratio and Factor of safety? [2M]
2. An axial pull of 20kN is suddenly applied on a steel rod 2.5m long and 1000mm^2 in cross section. Calculate the strain energy, which can be absorbed in the rod. Take E=200GPa. [3M]
3. Write the relation between shear force and bending moment? [2M]
4. Draw the SFD & BMD for cantilever beam subjected to point load of W kN at its free end. [3M]
5. Write the assumptions in theory of simple bending? [2M]
6. A wooden beam 100mm wide, 250mm deep and 3m long is carrying a uniformly distributed load of 40kN/m. Determine the maximum shear stress and sketch the variation of shear stress along the depth of beam. [3M]
7. A cantilever beam of length L is subjected to concentrated load W at a distance 'a' from fixed end. Find the deflection of free end. [2M]
8. Define Structure & Truss? [3M]
9. A hollow shaft of external and internal diameter as 100mm and 40mm is transmitting power at 120r.p.m. Find the power the shaft can transmit, if the shearing stress is not to exceed 50MPa. [2M]
10. A spherical gas vessel of 1.2m diameter is subjected to a pressure of 1.8MPa. Determine the stress induced in the vessel plate, if its thickness is 5mm. [3M]

PART-B

II Answer the following

1.a) Define the Stress-strain curve with salient points? (10M)

(OR)

(b) Derive the relation between young's modulus, modulus of rigidity and bulk modulus?

\\

2. (a) A gas cylinder of internal diameter 40 mm is 5 mm thick. If the tensile stress in the material is not to exceed 30 MPa, find the maximum pressure which can be allowed in the cylinder. (10M)

(OR)

(b) Find the angle of twist per meter length of a hollow shaft of 100 mm external diameter and 60 mm internal diameter, if the shear stress is not to exceed 35 MPa. Take modulus of rigidity G= 85GPa.

3 (a) A cantilever beam of 2 m long carries a uniformly distributed load of 1.5kN/m over a length of 1.6 m from the free end. Draw shear force and bending moment diagrams for the beam. (10M)

(OR)

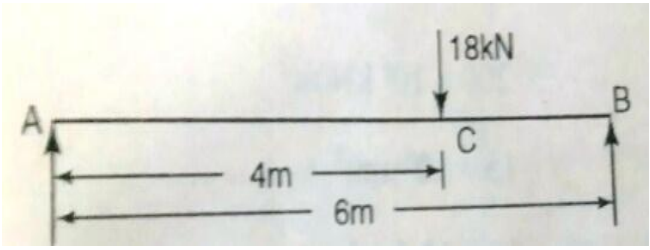
(b) A simply supported beam 6 m long is carrying a uniformly distributed load of 5kN/m over a length of 3 m from the right end. Draw shear force and bending moment diagrams for the beam and also calculate the maximum bending moment on the beam.

4 State the assumptions in theory of simple bending and derive the bending equation?(10M)

(OR)

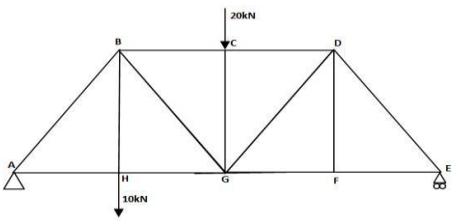
(b) The cross- section of a T-beam is as follows: flange thickness = 10 mrn; width of flange = 100 mm; thickness of web = 10 mm; depth of web = 120mm. If a shear force of2KN is acting at a particular section of the beam. Draw the shear stress distribution across the beam cross-section?

5 a) A simply supported beam of 6m span is subjected to a concentrated load of 18kN at 4m from left support. Calculate i) The position and maximum value of deflection . ii)Slope at mid span iii) Deflection at load point (10M)



(OR)

b) Find the force in members CG, FG, BG, BC. Use method of section to compute the result. Indicate the zero force members. BH = 4m, AH=HG=GF=FE = 3m,



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MODEL PAPER-2

PART-A

1. Define volumetric strain and bulk modulus? (2M)
2. Define strain energy and write the mathematical equation? (3M)
3. Explain the different types of beams? (2M)
4. Draw the SFD & BMD for simply supported beam subjected to uniformly distributed load of 'W' kN acting at mid span of the beam. (3M)
5. A steel wire of 5mm diameter bent into a circular shape of 5m radius. Determine the maximum stress induced in the wire. Take E=200GPa. (2M)
6. A beam of triangular cross section having base width of 100mm and height of 150mm is subjected to a shear force of 13.5kN. Find the value of maximum shear stress and sketch the shear stress distribution along the depth of beam. (3M)
7. Define principle plane and principle stress? (2M)
8. State the maximum principle stress theory? (3M)
9. Derive the formula for strength of a hollow shaft? (2M)
10. A thin cylindrical shell of 400mm diameter is to be designed for an internal pressure of 2.4MPa. Find the suitable thickness of shell, if the allowable circumferential stress is 50MPa. (3M)

PART-B

1 A bar of 0.3m long is 50mm square in section for 120mm of its length, 25mm diameter for 80mm and 40mm diameter for the remaining length. If a tensile force of 100KN is applied to the bar calculate the maximum and minimum stresses produced in it, and the total elongation. Take E=200GPa. (10M)

(OR)

(b) Define hook's law and explain the stress-strain curve for mild steel with salient points?

2 (a) A simply supported beam of 16m long carries the point loads of 4KN, 5KN and 3KNat distances 3m, 7m and 10m respectively from the left support. Calculate the maximum shear force and bending moment. Draw the SFD and BMD. (10M)

(OR)

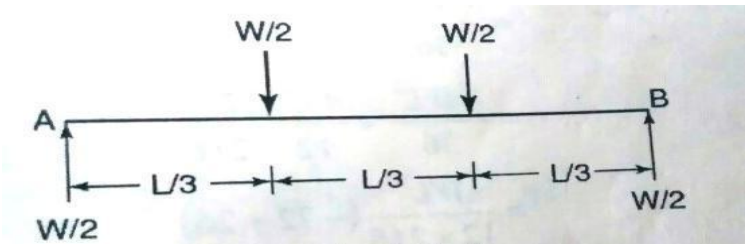
b) A beam of length l carries a uniformly distributed load of w per unit length. The beam is supported on two supports at equal distances from the two ends. Determine the position of the supports, if the B.M, to which the beam is subjected to , is as small as possible. Draw the SFD & BMD for the beam.

3 (a) Two wooden planks 150mmX50mm each are connected to form a T-section of beam. If a moment of 6.4kN-m is applied around the horizontal neutral axis, inducing tension below the neutral axis, find the bending stresses at both extreme fibers of the cross section. (10M)

(OR)

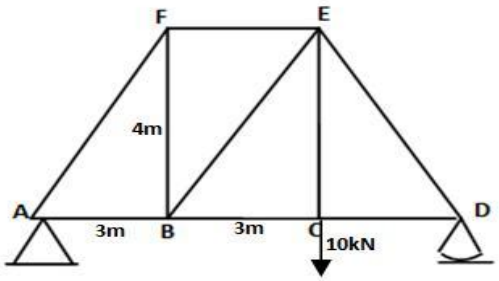
(b) An I-section beam 350mmX200mm has a web thickness of 12.5mm and a flange thickness of 25mm. It carries a shearing force of 200kN at a section. Sketch the shear stress distribution across the section.

4 a) A simply supported beam of span 'L' is subjected to equal loads W/2 at each of 1/3rd span points. Find the expression for deflection under the load at mid span. (10M)



(OR)

(b) Find the forces in the members AF, AB , CD, DE, EC and the reaction forces at A and D. CD = 3m.



5. Write The Assumptions in Torsion? And derive the torsion equation? (10M)

(OR)

(b) Derive the formula for change in volume & change in dimensions for thin cylinder due to internal pressure.

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MODEL PAPER-3

PART-A

1. Define Hook's law? (2M)
2. Define factor of safety? (3M)
3. Draw the SFD & BMD for cantilever beam subjected to point load at free end? (2M)
4. What is meant by point of contra flexure? (3M)
5. Write the assumptions in theory of simple bending? (2M)
6. Draw the shear stress distribution across the triangular cross section? (3M)
7. A cantilever beam of length 'L' carries uniformly varying load throughout its length find the expression for deflection at free end? (2M)
8. State the maximum shear stress theory? (3M)
9. Draw the stress distribution of shaft of circular cross section subjected to torsion? (2M)
10. What do you mean by thin cylinder? (3M)

PART-B

1 (a) A flat steel bar 200mmX20mmX8mm is placed between two aluminum bars 200mmX20mmX6mm so as to form a composite bar. All the three bars are fastened together at room temperature. Find the stresses in each bar, where the temperature of the whole assembly is raised through 50^0C. Assume E_S = 200GPa, E_{Al}= 80GPa, $\sigma_S = 12x10^{-6}/^0C$, $\sigma_{Al}= 24x10^{-6}/^0C$. (10M)

(OR)

(b) Derive the stresses in the bars of uniformly tapering circular sections.

