MAHATMA GANDHI INSTITUTE OF TECHNOLOGY
(Autonomous)
B.Tech. III Semester End Examinations
(MODEL QUESTION PAPER)

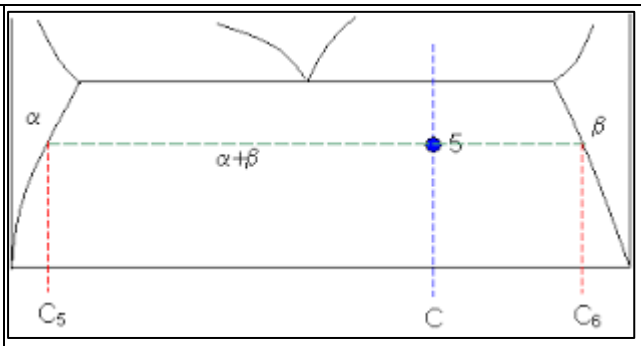
MR-21

Course Title: Materials Science and Metallurgy **Course Code: MM331ES**
Time: 3 hours Max. Marks : 70

Note: Answer ALL Questions
Part-A (10 x 2 = 20 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
1. a)	Define primitive unit cell and give examples.	2	1	1	1 to 12
1. b)	List differences between edge and screw dislocations.	2	2	1	
	Unit-II				
1. c)	What type of compounds forms if the difference between electronegatives of solvent and solute is high?	2	6	2	1, 2, 3, 4, 5, 6, 8, 9, 10, 12
1. d)	Describe the effect of C on Fe alloys?	2	3	2	
	Unit-III				
1. e)	How Bainite is different from Pearlite?	2	3	3	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12
1. f)	Draw a TTT diagram for a plain carbon steel which contains 0.9 wt% of carbon.	2	1	3	
	Unit-IV				
1. g)	Write a formula which shows increase in heating rate in induction hardening?	2	2	4	1, 2, 3, 4, 5, 6, 8, 9, 10, 12
1. h)	Factors effecting carburizing are?	2	1	4	
	Unit-V				
1. i)	Why Ti alloys are best for aerospace applications?	2	3	5	1 to 12
1. j)	Silicon significance in cast irons?	2	1	5	

Part-B (5 x 10=50 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
2. a)	List 7 crystal structures and their Bravais lattices	5	1	1	1 to 12
2. b)	Derive an equation for critically resolved shear stress in single crystal alloys.	5	3	1	
	OR				
2. c)	Which methods is best suitable to increase strength of alloys at high temperatures?	5	3	1	1 to 12
2. d)	Describe imperfections in solid solutions.	5	2	1	
	Unit-II				
3. a)	 Derive an equation to calculate phase fractions of α and β for the given phase diagram.	5	4	2	1, 2, 3, 4, 5, 6, 8, 9, 10, 12
3. b)	List Hume-Rothery rules and explain.	5	1	2	
	OR				
3. c)	Draw Fe-Fe_3C phase diagram and label it.	5	2	2	1, 2, 3, 4, 5, 6, 8, 9, 10, 12
3. d)	Give examples to eutectic, eutectoid, peritectic, peritectoid, syntactic, monotectic phase diagrams.	5	3	2	
	Unit-III				
4. a)	Explain phase developments in 0.8 wt% carbon steel using TTT diagrams.	5	4	3	1, 2, 3,

4. b)	What are applications, advantages and limitations of CCT curves?	5	1	3	4, 5, 6, 7, 8, 9, 10, 12
OR					
4. c)	Tabulate differences between annealing, normalizing, quenching, and spheroidising.	5	3	3	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12
4. d)	Explain austempering and martempering.	5	1	3	
Unit-IV					
5. a)	Write a short note on vacuum and plasma hardening.	5	1	4	1, 2, 3, 4, 5, 6, 8, 9, 10, 12
5. b)	Indicate type of phase transformations occur during carburizing of low carbon steels?	5	5	4	
OR					
5. c)	Write a short note on carburizing and carbonitriding.	5	1	4	1, 2, 3, 4, 5, 6, 8, 9, 10, 12
5. d)	Propose a heat treatment method to get tough core and hard case.	5	5	4	
Unit-V					
6. a)	What are different alloying elements in stainless steels, explain their effects.	5	2	5	1 to 12
6. b)	Classify and explain different cast irons.	5	1	5	
OR					
6. c)	Explain strengthening mechanism in Al-Cu-Mg alloys.	5	4	5	1 to 12
6. d)	Write applications of Cu, Al, Ti alloys.	5	1	5	

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

MAHATMA GANDHI INSTITUTE OF TECHNOLOGY
(Autonomous)
B.Tech. III Semester End Examinations
(Model Question Paper)

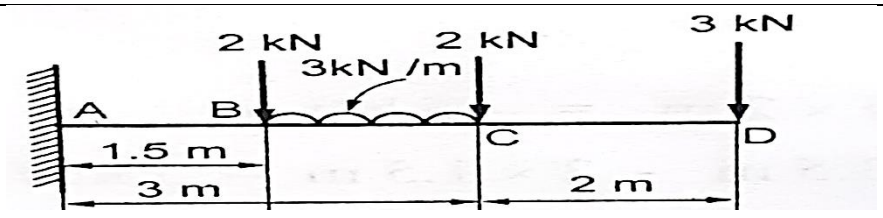
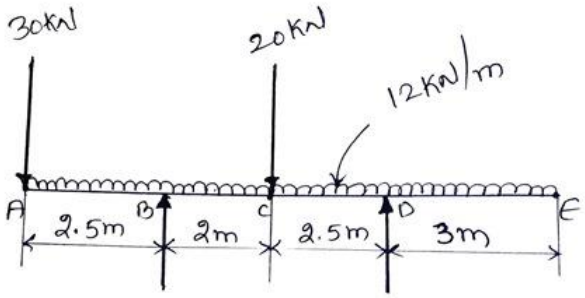
MR-21

Course Title: Mechanics of Solids **Course Code:** ME301PC
Time: 3 hours Max. Marks : 70

Note: Answer ALL Questions
Part-A (10 x 2 = 20 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
1. a)	Define young's Modulus, bulk modulus and Rigidity Modulus?	2	1	1	1
1. b)	Define Strain energy, resilience and Proof resilience?	2	1	1	1
	Unit-II				
1. c)	Define Point of Contra flexure and point of inflection?	2	1	2	1
1. d)	Mention the different types of loads and beams with neat sketches.	2	1	2	2
	Unit-III				
1. e)	What is the section modulus of a circular section of radius 100mm?	2	4	3	2
1. f)	Mention the assumption in simple bending?	2	1	3	1
	Unit-IV				
1. g)	Define principal plane, principal stress?	2	1	4	2
1. h)	Write Condition for maximum shear stress in triangular section?	2	5	4	3
	Unit-V				
1. i)	A cylinder of internal diameter 0.5 m contains air pressure of 7 N/mm^2 if the maximum permissible stress is 80 N/mm^2 . find the thickness?	2	2	5	1
1. j)	Find the polar section modulus for a rectangle of size 200 x 300 mm?	2	4	5	1

Part-B (5 x 10=50 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
2. a)	Explain the Stress – strain curve of a mild steel bar in tension test.	4	2	1	1
2. b)	Derive the relation between young's modulus and Rigidity modulus?	6	2	1	1
	OR				
2. c)	A gun metal rod 25mm diameter screwed at the end passes through a steel tube 30mm and 35mm internal and external diameters. The temperature of the whole assembly is 125°C and the nuts on the rod are then screwed on the ends of the tube. Calculate the stresses developed in gun metal and steel tube when the temperature of the assembly has fallen to 20°C. Take Eg= $1x10^5$ N/mm^2 and Es= $2.1x10^5$ N/mm^2. $\alpha_g=20x10^{-6}$ /°C, $\alpha_s=12x10^{-6}$ /°C	7	2	1	1
2. d)	Define Factor of Safety, Poisson's ratio and state Hooke's law	3	1	1	1
	Unit-II				
3. a)	 Draw SFD and BMD for the above beam.	6	4	2	4
3. b)	Derive the relation between rate of loading, Shear force and Bending Moment	4	3	2	2
	OR				
3. c)	Draw SFD and BMD for the following beam. 	10	4	2	4