2(a) A horizontal beam of 10m long is carrying a uniformly distributed load of 1kN/m. The beam is supported on two supports 6m apart. Find the position of supports, so that bending moment on the beam is small as possible. Also draw the SFD & BMD for the beam. (10M)

(OR)

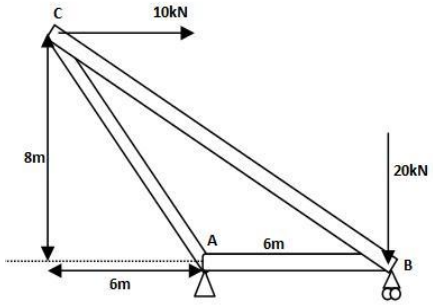
(b) A cantilever beam is 2m long carries a uniformly distributed load of 1.5kN/m over a length of 1.6m from the free end. Draw SFD & BMD for the beam.

3. What are the assumptions in theory of simple bending & Derive the bending equation? (10M)

(OR)

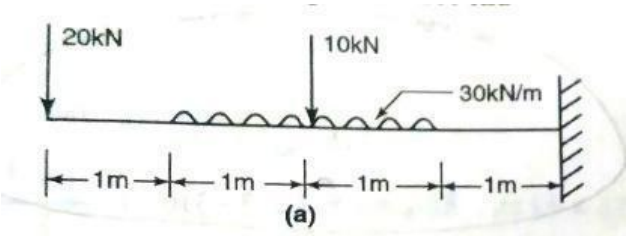
(b) A rolled steel joist 200mmx160mm wide has flange 22mm thick and web 12mm thick. Find the proportion, in which the flanges and web resist shear force.

4. Find the reaction components at A and B. Also find the forces in each individual member, specify compression or tension. (10M)



(OR)

(b) Plot the elastic curve and maximum deflection and maximum slope for the cantilever beam loaded as shown in the fig. take E=200GPa and I=300X10^6 mm^4.



5. Find the maximum torque that can be safely applied to a shaft of 80mm diameter. The permissible angle of twist is 1.5 degrees in a length of 5m and shear stress not to exceed 42MPa. Take C=84GPa. (10M)

(OR)

(b) A cylindrical shell of 500 mm diameter is required to withstand an internal pressure of 4MPa. Find the minimum thickness of the shell, if maximum tensile strength for the plate material is 400MPa and efficiency of the joints is 65%. Take factor of safety as 5.

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MODEL PAPER-4

PART-A

1 What do you mean by stiffness? (2M)

2 with a neat sketch explain about lateral strain? (3M)

3 derive the relation between bending moment and shear force? (2M)

4 Explain about point of contra flexure? (3M)

5 What do you mean by section modulus? (2M)

6 Draw the shear stress distribution across the triangular cross section? (3M)

7 What do you mean by principle plane? (2M)

8 State the maximum shear stress theory? (3M)

9 Draw the stress distribution of shaft of circular cross section subjected to torsion? (2M)

10 what do you mean by thin cylinder? (3M)

PART-B

1 Derive the relation between young's modulus, modulus of rigidity and bulk modulus? (10M)

(OR)

Define hook's law and explain the stress-strain curve for mild steel with salient points?

2 A cantilever beam of 2 m long carries a uniformly distributed load of 1.5kN/m over a length of 1.6 m from the free end. Draws shear force and bending moment diagrams for the beam. (10M)

(OR)

A beam of length l carries a uniformly distributed load of w per unit length. The beam is supported on two supports at equal distances from the two ends. Determine the position of the supports, if the B.M, to which the beam is subjected to , is as small as possible. Draw the SFD & BMD for the beam.

3 Derive an expression for $M/I=\sigma/Y=E/R$. (10M)

(OR)

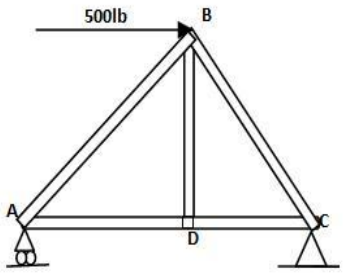
An I-section beam 350mmX200mm has a web thickness of 12.5mm and a flange thickness of 25mm. It carries a shearing force of 200kN at a section. Sketch the shear stress distribution across the section.

4 A gas cylinder of internal diameter 40 mm is 5 mm thick. If the tensile stress in the material is not to exceed 30 MPa, find the maximum pressure which can be allowed in the cylinder. (10M)

(OR)

Derive the bending equation?

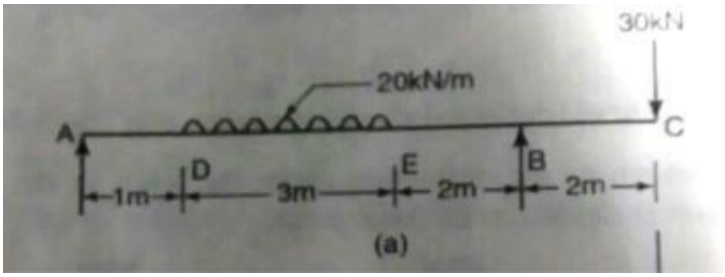
5 a) Find the reaction components at A and C. Also find the forces in each individual member, specify compression or tension. Given AD=10in ,DC=7in , BD=8in. (10M)



(OR)

b)An overhanging beam ABC, supported at A and B is loaded as shown in fig. determine the deflection at free end C and the maximum deflection between A and B.

Take E=200GPa and I=45X10^6 mm^4



MALLA REDDY COLLEGE OF ENGINEERING &TECHNOLOGY

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DEPARTMENT OF MECHANICAL ENGINEERING

STRENGTH OF MATERIALS

MODEL PAPER-5

PART-A

1. What do you mean by stiffness? (2M)
2. With a neat sketch explain about lateral strain? (3M)
3. Derive the relation between bending moment and shear force? (2M)
4. Explain about point of contra flexure? (3M)
5. What do you mean by section modulus? (2M)
6. A wooden beam 100mm wide, 250mm deep and 3m long is carrying a uniformly distributed load of 40kN/m. Determine the maximum shear stress and sketch the variation of shear stress along the depth of beam. .(pg. no 387in R S KHURMI) (3M)
7. A point is a strained material is subjected to two mutually perpendicular tensile stresses of 200MPa and 100Mpa. Determine the intensity of normal, shear and resultant stresses on a plane inclined at 30^0 with the axis of minor tensile stress. (2M)
8. State the maximum principle stress theory? (3M)
9. Derive the formula for strength of a hollow shaft? (2M)
10. A thin cylindrical shell of 400mm diameter is to be designed for an internal pressure of 2.4Mpa. Find the suitable thickness of shell, if the allowable circumferential stress is 50Mpa (3M)

PART-B

1 (a) A tensile test was conducted on a mild steel bar. The following data was obtained from the test: (10M)

(i) Diameter of the steel bar = 3 cm
(ii) Gauge length of the bar = 20cm
(iii) Load at elastic limit = 250kN
(iv) Extension at a load of 150kN = 0.21 mm
(v) Maximum load = 380kN
(vi) Total extension = 60 mm
(vii) Diameter of rod at failure = 2.25 cm

Determine:

(1) The Young's modulus

(2) The stress at elastic limit

(3) The percentage of elongation

(4) The percentage decrease in area

(OR)

(b) Three bars made of copper; zinc and aluminium are of equal length and have cross section 500, 700, and 1000 sq.mm respectively. They are rigidly connected at their ends. If this compound member is subjected to a longitudinal pull of 250kN, estimate the proportional of the load carried on each rod and the induced stresses. Take the value of E for copper = $1.3X10^5 N/mm^2$, for zinc = $1X10^5 N/mm^2$ and for aluminium = $0.8X10^5 N/mm^2$

2 (a) A simply supported beam of length 10m, carries the uniformly distributed load and two point loads as shown in Fig.(2) Draw the S.F and B.M diagram for the beam and also calculate the maximum bending moment. (10M)