Unit-III					
4. a)	Derive the equation M/I = σ/y =E/R M=B.M, I= Plane M.I, σ = bending stress, y= distance of a layer from N.A, E= elastic modulus and R=radius of curvature	5	3	3	3
4. b)	A rectangular beam 20cm deep and 10 cm wide is subjected to maximum bending moment of 500N-m. Determine the maximum stress in the beam. If the value of E for the material is $2.1x10^5$ N/mm^2 find out the radius of curvature.	5	3	3	2
OR					
4. c)	A cast iron beam of an I-section with top flange 80 mm x 40 mm, bottom flange 160 mm x 40 mm and web 120 mm x 20 mm. If the tensile stress is not to exceed 30 N/mm^2 and compressive stress 90 N/mm^2 , what is the maximum uniformly distributed load the beam can carry over a simply supported span of 6 m, if the bottom flange is in tension?	10	5	3	3
Unit-IV					
5. a)	A T-section beam 350 mm X 150 mm 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 T-section.	5	5	4	3
5. b)	Derive the condition for maximum shear stress distribution in Triangular section	5	3	4	2
OR					
5. c)	An element is subjected to tensile stresses of 60 N/mm 2 and 20 N/mm^2 acting on two perpendicular planes and is also accompanied by shear stress of 20 N/mm^2 on these planes. Draw the Mohr's circle of stresses and determine the magnitudes and directions of principal stresses and also the greatest shear stress.	5	5	4	4
5. d)	The stresses at a point in a bar are 300N/mm2 (Tensile) and 150 N/mm2 (Compressive). Determine the resultant stress in magnitude and direction on a plane inclined at 450 to the axis of major stress by using analytical method .	5	3	4	2
Unit-V					
6. a)	Derive the expressions for hoop stress and longitudinal stress in thin cylinder with neat sketches.	5	3	5	3
6. b)	A hollow steel shaft is to transmit 95 KW at 200 rpm. Find the outer diameter of shaft where inside diameter is 0.7 of outside. Taking allowable shear stress as 70MPa.	5	5	5	1
OR					
6. c)	Derive Torsion Equation and state the assumptions made in Torsion Equation	5	3	5	2
6. d)	A thin cylinder 1.5m internal diameter and 5 m long is subjected to internal pressure of $2N/mm^2$. If the maximum stress is limited to 160 N/mm^2 find the thickness of the cylinder 2GPa and poisson's ratio 0.3. Also find change in diameter, change in length and change of volume of cylinder.	5	2	5	3

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

MAHATMA GANDHI INSTITUTE OF TECHNOLOGY
(Autonomous)
B.Tech. III Semester End Examinations
(Model Question Paper)

MR-21

Course Title: Production Technology **Course Code: ME302PC**
Time: 3 hours Max. Marks: 70

Note: Answer ALL Questions
Part-A (10 x 2 = 20 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
1. a)	What are the functions of a riser?	2	2	1	1
1. b)	Give some advantages of a casting process	2	1	1	
	Unit-II				
1. c)	Differentiate TIG and MIG welding.	2	3	2	5
1.d)	Explain briefly Forge Welding	2	2	2	
	Unit-III				
1. e)	State the differences between straight polarity and reverse polarity.	2	3	3	1
1.f)	State the factors on which Heat affected zone depends on.	2	3	3	
	Unit-IV				
1. g)	Write short notes on Recovery.	2	1	4	1
1.h)	Differentiate Blanking and Piercing	2	3	4	
	Unit-V				
1. i)	Define extrusion ratio	2	1	5	1
1.j)	Write short note on High energy rate forming process.	2	2	5	

Part-B (5 x 10=50 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
2.a)	Define allowance. Explain different types of allowances provided for a pattern in detail	6	1	1	1
2.b)	Explain the principles of Gating System in detail	4	2	1	1
	OR				
2. c)	With a neat sketch explain various zones in Cupola furnace	6	1	1	1
2.d)	List out the defects in casting process. Explain any four in detail.	4	2	1	1
	Unit-II				
3. a)	Give the detailed classification of welding processes in detail.	4	2	2	5
3. b)	Explain about the equipment used in Oxy-Acetylene welding with a neat sketch	6	3	2	1
	OR				
3. c)	Write about different weld positions in detail.	6	2	2	5
3.d)	Explain the process of submerged arc welding	4	3	2	
	Unit-III				
4. a)	Explain destructive testing of welds.	6	1	3	5
4. b)	Differentiate soldering and brazing	4	3	3	1
	OR				
4. c)	Differentiate brazing and braze welding.	4	2	3	1
4.d)	Explain any two non destructive testing of welds.	6	3	3	5
	Unit-IV				
5. a)	Derive an expression for Roll Strip Contact length in the process of rolling.	6	3	4	2
5. b)	Sketch and explain Progressive die and combination die	4	2	4	1
	OR				
5. c)	What is a rolling mill? Explain any four types of rolling mills in detail.	4	2	4	5
5.d)	Explain wire drawing and tube drawing processes.	6	3	4	5
	Unit-V				
6. a)	What are the various forging defects? Discuss briefly.	6	3	5	1
6. b)	State the principle of explosive forming.	4	1	5	5
	OR				
6. c)	Describe backward extrusion process with a neat sketch and also mention its advantages and limitations	6	2	5	5
6.d)	Explain the process of Electro-magnetic forming with a neat sketch.	4	3	5	

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

MAHATMA GANDHI INSTITUTE OF TECHNOLOGY
(Autonomous)
B.Tech. III Semester End Examinations
(Model Question Paper)

MR-21

Course Title: Thermodynamics **Course Code: ME303PC**
Time: 3 hours Max. Marks : 70

Note: Answer ALL Questions
Part-A (10 x 2 = 20 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
1. a)	What do you understand by macroscopic and microscopic viewpoints?	2	1	1	1
1. b)	What do you understand by point function and path function?	2	1	1	1
	Unit-II				
1. c)	What is PMM-1? Why it is impossible?	2	2	2	1
1. d)	What is absolute thermodynamic temperature scale?	2	1	2	1
	Unit-III				
1. e)	Explain the term (a) Latent heat (b)sensible heat	2	1	3	1
1. f)	What is a pure substance?	2	1	3	1
	Unit-IV				
1. g)	Explain Dalton's law of partial pressure.	2	1	4	1
1. h)	Define relative humidity and specific humidity.	2	2	4	1
	Unit-V				
1. i)	Draw the P–V and T-S plots of Otto cycle and indicate all the processes.	2	2	5	1
1. j)	Draw the Rankine cycle in T-s coordinates.	2	2	5	1

Part-B (5 x 10=50 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
2. a)	Explain why the heat and work as path functions	5	1	1	1
2. b)	A mass of gas is compressed in a quasi-static process from 80 kPa, 0.1 m^3 to 0.4 MPa, 0.03 m^3 . Assuming that the pressure and volume are related by pv^n = constant, find the work done by the gas system.	5	2	1	2
	OR				
2. c)	Explain the working of constant volume gas thermometer with a neat sketch	5	2	1	1
2. d)	Define a new thermodynamic scale say degrees N, in which the freezing point and boiling point of water are 100^0N and 300^0N respectively. Correlate this temperature scale with centigrade scale	5	2	1	2
	Unit-II				
3. a)	What is steady flow energy equation? Apply it to a gas turbine?	5	2	2	1
3. b)	An air compressor is provided with a water jacket for cooling. A test indicates that compressor requires 180kJ of work per kg of air flow through the compressor while the enthalpy of the air increases from 73kJ per kg as it passes through the compressor. The enthalpy of the circulating water increase by 60kJ per kg of air. Calculate the heat transfer from the compressor to the surrounding.	5	3	2	2
	OR				
3. c)	Establish the equivalence of Kelvin- Planck and Clausius statements	5	2	2	1
3. d)	Two reversible heat engines A and B are arranged in series, A rejecting heat directly to B. Engine A receives 200 kJ at a temperature of 421°C from a hot source, while engine B is in communication with a cold sink at a temperature of 4.4°C. If the work output of A is twice that of B, find (i) The intermediate temperature between A and B (ii) The efficiency of each engine (iii) The heat rejected to the cold sink	5	3	2	4
	Unit-III				
4. a)	Explain P – T disgram of a pure substance	5	1	3	1
4. b)	A mass of wet steam at temperature 165^0C is expanded at constant quality 0.8 to pressure 3 bar. It is then heated at constant pressure to a degree of superheat 65^0C. Find the enthalpy and entropy changes during expansion and during heating. Draw the T – s and h – s diagrams.	5	3	3	2
	OR				
4. c)	What do you understand by triple point? Give the pressure and temperature of water at its triple point	5	2	3	2
4. d)	Steam initially at 0.4 Mpa, 300^0C is cooled at constant volume. (a) At what temperature will the steam become saturated vapour? (b) What is the quality at 90^0C?	5	3	3	4