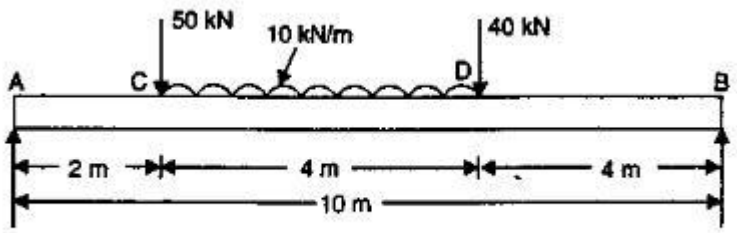
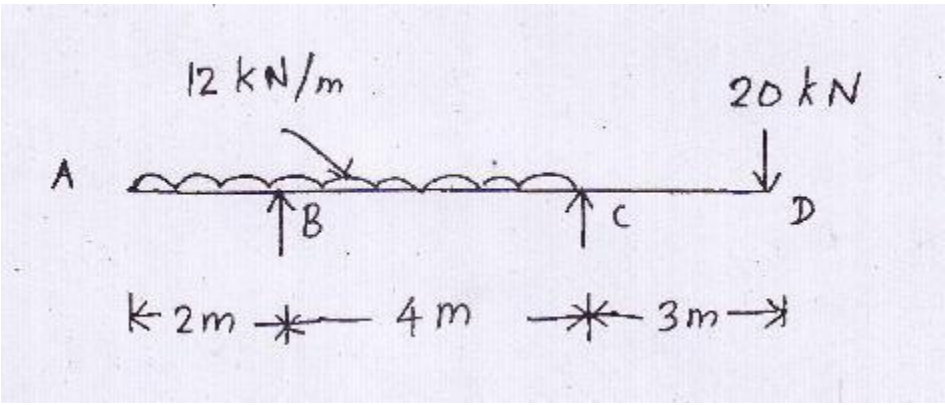


Fig.(2)

(b) Draw shear force and bending moment diagram for the beam given in fig.



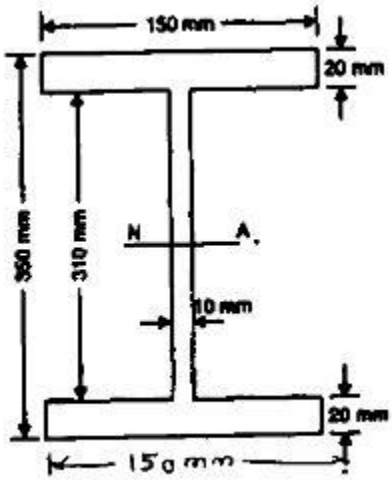
(10M)

3 (a) Derive an expression for $M/I=\sigma/Y=E/R$.

(b) A rectangular beam 300 mm deep is simply supported over the span of 4 m. Determine the uniformly distributed load per meter which the beam may carry, if the bending stress should not exceed $120N/mm^2$. Take $I=8X10^6 mm^4$.

(OR)

An I section beam 350 x 150 mm as shown in Fig. has a web thickness of 10 mm and a flange thickness of 20 mm. If the shear force acting on the section is 40kN, find the maximum shear stress developed in the I section.

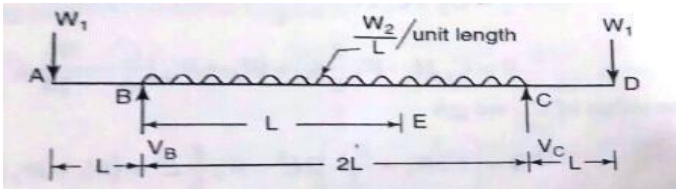


4 (a) Two shafts of the same material and of same lengths are subjected to a same torque, if the first shaft is of a solid circular section and the second shaft is of hollow circular section, whose internal diameter is 2/3 of the outside diameter and the maximum shear stress developed in each shaft is the same, compare the weights of the shafts. (10M)

(OR)

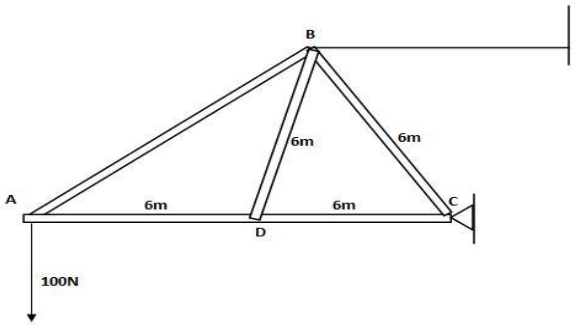
(b) A cylindrical vessel, whose ends are closed by means of rigid flange plates, is made up of steel plate 3 mm thick. The length and internal diameter of the vessel are 50 cm and 25 cm respectively. Determine the longitudinal and hoop stresses in the cylindrical shelldue to an internal fluid pressure of 3N/mm2. Also calculate the increase in length, diameter and volume of vessel. Take $E = 2X10^5 N/mm^2$ and $\mu=0.3$.

5 (a) The double overhanging beam ABCD shown in fig. is subjected to concentrated loads W1 at free ends and to uniformly distributed load W2/L per unit length in the portion BC. Determine the ratio W1 to W2 such that deflection at free end A is equal to the deflection of E where E is the middle point of BC. (10M)



(OR)

(b) Find the forces in the members and the reaction forces. All relevant details are provided below.



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DEPARTMENT OF MECHANICAL ENGINEERING

MODEL PAPER –1

SUB : KINEMATICS OF MACHINERY

PART- A

1. Answer the following questions.
   (i) Write the grashoff's law for a four bar mechanism **(2M)**
   (ii) What is a configuration diagram ? Where it can be use. **(3M)**
   (iii) Define Rubbing velocity. what will be the expression for rubbing velocity at a pin joint when the two links rotate in opposite direction. **(3M)**
   (iv) State the expressions for maximum acceleration of a follower moving in a cycloidal motion. **(2M)**
   (v) Why some times the axes of translating roller followers in cam follower mechanisms are offset from the axis of rotation of cam? **(3M)**

   (vi) Define the term ' arc of contact ' in gears . **(2M)**
   (vii) Name two applications of reverted gear train. **(3M)**
   (viii)Why self locking screws have lesser efficiency ? **(2M)**
   (ix)What is meant by self locking and self energized brake? **(2M)**
   (x).What is Degrees of freedom .write the expression for degrees of freedom for planner mechanism. **(3M)**

PART- B

2. (a) Sketch and explain the four inversions of a single slider crank chain . **(10M)**

OR

   (b) (i) What are straight-line mechanisms ? Sketch the Peaucellier straight-line motion mechanism and prove that generating point moves in a straight line.
   (ii) Sketch the hook's joint and derive the condition for equal speeds of driving and driven shafts.

3. (a) In a four bar chain ABCD ,AD is fixed and is 120 mm long. The crank AB is 30 mm long and rotates at 100 rpm clockwise while the link CD = 60mm oscillates about D; BC = 120 mm .using graphical method, find the angular velocity and angular acceleration of link BC whan angle BAD = 60^0 . **(10M)**

OR

   (b) (i) Derive the expressions for the velocity and acceleration of the piston of a reciprocating engine Mechanism.
   (ii) In a reciprocating engine mechanism, the lengths of the crank and connecting rod are 150 mm and 600 mm respectively . The crank position is 60^0 from inner dead centre. The crank shaft speed is 450 r.p.m.(clockwise).Using analytical method , determine
   (1) Velocity of the piston
   (2) Acceleration of the piston
   (3) Crank angle for maximum velocity of the piston and the corresponding velocity.

4. (a) A cam with a minimum radius of 25 mm, rotating clockwise at a uniform speed is to be designed to give motion to a roller follower, at the end of a cam valve rod, as described below : **(10M)**
   (i) To raise the valve through 50 mm during 120^0 rotation of the cam.
   (ii) To keep the valve fully raised through next 30^0
   . (iii) To lower the valve during next 60^0 and
   (iv) To keep the valve closed during rest of the revolution.
   The diameter of the roller is 20 mm and the diameter of the cam shaft is 25 mm. The line of the stroke is offset by 15 mm from the axis of the cam shaft. The displacement of the valve , while

being raised and lowered is to take place with SHM.

(1) Draw the displacement diagram. Sketch roughly the shapes of velocity and acceleration diagrams.

(2) Draw the profile of the cam .