	What is the heat transferred per kg of steam in cooling from 225^0C to 90^0C				
Unit-IV					
5. a)	Derive the expressions for the internal energy and specific heats for mixtures of ideal gases	5	2	4	1
5. b)	A mixture of ideal gases consists of 3 kg of nitrogen and 5 kg of carbon dioxide at a pressure of 300 kPa and a temperature of 200C. Find i) the mole fraction of each constituent, ii) the equivalent molecular weight of the mixture, iii) the equivalent gas constant of the mixture, iv) the partial pressures and partial volumes, v) volume and density of the mixture, vi) CP and CV of the mixture.	5	3	4	2
OR					
5. c)	Explain the importance of the psychometric with neat sketch	5	2	4	1
5. d)	Moist air at 1 atm. pressure has a dry bulb temperature of 32^0C and a wet bulb temperature of 26^0C. Calculate i) the partial pressure of water vapour, ii) humidity ratio, iii) relative humidity, iv) dew point temperature, v) density of dry air in the mixture, vi) density of water vapour in the mixture and vii) enthalpy of moist air using perfect gas law model and psychrometric equations.	5	3	4	2
Unit-V					
6. a)	Explain the working of reversed Brayton cycle.	5	2	5	1
6. b)	In a Diesel cycle, the compression ratio is 15. Compression begins at 0.1 MPa, 400C. The heat added is 1.675 MJ/kg. Find (i) the maximum temperature in the cycle, (ii) work done per kg of air (iii) the cycle efficiency (iv) the temperature at the end of the isentropic expansion (v) the cut-off ratio.	5	3	5	4
OR					
6. c)	An air standard Ericsson cycle has an ideal regenerator. Heat is supplied at 1000^0C and heat is rejected at 20^0C. If the heat added is 600 kJ/kg, find the compressor work, turbine work and cycle efficiency	5	3	5	2
6. d)	A refrigerator works on the carnot cycle in temperature between -70^0C and 270^0C. It makes 500kg of ice per hour at -50^0C from water at 140^0C. Find H.P required to drive the compressor and C.O.P. of the cycle. Take specific heat of ice as 2.1 kJ/kg-k and latent heat as 336kJ/kg?	5	3	5	4

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

MAHATMA GANDHI INSTITUTE OF TECHNOLOGY
(Autonomous)
B.Tech. III Semester End Examinations
(Model Question Paper)

MR-21

Course Title: Fluid Mechanics and Hydraulic Machines **Course Code: ME304PC**
Time: 3 hours Max. Marks: 70

Note: Answer ALL Questions
Part-A (10 x 2 = 20 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
1. a)	Write the principle of capillary raise and capillary fall	2	1	1	1,2
1. b)	Define total pressure and centre of pressure	2	1	1	1,2
	Unit-II				
1. c)	what are stream line, path line, stream tube and streak lines	2	1	2	1,2,3
1.d)	what is the purpose of pitot tube and explain the principle of it.	2	1	2	1,2,3
	Unit-III				
1. e)	Explain the laminar boundary layer over thin flat plate.	2	2	3	1,2
1.f)	Derive the diameter for an equivalent pipe	2	3	3	1,2
	Unit-IV				
1. g)	what is draft tube .list different types of draft tubes.	2	1	4	1,2
1.h)	What is specific speed of a turbine.	2	1	4	1,2
	Unit-V				
1. i)	what are the types of multistage centrifugal pumps	2	1	5	1,2
1.j)	why cavitation is formed in hydraulic machines	2	1	5	1,2,3