OR

(b) In a symmetrical tangent cam operating a roller follower , the least radius of the cam is 30 mm and roller radius is 17.5 mm. The angle of ascent is 75^0 and the total lift is 17.5 mm. The speed of the cam shaft is 600 rpm.Assume that there is no dwell between ascent and descent.

(i) Calculate the principal dimensions of the cam .

(ii) Find the acceleration of the follower at the beginning of the lift.

(iii) Draw the profile of the cam.

5. (a) (i) State and prove the law of gearing . (**10M**)

(ii) Show that the involute curves as the profiles of mating gears satisfy the law of gearing.

OR

(b) A compound gear train using spur gears is required to give a total reduction ratio of 250 to 1 in four steps. The modules of the gears are 5 mm for the first step 7 mm for the second , 10 mm for the third and 16 mm for the fourth.

(i) Arrive at the individual speed ratios, if a tolerance of + 0.2 % is allowed in the total reduction ratio.

(ii) Find the numbers of teeth of all gears, if the minimum number of teeth for any pinion is 20.

(iii) Find the pitch circle diameters of all gears and the centre distances.

(iv) Sketch a line diagram showing the gear train.

6. (a) In a thrust bearing , the external and internal diameters of the contacting surfaces are 320 mm (**10M**) and 200 mm respectively. The total axial load is 80 KN and the intensity of pressure is 350 KN/m^2. The shaft rotates at 400 rpm. Taking the coefficient of friction as 0.06,calculate the power lost in overcoming yhe friction and the number of collars reqired.

OR

(b) Derive an expression for the centrifugal tension in a belt passing round a pulley rim.

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DEPARTMENT OF MECHANICAL ENGINEERING

MODEL PAPER –2

SUB : KINEMATICS OF MACHINERY

PART- A **Marks:25**

1. Answer the following questions.

i.	Define degree of freedom (or) what is mean by mobility?	(**2M**)
ii.	How to determine the given assemblies of links forms the kinamatic chain or not?	(**3M**)
iii.	What is pantograph?	(**2M**)
iv.	What is the magnitude of linear velocity of a point B on a link AB relative to A?	(**3M**)
v.	What is the expression for coriolis component of acceleration?	(**2M**)
vi.	What is a cam?	(**2M**)
vii.	Give some examples for cams	(**3M**)
viii.	What are the standard interchangeable tooth profiles.	(**2M**)
ix.	What are the methods to avoid interference?	(**3M**)
x.	What is the efficiency of inclined plane ?	(**2M**)

PART- B **Marks: 50**

2. a) Explain any two inversion of four bar chain. [**10 M**]

b) Explain the first inversion of Single Slider Crank Chain.

3. a)Derive the expressions for Velocity and acceleration of piston in reciprocating steam engine mechanism with neat sketch [**10 M**]

OR

b) Derive the expression for Coriolis component of acceleration with neat sketch

4. A cam, with a minimum radius of 50 mm, rotating clockwise at a uniform speed, is required to giver a knife-edged follower the motion as described below: (a) To move outwards through 40 mm during 100° rotation of the cam; (b) to dwell for next 80° (c) To return to its starting position during next 90 ° and (d) To dwell for the rest period of revolution. Draw the profile of the cam (i) When the line of stroke of the follower passes through the centre of the cam shaft and (ii) When the line of stroke of the follower is to take place with Uniform acceleration and uniform retardation. Determine the maximum velocity and acceleration of the follower when the cam shaft rotates at 900 r.p.m. **[10 M]**

OR

(b) Two mating spur gear with module pitch of 6.5 mm have 19 ad 47 teeth of 20°pressure angle and 6.5 mm addendum. Determine the number of pair of teeth and angle turned through by the larger wheel for one pair of teeth in contact. Determine also the sliding velocity at the instant (i) engagement commences (ii) engagement terminates. When the pitch line velocity is 1.2 m/s.

5. a) The number of teeth on each of the two spur gears in mesh is 40. The teeth have 20°involute profile and the module is 6mm. If the arc of contact is 1.75 times the circular pitch. Find the addendum. [**10 M**]

OR

b). The mean diameter of the screw jack having pitch of 10 mm is 50 mm. A load of 20 KN is lifted through a distance of 170 mm. Find the work done in lifting the load and efficiency of the screw jack when (i) the load rotates with the screw, and (ii) the load rests on the loose head which does not rotate with screw. The external and internal diameter of the bearing surface of the loose head is 60 mm and 10mm respectively. The coefficient of friction for the screw as well as the bearing surface may be taken as 0.08.

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DEPARTMENT OF MECHANICAL ENGINEERING

MODEL PAPER –3

SUB : KINEMATICS OF MACHINERY

PART- A

1. Answer the following questions.

i.	Compare machine and structure?	(**2M**)
ii.	Give some examples for kinamatic pairs.	(**3M**)
iii.	Discuss 'Elliptical trammel'.	(**2M**)
iv.	What is meant by the efficiency of a mechanism?	(**3M**)
v.	How to represent the direction of linear velocity of any point on a link with respect to another point on the same link?	(**2M**)
vi.	How can you prevent undercutting in cam ?	(**3M**)
vii.	What do you know about gravity cam?	
viii.	What are the standard interchangeable tooth profiles.	(**2M**)
ix.	What are the methods to avoid interference?	(**3M**)
x.	What is the efficiency of inclined plane ?	(2**M**)
xi.		

PART B

2. a)With the help of a neat sketch explain the working of Oldham's coupling. (**10M**)

OR

b) Explain steering gear mechanism with neat sketch

3) In a slider crank mechanism, the length of the crank and the connecting rod are 100 mm and 400 mm respectively./ The crank [position is 45°from IDC, the crank shaft speed is 600 r.p.m. clockwise. Using analytical method Determine (**10M**)

(1)Velocity and acceleration of the slider, and

(2) Angular velocity and angular acceleration of the connecting rod**.**

OR

(b) Locate all instantaneous centers of the slider crank mechanism; the length of crank OB and Connecting rod AB are 125 mm and 500 mm respectively. The crank speed is 600 rpm clockwise. When the crank has turned 45°from the IDC. Determine (i)velocity of slider' A' (ii)Angular Velocity of connecting rod 'AB'.

4) (a) Draw the profile of a cam operating a roller reciprocating follower and with the following data: Minimum radius of cam =25 mm; lift=30mm; Roller diameter= 15mm. The cam lifts the follower for 120°with SHM, followed by a dwell period of 30°. Then the follower lowers down during 150°of cam rotation with uniform acceleration and retardation followed by a dwell period. If the cam rotates at a uniform speed of 150 RPM. Calculate the maximum velocity and acceleration of follower during the descent period. (**10M**)

OR

(b) In a reverted epicyclic train, the arm F carries two wheels A and D and a compound wheel B-C. Wheel A meshes with wheel B and Wheel D meshes with wheel C. Ther number of teeth on wheel A, D and C are 80, 48, and 72. Find the speed and direction of wheel D , when wheel A is

fixed and arm F makes 200 rpm clockwise.

5.a) A multiplate disc clutch transmits 55 KW of power at 1800 rpm. Coefficient of friction for the friction surfaces is 0.1. Axial intensity at pressure is not to exceed 160 KN/m^2. The internal radius is 80 mm and is 0.7 times the external radius. Find the number of plates needed to transmit the required torque. (**10M**)

OR

b) A rope drive is required to transmit 230 KW from a pulley of 1m diameter running at 450 rpm. The safe pull in each rope is 800 N and the mass of the rope is 0.4 kg per meter length. The angle of lap and groove angle 160^0 and 45^0 respectively. If coefficient of friction is 0.3, find the number of ropes required.

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DEPARTMENT OF MECHANICAL ENGINEERING

MODEL PAPER –4

SUB : KINEMATICS OF MACHINERY

PART- A

1. Answer the following questions.

i.	What are the disadvantage of V-belt drive over flat belt ?	(**2M**)
ii.	What is the condition of transmission of optimum or maximum power in belt drive?	(**3M**)
iii.	List out the commonly used breaks.	(**2M**)
iv.	Define cycloidal tooth profile and involute tooth profile.	(**3M**)
v.	Define circular pitch and diametral pitch in spur gears.	(**2M**)
vi.	Define Backlash.	(**3M**)
vii.	Define pressure angle with respect to cams.	(**2M**)
viii.	Define undercutting in cam. How it occurs?	(**3M**)
ix.	Define Lift (or) Stroke in cam.	(**2M**)
X	Write down the grashof's law for four bar mechanism.	(**3M**)

PART B

2. a).A leather belt is required to transmit 7.5 kw from a pulley 1.2 m in diameter, running at 250 rpm. The angle entranced is 165^{0} and the coefficient of friction between the belt6 and the pulley is 0.3. If safe working stress for the leather belt is 1.5 MPa, density of leather is 1 kg/ m^{3} end thickness of belt is 10 mm. Determine the width of the belt taking C.F tension into account. (**10M**)

OR

b).Two pulley one 450 mm diameter and other 200mm dia are on parallel shaft 2.1 m apart and are connected by a cross belt. The larger pulley rotates at 225 rpm. The maximum permissible tension in the belt is 1 KN and the coefficient of friction between the belt and the pulley is 0.25. Find the length of the belt required and the power can be transmitted.

3. An epicyclic train is composed of a fixed annular wheel A having 150 teeth. Meshing with A is a wheel B which drives wheel D through an idle wheel C, D being concentric with A. Wheels B and C are carried on arm which revolves clockwise at 100 rpm about the axis of A or D. If the wheels B and D are having 25 teeth and 40 teeth respectively, find the number of teeth of C and the speed and sense of rotation of C. (**10M**)

OR

b) The sun planet gear of an epicyclic gear train, the annular D has 100 internal teeth, the sun gear A has 50 external teeth and planet gear B has 25 external teeth. The gear B meshes with gear D and gear A. The gear B is carried on arm E, which rotates about the centre of annular gear D. If the gear D is fixed and arm rotates at 20 rpm, then find the speeds of gear A and B.

4. a) Draw the profile of a cam operating a Knife -edged follower from the following data: (a) Follower to move outward through 40 mm during 60° of a cam rotation; (b) Follower to dwell for the next 45° (c) Follower to return its original position during next 90° (d)Follower to dwell for the rest of cam rotation. The displacement of the follower is to take place with simple harmonic motion during both the outward and return strokes. The least radius of the cam is 50mm. If the cam rotates at 300 r.p.m., determine the maximum velocity and acceleration of the follower during the outward stroke (**10M**)

and return stroke.

OR

(b) In a slider crank mechanism, the length of the crank and the connecting rod are 100 mm and 400 mm respectively./ The crank [position is 45°from IDC, the crank shaft speed is 600 r.p.m. clockwise. Using analytical method Determine

(1)Velocity and acceleration of the slider, and

(3) Angular velocity and angular acceleration of the connecting rod**.(15)**

5)Draw the profile of a cam operating a roller reciprocating follower and with the following data: Minimum radius of cam =25 mm; lift=30mm; Roller diameter= 15mm. The cam lifts the follower for 120°with SHM, followed by a dwell period of 30°. Then the follower lowers down during 150°of cam rotation with uniform acceleration and retardation followed by a dwell period. If the cam rotates at a uniform speed of 150 RPM. Calculate the maximum velocity and acceleration of follower during the descent period. (**10M**)

OR

b) It is required to set out the profile of a cam to give the following motion to the reciprocating follower with a flat mushroom contact surface: (i) Follower to have a stroke of 20 mm during 120°of cam rotation, (ii) Follower to dwell for 30° of cam rotation, (iii) Follower to return to its initial position during 120° of cam rotation, (iv) Follower to dwell for remaining 90° of cam rotation. The minimum radius of the cam is 25 mm. The out stroke of the follower is performed with SHM and return stroke with equal uniform acceleration and retardation.

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DEPARTMENT OF MECHANICAL ENGINEERING

Java Programming

Model Paper – I(R15)

II MECH I Semester

Duration: 3hrs **Max Marks: 75**

Answer all the following

PART-A **(Marks 25)**

1. (a)What are the properties of object oriented programming? [**2 Marks**]
   (b) What is method overriding? [**3 Marks**]
   (c) Define an Exception. What is meant by Exception Handling? [**2 Marks**]
   (d)List some of the classes available in collection? [**3 Marks**]
   (e)List the components of Swing? [**2 Marks**]
   (f)Discuss briefly about streams. [**3 Marks**]
   (g)What is inheritance? [**2 Marks**]
   (h)What is thread priority? [**3 Marks**]
   (i)What are the steps involved in connecting the database? [**2 Marks**]
   (j)What is an event? [**3 Marks**]

Answer all the questions either(a)or(b)

PART –B **(Marks:5*10=50)**

2. (a) Discuss in detail about inheritance. Also write its benefits. [**10 Marks**]

OR

(b) Describe about Type conversion. Also explain how casting is used to perform type conversion between incompatible types.

3. (a) What is inheritance? Explain different types of inheritance. [**10 Marks**]

OR

(b)How a method can be overridden? Explain.

4. (a)Give the class hierarchy in Java related to exception handling. Briefly explain each class. [**10 Marks**]

OR

(b)What is a thread? Explain the states of a thread with an example.

5. (a)Explain in detail about collection interfaces. [**10 Marks**]

OR

(b)Explain in details about primary input and output operations.

6. (a)Explain in detail about the classification of swing components. [**10 Marks**]

OR

(b)Explain in brief about events and event sources.

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DEPARTMENT OF MECHANICAL ENGINEERING

Java Programming

ModelPaper–2(R15)

II MECH ISemester

Duration: 3hrs **Max Marks: 75**

Answer all the following

PART-A **(Marks25)**

1 (a)Discuss briefly about recursion. [**2 Marks**]
(b)Define package [**3 Marks**]
(c)Differences between multitasking and multithreading. [**2 Marks**]
(d)Discuss briefly about hash table class. [**3 Marks**]
(e) Explain in brief about layout manager. [**2 Marks**]
(f) What is an operator? List various types. [3 **Marks**]
(g)List different types of access specifies. [**2 Marks**]
(h)List the keywords used to handle exceptions. [3 **Marks**]
(i)Define character streams. [**2 Marks**]
(j)Define Applet. [3 **Marks**]

PART–B **(Marks: 50)**

Answer all the questions (Either(a)or(b))

2 (a)What is constraint explain the constant types with examples. [**10 Marks**]

OR

(b)What is a method? How a method is used in the class? Explain.

3 (a)Explain the usage of Abstract classes and methods. [**10 Marks**]

OR

(b)Discuss how inheritances are defined and implemented.

4 (a)What is multi-threading? Explain. [**10 Marks**]

OR

(b)What is synchronization? Explain with suitable example.

5 (a)Write short notes on the following collection frame work classes. [**10 Marks**]

1) Random 2) Scanner

OR

(b)Write a short notes on

1) Connection interface 2) Statement object 3) Inner join 4) Execute Query Method.

6 (a)Write a simple swing application in java. [**10 Marks**]

OR

(b)Write the difference between applets and applications.

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DEPARTMENT OF MECHANICAL ENGINEERING

Java Programming

ModelPaper–3(R15)

II MECH I Semester

Duration: 3hrs **Max Marks: 75**

Answer all the following

PART-A **(Marks 25)**

1.(a) List the data types present in java. [**2 Marks**]

(b)Explain in brief about interfaces. [3**Marks**]

(c) What is meant by checked exception and unchecked exception. [**2 Marks**]

(d) How statements call can be used? Also list the types of methods in statement class. [**3 Marks**]

(e) Discuss about Jframe and Jpanel. [**2 Marks**]

(f)Discuss briefly about enumerated data types. [**3 Marks**]

(g)What is CLASSPATH. [**2 Marks**]

(h) What is multithreading? [**3 Marks**]

(i) List the types of JDBC drivers present in java. [**2 Marks**]

(j) What are event sources? [**3 Marks**]

PART–B **(Marks: 5*10=50)**

Answer all the questions (Either (a)or(b))

2. (a)List the primitive data types of java. Explain each of them in detail. [**10 Marks**]

OR

(b)What are the different types of array? List out the advantages of using arrays?

3. (a)Write in detail about super class and sub classes. [**10 Marks**]

OR

(b)Write the differences between interfaces and abstract.

4. (a)How are finally statements used in java? Explain in detail. [**10 Marks**]

OR

(b)Is it possible to interrupt a thread? Explain.

5. (a)Explain in detail about hash table class. [**10 Marks**]

OR

(b)Explain in detail about the types of drivers in JDBC.

6. (a)Discuss in detail about swing components. [**10 Marks**]

OR

(b)Explain about various event classes.

MALLA REDDY COLLEGE OF ENGINEERING &TECHNOLOGY

(An Autonomous Institution – UGC, Govt. of India)

DEPARTMENT OF MECHANICAL ENGINEERING

Java Programming

Model Paper–4(R13)

II MECH I Semester

Duration: 3hrs **Max Marks: 75**

Answer all the following

PART-A **(Marks 25)**

1. (a)What are the OOPs features? [**2 Marks**]
   (b) Compare Procedural and OOP Languages?. [**3 Marks**]
   (c) Explain about control statements in java?. [**2 Marks**]
   (d) Explain about method overloading with example? [**3 Marks**]
   (e) Explain about the usage of super keyword with an example? [**2 Marks**]
   (f) Explain how interfaces are implemented with an example?. [**3 Marks**]
   (g) Explain the following: try, catch, throw, throws, finally [**2 Marks**]
   (h) Explain the creation of threads with an example? [**3 Marks**]
   (i) List the types of JDBC drivers present in java. [**2 Marks**]
   (j) What are event sources? Explain the life cycle of an applet? [**3 Marks**]

PART –B **(Marks:5*10=50)**

Answer all the questions(Either(a)or(b))

2. (a)What is type casting and conversion? When it is required? [**10 Marks**]
   (b) What is an array? How arrays are declared in java with an example?

OR

(c)Explain about method overloading with example? Explain about constructor overloading with example?

3(a)What is method overriding? How methods overriding is achieved in Java, with an example?.[**10Marks**]

OR

(b)How multiple inheritances are achieved in java with the interfaces? Explain with anexample?

4 (a)What are the checked Exceptions and Unchecked Exceptions? Explain some of these exceptions with an example and also give the difference between them. [**10 Marks**]

OR

(b)How the priorities can be assigned to threads? Explain with example?

5 (a)Explain the difference between: i) Vector and Array List. ii) Enumeration and Iterator. [**10 Marks**]

OR

(b)Explain in detail about the types of drivers in JDBC.

6 (a)Define event. Give examples of events. Define event handler. How it handles events? [**10 Marks**]

OR

(b)Explain about layout manager? With an example?

Code No: 114CX R15

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, May - 2016

JAVA PROGRAMMING

(Common to CSE, IT)

Time: 3 Hours Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART - A (25 Marks)

1.a)	Differentiate between break and continue statement.	[2]
b)	What is type casting? Explain with an example.	[3]
c)	What is the use of super keyword?	[2]
d)	Distinguish between abstract class and concrete class.	[3]
e)	What are the advantages of multithreading?	[2]
f)	Explain the types of exceptions.	[3]
g)	List the hash table constructors.	[2]
h)	Explain the methods defined by Vector.	[3]
i)	Explain the use of layout managers.	[2]
j)	Explain the life cycle of an applet.	[3]

PART - B (50 Marks)

2.a) Write a java program to find the factorial of a given number.
b) Explain the different types of constructors with an example. [5+5]

OR

3.a) Write a program to find the transpose of a given matrix.
b) Explain the scope and life time of the variable. [5+5]

4.a) Explain the different parameter passing mechanisms used in Java with an example.
b) Write a runtime polymorphism program in Java by using interface reference variable. [5+5]

OR

5.a) Design an interface called Shape with methods draw() and getArea(). Further design two classes called Circle and Rectangle that implements Shape to compute area of respective shapes. Use appropriate getter and setter methods. Write a java program for the same.
b) Explain the various access specifiers are used in java. [5+5]

6.a) Write a program that demonstrate the priority setting in threads.
b) Write a program that includes a try block and a catch clause which processes the arithmetic exception generated by division-by-zero error. [5+5]

OR

7.a) Write a program that creates a thread that forces preemptive scheduling for lower-priority threads.
b) Explain the checked and unchecked exception with an example. [5+5]

8.a) Explain the types of drivers used in JDBC.

b) Write a program to implement the operations of random access file. [5+5]

OR

9.a) Explain the file management using File class.

b) Write a program which stores a list of strings in an ArrayList and then displays the contents of the list. [5+5]

10.a) Describe about various components in AWT.

b) Write an applet program to handle all mouse events. [5+5]

OR

11.a) Write a Java program to create AWT radio buttons using check box group.

b) Explain the various event listener interfaces. [5+5]

--ooOoo--

R13

Code No: 114CX

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, May-2015

JAVA PROGRAMMING

(Common to CSE, IT)

Time: 3 Hours Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

Part- A **(25 Marks)**

1.a) What is data abstraction? [2M]
b) List string manipulation functions of Java String class. [3M]
c) Differentiate between interface and abstract class. [2M]
d) Explain the use of 'final' keyword. [3M]
e) Differentiate between thread and process. [2M]
f) List any six built-in exceptions in Java. [3M]
g) What is the difference between array and vector? [2M]
h) List the byte stream classes. [3M]
i) What are the containers available in swing?
j) Compare Applets with application programs.

Part-B **(50 Marks)**

2.a) Explain the basic concepts of object oriented programming.
b) What is the usage of enumerated data type? Give examples. [5+5]

OR

3.a) Discuss Java jump statements.
b) Write about garbage collection in Java.
c) Explain the use of 'this' keyword. [3+3+4]

4.a) Explain method overriding with a suitable example program.
b) With suitable program segments describe the usage of 'super' keyword. [5+5]

OR

5.a) What is a nested class? Differentiate between static nested classes and non-static nested classes.
b) How to define a package? How to access, import a package? Explain with examples. [5+5]

6.a) With a suitable Java program explain user-defined exception handling.
b) What is meant by re-throwing exception? Discuss a suitable scenario for this. [5+5]

OR

7.a) Does Java support thread priorities? Justify your answer with suitable discussion.
b) Describe producer-consumer pattern using inter-thread communication. [5+5]

8.a) Give an account of Random collection class
b) Discuss the methods of Stack class
c) What is the need of Generics? [3+3+4]

OR

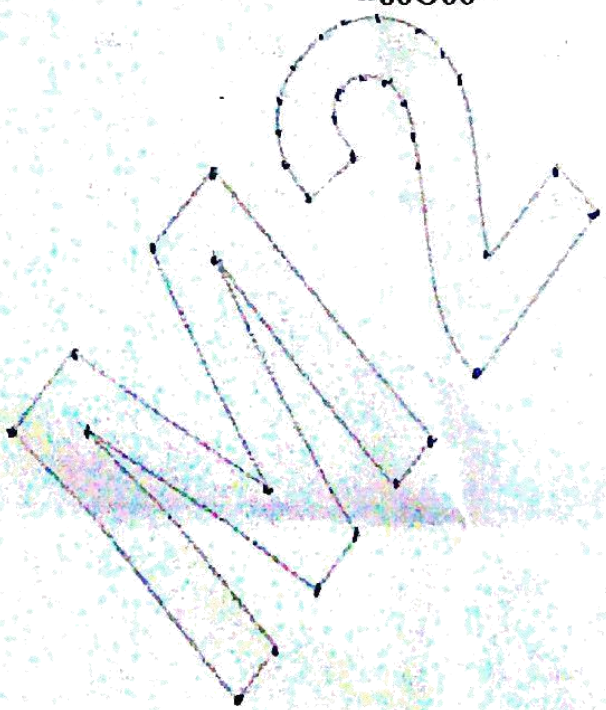
9.a) Discuss the four types of JDBC driver with suitable diagrams.
b) Write a JDBC program to update the amount balance in an account after every withdrawal. Assume the necessary database table. [5+5]

10.a) What is the significance of layout managers? Discuss briefly various layout managers.
b) Give an overview of JButton class. [5+5]

OR

11.a) Explain delegation event model.
b) Write an Applet to draw a smiley picture accept user name as a parameter and display welcome message. [5+5]

--ooOoo--



Code No: RT22052 **R13** SET - 1

II B. Tech II Semester Regular Examinations, May/June – 2015
JAVA PROGRAMMING
(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART-A

1. a) What is Object Oriented Programming? How it is different from Procedural concepts?
b) What is an Object? How to allocate memory for objects?
c) Can a method be overloaded based on different return type but same argument type ?
d) What is the purpose of Alive () function in Java.
e) "Java class can be used both as an applet as well as an application" - Support this statement with an example.
f) What are the different types of controls available in AWT?
g) What are assertions?
h) "Interfaces are able to extend more than one Interface but a Class can't extend more than one Class" - Why? (4M+4M+4M+2M+4M+4M+2M+4M)

PART - B

2. a) Explain briefly the following object oriented concepts.
i) Abstraction ii) Polymorphism
b) "Java is called Machine Independent language" - Justify this statement with proper explanation. (8M+8M)

3. a) Write a Java program to sort a given set of strings in the alphabetical order where the strings are supplied through the command line.
b) What do you mean by static class and static method? Can we make an instance of an abstract class? Justify your answer with an example? (8M+8M)

4. a) What are the different forms of inheritance? Explain.
b) How Packages differ from Interfaces? Explain it with a suitable example program to calculate student marks statement. (8M+8M)

5. a) Write a Java program that prints numbers from 1 to 10 line by line after every 5 seconds
b) What is thread synchronization? Discuss with an example. (8M+8M)

6. a) Write a Java program to create a combo box which includes list of subjects. Copy the subjects in text field on click using applet.
b) Differentiate between init() and start() methods with examples. (8M+8M)

7. a) Write a Java program to illustrate the use of Flow Layout Manager.
b) Write a short note on the following i) JList ii) JScrollPane (8M+8M)

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II B. Tech II Semester Regular Examinations, May/June – 2015
JAVA PROGRAMMING
(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART-A

1. a) Write a short note on the features of Object Oriented Programming
b) List out the characteristics of the static method.
c) What is the difference between an interface and an abstract class?
d) What is the importance of synchronization in java?
e) What is the role of layout manager in AWT or Swing?
f) What are the ways in which we can pass parameters to the applet?
g) What are the advantages of event driven programming?
h) "Java does not support operator loading" - Support this statement with appropriate reasoning. (4M+4M+4M+2M+4M+2M+4M+4M)

PART - B

2. a) Write a Java program to generate a pyramid of numbers for given number N using for loop.
b) Discuss on the advantages and disadvantages of Object Oriented Programming. (8M+8M)

3. a) Write a Java program to accepts a file name as command line argument and finds The Length of the longest line in the file and displays an error message if the file Does not exist.
b) Explain various access specifies supported by Java with an example (8M+8M)

4. a) Write a java program to illustrate "Constructor Overloading".
b) What are the various types of exceptions available in Java? Also discuss on how they are handled? (8M+8M)

5. a) Write a Java program for creating four threads to perform the following operations
i) Getting N numbers as input ii) Printing the even numbers
iii) Printing the odd numbers iv) Computing the average
b) Explain how communication between threads takes place with a programming example. (8M+8M)

6. a) Write Applets programs to accomplish the following tasks:
i) Drawing polygons ii) Drawing a line graph.
b) Can applet class have a constructor? Justify your answer with proper explanation and example. (8M+8M)

7. a) Discuss in detail Menu bars and menus in Java with examples.
b) Write a short note on the following
i) JFrame ii) JTabbedPane (8M+8M)
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Code No: RT22052 **R13** SET - 3

II B. Tech II Semester Regular Examinations, May/June – 2015
JAVA PROGRAMMING
(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART-A

1. a) "Write Once and Run Anywhere" - Support this statement with proper reasoning.
b) What is a constructor? When does the compiler supply default constructor for a class?
c) Differentiate between array and vector with examples.
d) What is a daemon thread?
e) What is an event? What methods are available to handle events in java?
f) List out the differences between AWT and Swings.
g) Give an example to illustrate the use of parseInt() method?
h) What is the difference between the >> and >>> operators?
(4M+4M+2M+4M+4M+4M+2M)

PART – B

2. a) Write a Java program to interchange the rows and columns of a given matrix.
b) Write short note on the following Object Oriented concepts
i) Encapsulation ii) dynamic binding (8M+8M)

3. a) Discuss various control structures available in Java.
b) Write a program to perform the following functions using classes, objects, constructors and destructors wherever necessary
i) Read 5 subjects marks of 5 students
ii) Calculate the total and print the result on the screen (8M+8M)

4. a) Explain Creating Packages and Accessing a Package with examples.
b) Write a Java program to find the area and perimeter of square and circle using interface.
(8M+8M)

5. a) Explain the following with necessary code snippets
i) Creating thread ii) Stopping and Blocking a Thread
b) "Threads can be given priorities" - Support this statement with suitable example. (8M+8M)

6. a) Describe the different stages in the life cycle of an Applet.
b) Explain in brief the event-handling mechanism in java with an example. (8M+8M)

7. a) Explain about any two Layout Managers with example programs.
b) Explain the features of Swings in java. (8M+8M)
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Code No: RT22052 **R13** SET - 4

II B. Tech II Semester Regular Examinations, May/June – 2015
JAVA PROGRAMMING
(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART-A

1. a) Write a Java program to find the value of n!, where n is a given integer.
   b) Illustrate type casting in java with an example.
   c) Differentiate between sleep () and wait ().
   d) Discuss various methods used to create threads?
   e) What is source and listener in java event handling?
   f) List the features of swings.
   g) "Abstract classes can be defined without any abstract methods" - support this statement with proper reasoning.
   h) What is the difference between & operator and && operator?
   (4M+2M+4M+4M+4M+4M+2M)

PART - B

2. a) Write a Java program to check whether a given number is palindrome or not?
   b) Explain about Java Tokens with examples. (8M+8M)

3. a) Write a java program to simulate the operation of numerical calculator to perform the functions Addition (+), Subtraction (-), Multiplication (*) and Division (/).
   b) Explain clearly about how Java handles cleaning up of unused objects. (8M+8M)

4. a) Explain about Exception Handling in Java with examples.
   b) Why do constructors does not have any return type? Explain it with proper example.
   (8M+8M)

5. a) Write a Java program to demonstrate multithreading operation.
   b) Explain various thread states and properties in detail. (8M+8M)

6. a) Write an applet program that has different shapes in it.
   b) Explain action event with suitable example. (8M+8M)

7. a) Explain any two AWT controls in java with suitable examples.
   b) Design a screen in Java which accepts text in text box. If the left mouse is clicked, convert the text to uppercase and if the right button is clicked, convert it to lower case.
   (8M+8M)
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Code No: RT22052 **R13** SET - 1

II B. Tech II Semester Regular Examinations, April/May - 2016
JAVA PROGRAMMING
(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1. a) What is the significance of Java's byte code? (3M)
   b) List the various ways of 'static' keyword usage. (4M)
   c) Differentiate class, abstract class and interface. (3M)
   d) How does Java support inter thread communication? (4M)
   e) What are the differences between applet and application programs? (4M)
   f) Give an overview of JButton class (4M)

PART –B

2. a) What are the drawbacks of procedural languages? Explain the need of object oriented programming with suitable program. (10M)
   b) Discuss the lexical issues of Java. (6M)

3. a) Illustrate constructor overloading. (8M)
   b) Explain precedence rules and associativity concept (8M)

4. a) With suitable code segments illustrate various uses of 'final' keyword. (8M)
   b) How to handle multiple catch blocks for a nested try block? Explain with an example. (8M)

5. a) Describe Java's thread model. (7M)
   b) What is a stream? What is the difference between byte streams and character streams? How are they used to capture input from the user? (9M)

6. a) What is the role of event listeners in event handling? List the Java event listeners (8M)
   b) Write an applet to display the mouse cursor position in that applet window. (8M)

7. a) Discuss various AWT containers with examples. (8M)
   b) Construct an application to explain the use of JTabbedPane. (8M)

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Code No: RT22052 **R13** SET - 2

II B. Tech II Semester Regular Examinations, April/May - 2016
JAVA PROGRAMMING
(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1.	a)	Compare inheritance with polymorphism	(4M)
	b)	Write about garbage collection	(3M)
	c)	Give the basic keywords used in exception handling.	(4M)
	d)	List the thread states and give state transition diagram	(4M)
	e)	What is an adapter class? Give any two examples for it.	(3M)
	f)	Differentiate between swing components and AWT components.	(4M)

PART –B

2.	a)	Compare procedural languages with object oriented languages	(8M)
	b)	Explain the important features of Java.	(8M)
3.	a)	List various types of statements and quote suitable examples for each type.	(9M)
	b)	With a program illustrate the use of command line arguments.	(7M)
4.	a)	Explain multilevel inheritance with the help of abstract class in your program.	(8M)
	b)	How to define a user exception in a program? Illustrate with an example.	(8M)
5.	a)	Write a program to implement multi thread programming.	(10M)
	b)	Explain thread synchronization	(6M)
6.	a)	Explain delegation event model in detail.	(8M)
	b)	Write an applet to display a smiley with a greeting message to the user.	(8M)
7.	a)	What is the significance of Layout managers? Discuss briefly various layout managers.	(10M)
	b)	Write a note on split Pane.	(6M)

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Code No: RT22052 **R13** SET - 3

II B. Tech II Semester Regular Examinations, April/May - 2016
JAVA PROGRAMMING
(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1. a) List the applications of object oriented programming. (3M)
b) Illustrate the usage of 'this' keyword. (4M)
c) How to create and use a package in Java program? (4M)
d) Write about thread suspension and resume (3M)
e) Compare nested class with inner class. Give examples for each (4M)
f) Differentiate between grid layout and gridbag layout managers. (4M)

PART –B

2. a) Discuss the principles of object oriented languages in detail. (10M)
b) What is the role and responsibility of JVM in program execution? (6M)

3. a) What are the primitive data types in Java? Write about type conversions. (8M)
b) What is a constructor? What is its requirement in programming? Explain with program. (8M)

4. a) Write a program to implement multiple inheritances. (8M)
b) What is an exception? How are exceptions handled in Java programming? Explain (8M)

5. a) Describe the need of thread synchronization. How is it achieved in Java programming? Explain with a suitable program. (10M)
b) Differentiate between FileReader and BufferReader. (6M)

6. a) What is an applet? Explain its life cycle. (8M)
b) Write a program to handle mouse events and mouse motion events. (8M)

7. a) Write a program to create a frame for a simple arithmetic calculator using swing components and layout mangers. (10M)
b) Compare the features of Applet with JApplet. (6M)

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Code No: RT22052 **R13** SET - 4

II B. Tech II Semester Regular Examinations, April/May - 2016
JAVA PROGRAMMING
(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1. a) Differentiate between abstraction and information hiding. (4M)
   b) What are the naming conventions for Java identifiers? (4M)
   c) What is an assertion? What is its use in programming? (3M)
   d) Define thread. How is it different from a process? (3M)
   e) Give the sources of action event and item event (4M)
   f) List the features of Menu component of AWT. (4M)

PART –B

2. a) List and explain Java buzzwords. Which factors are making Java famous language? (10M)
   b) Give the program structure of Java. (6M)

3. a) How to create objects? Does Java support object destruction? Justify your answer. (8M)
   b) Write a Java program to find the sum of the squares of the diagonal elements of a square matrix. (8M)

4. What are the benefits of inheritance? Explain various forms of inheritance with suitable code segments. (16M)

5. a) Explain thread life cycle and thread creation in Java. (8M)
   b) Write a program to read user name from console and display some message for that user using streams. (8M)

6. a) Discuss the applet structure and compare it with application structure. (8M)
   b) Write a program to handle keyboard events. (8M)

7. a) Construct a frame with necessary components for bus reservation system of an agent. (10M)
   b) Write a note on dialog box usage in user interfaces. (6M)

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MALLA REDDY COLLEGE OF ENGINEERING &TECHNOLOGY

(An Autonomous Institution – UGC, Govt. of India)

DEPARTMENT OF MECHANICAL ENGINEERING

GERMAN LANGUAGE

MODEL PAPER-I

Time: 90 minutes **Marks: 40**

TEIL A **20 Punkte**

Beantworten Sie folgende

1. Was sind die vier Jahreszeiten auf Deutsch? [2M]
2. Wie sagt man Good Morning und Good evening in deutscher Sprache? [2M]
3. Was sind die Artikel auf Deutsch? [2M]
4. Legen Sie die Wochentage in deutscher Sprache schreiben. [2M]
5. Notieren Sie sich die Farben der deutschen Flagge. [2M]
6. Schreiben Sie die Zahlen von 0 bis 20 mit Deutsch Aussprache [2M]
7. Wie Sie sagen, ich und du (informell) in Deutsch? [2M]
8. Wie Sie Indien und Frankreich in der deutschen Sprache zu schreiben? [2M]
9. Schreiben Sie alle zwei Verwandten der Familie in der deutschen Sprache? [2M]
10. Schreiben alle zwei Verben in deutscher Sprache (mit englischen Bedeutung. [2M]

TEIL B **15 Punkte**

Beantworten Sie alle 5

1. Was sind die vier Jahreszeiten auf Deutsch? [3M]
2. Schreiben Sie alle fünf Farben in Deutsch Sprache. [3M]
3. Schreiben Sie einen Mini-Dialog über die Station. [3M]
4. Was sind die vier richtungen. [3M]
5. Schreiben Sie alle sechs Ländernamen. [3M]
6. Wie kann man sagen: Welcome, He is intelligent in deutsche. [3M]

TEIL C 20 **5 Punkte**

Beantworten Sie alle 1

1. Stellen Sie sich **(5 Sätze)** **[5M]**
2. einen Mini-Dialog Schreiben Postamt **(5 Sätze)** **[5M]**

MALLA REDDY COLLEGE OF ENGINEERING &TECHNOLOGY

(An Autonomous Institution – UGC, Govt. of India)

DEPARTMENT OF MECHANICAL ENGINEERING

GERMAN LANGUAGE

MODEL PAPER-II

Time: 90 minutes **Marks: 40**

TEIL A **20 Punkte**

Beantworten Sie folgende

1. Schreiben Sie die Zahlen von 0 bis 20 mit Deutsch Aussprache. [2M]
2. Wie sagt man Grand father und Mother in deutscher Sprache? [2M]
3. Was sind die Artikel auf Deutsch? [2M]
4. Legen Sie die Wochentage in deutscher Sprache schreiben. [2M]
5. Notieren Sie sich die Farben der deutschen Flagge. [2M]
6. Was sind die vier Jahreszeiten auf Deutsch? [2M]
7. Wie Sie sagen, ich und du (informell) in Deutsch? [2M]
8. Wie Sie Indien und Frankreich in der deutschen Sprache zu schreiben? [2M]
9. Schreiben Sie alle zwei Verwandten der Familie in der deutschen Sprache? [2M]
10. Schreiben alle zwei Verben in deutscher Sprache (mit englischen Bedeutung. [2M]

TEIL B **15 Punkte**

Beantworten Sie alle 5

1. Schreiben Sie die Monate eines Jahres in deutscher Sprache. [3M]
2. Schreiben Sie alle fünf Farben in Deutsch Sprache. [3M]
3. Schreiben Sie einen Mini-Dialog über die Station. [3M]
4. Was sind die vier richtungen. [3M]
5. Schreiben Sie alle sechs Ländernamen. [3M]
6. Wie kann man sagen: Good day, Goodbye und Thank you very much in deutsche [3M]

TEIL C 20 **5 Punkte**

Beantworten Sie alle 1

1. Stellen Sie sich **(5 Sätze)** **[5M]**
2. einen Mini-Dialog Schreiben Im Restaurant **(5 Sätze)** **[5M]**

MALLA REDDY COLLEGE OF ENGINEERING&TECHNOLOGY

(An Autonomous Institution – UGC, Govt. of India)

DEPARTMENT OF MECHANICAL ENGINEERING

GERMAN LANGUAGE

MODEL PAPER-III

Time: 90 minutes **Marks: 40**

TEIL A **20 Punkte**

Beantworten Sie folgende

1. Schreiben Sie die Zahlen von 0 bis 20 mit Deutsch Aussprache. [2M]
2. Wie sagt man SISTER und BROTHER in deutscher Sprache? [2M]
3. Was sind die Artikel auf Deutsch? [2M]
4. Legen Sie die Wochentage in deutscher Sprache schreiben. [2M]
5. Notieren Sie sich die Farben der deutschen Flagge. [2M]
6. Was sind die vier Jahreszeiten auf Deutsch? [2M]
7. Wie Sie sagen, ich und du in Deutsch? [2M]
8. Wie Sie Indien und Frankreich in der deutschen Sprache zu schreiben? [2M]
9. Schreiben Sie alle zwei Verwandten der Familie in der deutschen Sprache? [2M]
10. Schreiben alle zwei Verben in deutscher Sprache (mit englischen Bedeutung. [2M]

TEIL B **15 Punkte**

Beantworten Sie alle 5

1. Schreiben Sie die Monate eines Jahres in deutscher Sprache. [3M]
2. Schreiben Sie alle fünf Farben in Deutsch Sprache. [3M]
3. Schreiben Sie einen Mini-Dialog über die flughafen. [3M]
4. Was sind die vier richtungen. [3M]
5. Schreiben Sie alle sechs Ländernamen. [3M]
6. Wie kann man sagen: Doctor, Driver und actor in deutsche. [3M]

TEIL C 20 **5 Punkte**

Beantworten Sie alle 1

1. Stellen Sie sich **(5 Sätze)** **[5M]**
2. Schreibe über deine Familie. [5M]