Part-B (5 x 10=50 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
2.a)	Explain how velocity changes in a flowing viscous fluid? Determine the intensity of shear of an oil having viscosity = 1.2 poise and is used for lubrication in the clearance between a 10 cm diameter shaft and its journal bearing. The clearance is 1.0 mm and shaft rotates at 200 r.p.m.	5	2	1	1,2,3
2.b)	What do you mean by single column manometers? How are they used for the measurement of pressure?	5	1	1	1,2
	OR				
2. c)	Explain how you would find the resultant pressure on a curved surface immersed in a liquid	5	2	1	1,2
2.d)	A rectangular plane surface is 2 m wide and 3 m deep. It lies in vertical plane in water. Find the total pressure and position of centre of pressure on the plane surface when its upper edge is horizontal and (a) coincides with water surface, (b) 2.5 m below the free water surface.	5	3	1	1,2,3
	Unit-II				
3. a)	Water flows through a pipe AB 1.2 m diameter at 3 m/s and then passes through a pipe BC 1.5 m diameter. At C, the pipe branches. Branch CD is 0.8 m in diameter and carries one-third of the flow in AB. The flow velocity in branch CE is 2.5 m/s. Find the volume rate of flow in AB, the velocity in BC, the velocity in CD and the diameter of CE	5	1	2	1,2,3
3. b)	Derive Bernoullis Equation from Eulers Equation of motion and list its assumptions.	5	3	2	1,2
	OR				
3. c)	Derive an equation for force exerted by the bend on the fluid of a bendpipe with neat sketch	5	3	2	1,2
3.d)	Find the discharge of water flowing through a pipe 30 cm diameter placed in an inclined position where a venturimeter is inserted, having a throat diameter of 15 cm. The difference of pressure between the main and throat is measured by a liquid of sp. gr. 0.6 in an inverted U- tube which gives a reading of 30 cm. He loss of head between the main and throat is 0.2 times the kinetic head of the pipe.	5	1	2	1,2,3

Unit-III					
4. a)	Explain boundary layer flow over a thin flat plate.	5	2	3	1,2
4. b)	Explain separation of boundary layer.	5	2	3	1,2
OR					
4. c)	Derive Darcy-Weisbach equation	5	3	3	1,2
4.d)	A horizontal pipe line 40 m long is connected to a water tank at one end and discharges freely into the atmosphere at other end. For the first 25 m of its length from the tank, the pipe is 150 mm diameter and its diameter is suddenly enlarged to 300 mm. The height of water level in the tank is 8 m above the centre of the pipe. Considering all the losses of head which occur, determine the rate of flow. Take f= .01 for both sections of the pipe.	5	5	3	1,2,3
Unit-IV					
5. a)	Draw velocity triangle diagram for a pelton wheel turbine and derive workdone per second and hydraulic efficiency of the turbine	5	3	4	1,2
5. b)	The following data is given for a Francis Turbine. Net head H= 60 m; speed N = 700 rpm; shaft power = 294.3 kW; η_o= 84% ; η_h = 93%; flow ratio = 0.20 ; breadth ratio n = 0.1; Outer diameter of the runner = 2 x inner diameter of runner. The thickness of vanes occupy 5% of circumferential area of the runner, velocity of flow is constant at inlet and outlet and discharge is radial at outlet. Calculate (i) Guide blade angle (ii) Runner vane angles at inlet and outlet (iii) Diameter of runner at inlet and outlet, and (iv) Width of wheel at inlet.	5	3	4	1,2,3
OR					
5. c)	A turbine is to operate umder a head of 25 m at 200 rpm. The discharge is 9 cumec. If the efficiency is 90%, calculate the performance of the turbine under a head of 20 metres.	5	3	4	1,2,3
5.d)	A turbine is to operate under a head of 25 m at 200 rpm. The discharge is 9 cumec. If the efficiency is 90%, determine : (i) Specific speed of the machine, (ii) Power generated, and (iii) Type of turbine.	5	5	4	1,2,3
Unit-V					
6. a)	Obtain an expression for the work done by impeller of a centrifugal pump on water per second per unit weight of water.	5	3	5	1,2,3
6. b)	Draw and discuss the operating characteristics of a centrifugal pump.	5	3	5	1,2
OR					
6. c)	What is a reciprocating pump? Describe the principle and working of a reciprocating pump with a neat sketch. Why is a reciprocating pump not coupled directly to the motor? Discuss the reason in detail.	5	1	5	1,2
6.d)	Differentiate : (i) Between a single-acting and double-acting reciprocating pump, (ii) Between a single cylinder and double cylinder reciprocating pump.	5	2	5	1,2

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

MAHATMA GANDHI INSTITUTE OF TECHNOLOGY
(Autonomous)
B.Tech. III Semester End Examinations
(Model Question Paper)

MR-21

Course Title: Constitution of India **Course Code: MC301HS**
Time: 3 hours Max. Marks : 70

Note: Answer ALL Questions
Part-A (10 x 2 = 20 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
1. a)	Define Constitution of India	1	1	1	6,8
1. b)	List the drafting committee of constitution of India	1	1	1	6,8
	Unit-II				
1. c)	What do you mean by fundamental duties in Indian constitution	1	1	2	6,8
1. d)	List the fundamental rights.	1	1	2	6,8
	Unit-III				
1. e)	List the classification of directive principles of state policy.	1	1	3	6,8
1. f)	Briefly write about directive principles	1	2	3	6,8
	Unit-IV				
1. g)	List out the three types of emergencies under Indian Constitution	1	1	4	6,8
1. h)	State the important amendments.	1	1	4	6,8
	Unit-V				
1. i)	What is Union Public service commission?	1	1	5	6,8
1. j)	Define Election commission of India.	1	1	5	6,8

Part-B (5 x 10=50 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
2. a)	Give detail account on the historical background of Indian Constitution.	5	1	1	6,8
2. b)	Define. Explain the importance of preamble in the implementation of constitution.	5	2	1	6,8
	OR				
2. c)	Describe the salient features of Indian Constitution.	5	3	1	6,8
2. d)	Discuss in detail the fundamental right to equality.	5	3	1	6,8
	Unit-II				
3. a)	Explain the scope of the right to life and personal liberty.	5	2	2	6,8
3. b)	Discuss in detail the fundamental duties of every citizen.	5	3	2	6,8
	OR				
3. c)	Explain the needs and importance of fundamental duties of an Indian Citizen.	5	2	2	6,8
3. d)	Explain fundamental right to certain freedom	5	2	2	6,8
	Unit-III				
4. a)	State the Directive Principles of State Policy and explain its significance.	5	1	3	6,8
4. b)	Distinguish between fundamental rights and directive principles of state policy.	5	5	3	6,8
	OR				
4. c)	Discuss the views of Gandhian Principles in Directive Principles of State Policy.	5	3	3	6,8
4. d)	State the importance of directive principles of state policy.	5	1	3	6,8
	Unit-IV				
5. a)	Explain the power of the parliament to amend the constitution referring to decided case	5	2	4	6,8
5. b)	Describe the procedure of amendment of the constitution.	5	2	4	6,8
	OR				
5. c)	Discuss in detail the federal structure and distribution of legislative and financial powers between the union and states.	5	3	4	6,8
5. d)	List out the effects of financial emergency.	5	1	4	6,8
	Unit-V				
6. a)	Classify the role of Local Government.	5	2	5	6,8
6. b)	Write shorts on finance commission of India	5	3	5	6,8
	OR				
6. c)	What are the important provisions relating to the Election Commission in the Indian Constitution	5	2	5	6,8
6. d)	List the important constitutional bodies and explain about election commission of India	5	1	5	6,8

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome