

MAHATMA GANDHI INSTITUTE OF TECHNOLOGY (Autonomous)

(Autonomous) B.Tech. III Semester End Examinations (Model Question Paper)

MR-21

Course Title: Surveying and Geomatics Time: 3 hours

Course Code: CE301PC

Max. Marks : 70

Note: Answer ALL Questions *Part-A* (10 x 2 = 20 *Marks*) Stem of the Question Μ L СО PO Q. No. Unit-I 1. a) Define Surveying. 2 1 1 1 Define Magnetic Declination and dip. 2 1.b) 1 1 1 Unit-II List the uses of contours. 1. c) 2 4 2 1 Explain about types of levelling staves. 2 2 2 1. d) 1 Unit-III 1. e) Summarize the fundamental lines of theodolite. 2 2 3 1.5 2 3 List the types of theodolites. 4 1. f) 1.5 Unit-IV Explain the Principles of Tacheometry. 2 3,5,12 1.g) 2 4 List the applications of GPS. 2 4 4 3.5.12 1.h) Unit-V List the different types of stereo plotting instruments. 2 1. i) 4 5 5,12 Explain about mosaics. 2 2 5 5,12 1. j) Part-B (5 x 10=50 Marks) Q. No. Stem of the Question Μ L CO PO Unit-I 2. a) Explain about classification of surveying. 5 1 6 1 The length of a line measured with a 20-meter chain was found to be 250 2. b) 1 1 4 1 meters. Find the true length of the line if the chain was 10cm too long. OR The following observations were taken with a compass in case of a closed traverse. Find the angles and correct the bearings for local attraction. Fore Bearing Back Bearing Line AB 51°30' 230°00' 7 1 2. c) 1 1 182°45' BC 2°30' CD 4°00' 284°45' DE 165°15' 345°45' 251°30' 71°30' EA 2 2. d) Explain the principle of compass. 3 1 1 Unit-II List the Characteristics of Contours. 4 4 2 1 3. a) From the chainages and offsets given below, find the area between the boundary, the first and last offsets and base line. 3. b) 2 1 6 1 Chainages (m) 20 0 20 25 34 42 52 Offsets, (m) 0 6.9 7.6 9.8 10.2 9.9 6.8 OR The following consecutive readings were taken with a dumpy level and a 4m staff on a continuously sloping ground on a straight line at a common interval of 30m. 0680, 1.455, 1.855, 2.880, 2.800, 3.380, 1.055, 1.860, 2.265, 3.540, (B) 0.835, 0.945, 1.530 and 2.445 The RL of B was 3. c) 7 1 2 1 1180.750m. Rule out a page of a level field book and enter above readings Find the RLs of the points by the rise and fall method, and also the gradient of the line joining the first and last points. 3 2 3. d) Distinguish between simple levelling and compound levelling. 4 1

				Unit-III						
4. a)	Explain briefly	about the	temporary ad	djustments of a	heodoli	te.	5	1	3	1,5
	Find the missin	g data in tl	ne given trav	verse below		_				
		Line	Length	Bear	ng					
		AB	217.5	120°	15'					
4. b)		BC	318.0	62°3	0'		5	1	3	1,5
		CD	375.0	322°	24'					
		DE	283.5	<u>335°</u>	18'	_				
		EA	Ŷ	<u> </u>						
				OR						1
4. c)	List the Method	ls of traver	sing and exp	plain anyone.			4	4	3	1,5
4. d)	Explain the pro method.	cedure for	the measure	ement of horizo	ntal ang	le by repetition	6	1	3	1,5
				Unit-IV				1	I	
5. a)	List the Errors i	n Total St	ation Survey	and explain in	detail.		5	4	4	3,5,12
5. b) 5. c)	Two straights Ac and BC meet at an inaccessible point C. They are to be connected by a simple curve of radius 12 chains. Two points P and Q are selected on AC and BC respectively and the following measurements are made Angle APQ=160°; Angle BQP=164°; PQ=86m. Chainage of P=71.546 chains. Take 1 chain=20m. Determine: a) The deflection angle of the curve. b) Tangent length. c) Length of the curve. d) Chainage of the end points of the curve. OR Form the elevation of the chimney from the following data Instrument Reading on Angle of Remarks Station B(m) elevation R.L of B.M B 1.222 10012'10012'				5	6	4	3,5,12 3,5,12		
5 1)	vertical plane. F	Find the RI	L of station $\begin{bmatrix} 1 \\ 0 \end{bmatrix}$	B.	imney a	re in the same	4	1		2512
5. a)	Explain Field P	rocedure f	or total stati	on survey.			4		4	3,3,12
	1			Unit-V						1
6. a)	Develop the exp	pression fo	or the tilt disj	placement.			6	3	5	5,12
6. b)	Distinguish betw	ween aeria	l triangulatio	on, radial triang	ulation		4	4	5	5,12
	T			OR			1	1	1	T
6. c)	Develop the exp	pression fo	or the relief of	lisplacement.			6	3	5	5,12
6. d)	Explain the vari	ious applic	ations of ph	otogrammetry.			4	1	5	5,12



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



(Model Question Paper)

Course Title: Engineering Geology

Time: 3 hours

Course Code: CE302PC

Max. Marks : 70

Note: Answer ALL Questions Part A (10 x 2 - 20 Marks)									
O.No.	Stem of the Ouestion	Μ	L	CO	PO				
	Unit-I	1							
1. a)	Define the terms Geology and Petrology.	2	1	1	1,6,7				
1. b)	Classify the geological agents causing weathering.	2	2	1	1,6,7				
	Unit-II								
1. c)	List the rock forming Minerals.	2	3	2	1,6,7				
1. d)	Compare the Dykes and sills.	2	2	2	1,6,7				
	Unit-III								
1. e)	Explain the parts of Folds with sketch.	2	2	3	1,5,7				
1. f)	Define cone of depression.	2	1	3	1,5,7				
	Unit-IV	1		r					
1. g)	Compare shield areas and seismic belts.	2	2	4	1,4				
1. h)	Define the term Rock mechanics.	2	1	4	1,4				
	Unit-V	-	<u>г.</u>						
1. i)	Classify the dams based on their structure.	2	4	5	1,4				
1. j)	Define Overbreak in tunnelling.	2	1	5	1,4				
	<i>Part-B</i> (5 x 10=50 Marks)								
Q. No.	Stem of the Question	Μ	L	CO	PO				
	Unit-I								
2. a)	Explain the case history of any Dam failure with geological reasons.	5	2	1	1,6,7				
2. b)	Illustrate the importance of petrology with reference to Geological	5	2	1	1,6,7				
,	structures.								
			•		1 6 7				
2. c)	Explain the importance of physical geology in Civil engineering.	5	2	1	1,6,7				
2. d)	List the advantages and disadvantages of weathering.	5	I	1	1,6,7				
	Unit-II		-		1 6 7				
3. a)	List the physical properties of minerals Bauxite and Quartz	5	1	2	1,6,7				
3.b)	Explain the different methods of study of minerals.	5	2	2	1,6,7				
		~	1		1 (7				
3. c)	What are the common structures of sedimentary rocks.	5	1	2	1,6,/				
3. d)	Classify the igneous rocks based on their formation.	5	4	2	1,6,/				
	Unit-III	~	1		1 5 7				
4. a)	List the types of Folds with neat sketch.	<u> </u>	1	3	1,5,7				
4. b)	Explain the importance of unconformities in civil engineering.	3	2	3	1,5,7				
(1 a)	UR Eventsin the importance of faults with reference to dome	5	2	2	157				
4. C)	Explain the importance of faults with reference to dams.	5	2	3	1,5,7				
4. d)	Identify the factors affecting groundwater movement.	3	3	5	1,3,7				
5 0)	Classify the factors coucing landelides	5	4	4	1.4				
5.a)	Explain the precautions to be considered for seismic resistant buildings	5	4	4	1,4				
5.0)	Explain the precations to be considered for seising resistant buildings.	5	Z	4	1,4				
	Explain the principle involved in the gravity method of geophysical								
5. c)	investigation	5	2	4	1,4				
5 d)	Summarize the tests considered for suitability of rocks for construction	5	2	4	14				
5. 4)	Init.V	5	-	-	±,¬'				
6 a)	Explain the suitable site conditions for dam construction	5	1	5	14				
6 h	What are the factors affecting the life of a reservoir	5	1	5	$14^{-1,7}$				
0.0)		5	1	5	1,7				
6 0	Compare the rock properties suitable for tunnel construction	5	2	5	14				
6 d)	List the types of dams based on their purpose	5	1	5	14				
0.0)	List the types of damb based on their purpose.	5		5	1,7				



MAHATMA GANDHI INSTITUTE OF TECHNOLOGY

MR-21

(Autonomous) B.Tech. III Semester End Examinations

(Model Question Paper)

Course Title: Strength Of Materials-I

Time: 3 hours

Course Code: CE303PC

Max. Marks : 70

	Note: Answer ALL Questions Part-4 (10 x 2 - 20 Marks)								
Q. No.	Stem of the Question	Μ	L	CO	РО				
	Unit-I								
1. a)	State Hooke's law and give its equation.	2	1	1	1,2				
1. b)	Draw stress-strain diagram for mild steel indicating all critical points.	2	1	1	1,2				
	Unit-II								
1. c)	Write a short note on point of contraflexure.	2	2	2	1,2				
1. d)	Sketch the bending moment diagram for a simply supported beam of length L carrying a point load W at its mid-span.	2	3	2	1,2				
	Unit-III								
1. e)	List out the assumptions made in theory of simple bending.	2	1	3	1,2				
1. f)	Explain the concept of complimentary shear in longitudinal section of a beam which is transversely loaded.	2	2	3	1,2				
	Unit-IV								
1. g)	Distinguish between real beam and conjugate beam.	2	2	4	1,2				
1. h)	State mohr's theorem.	2	2	4	1,2				
	Unit-V								
1. i)	List out the stresses set up in a thin cylinder subjected to internalfluid pressure	2	1	5	1,2				
1. j)	List out the assumptions on lame's theory	2	1	5	1,2				

Part-B (5 x 10=50 Marks)

Q. No.	Stem of the Question	M	Ĺ	CO	PO
	Unit-I				
2. a)	A tensile test was conducted on a mild steel bar. The following data was obtained from the test: Diameter of steel bar = 4cm; Gauge length of the bar = 25cm Load at elastic limit = 200kN; Extension at load of $160kN = 0.19mm$, Maximum load = 350kN; Determine: (a) Young's modulus (b) Yield strength (c) Ultimate Strength (d) Strain at the elastic limit	5	1	1	1,2
2. b)	A member ABCD is subjected to point loads P1, P2, P3 and P4 as shown in figure below. Calculate the force P2 necessary for equilibrium, if P1 = 45kN, P2 = 450kN and P4 = 130kN. Determine the total elongation of the member, assuming the modulus of elasticity to be 2.1×10^5 N/mm ² . B C P1 625 mm ² P2 B C P2 B C P3 C P3 C P4 F4 F4 F4 F4 F4 F4 F4 F4 F4 F4 F4 F4 F4	5	2	1	1,2
	OR				
2. c)	A bar of 100mm in diameter was subjected to tensile load of 70kN and the measured extension on 320mm gauge length was 0.115mm and change in diameter was 0.0034mm. Calculate the Poisson's ratio and three Moduli.	5	3	1	1,2
2. d)	Compute the strain energy in a steel bar ($E = 200$ GPa) of length 2.5 m and 20 mm diameter under a load of 45 kN. What is the resilience modulus of the bar, if the yield stress is 240 MPa?	5	2	1	1,2
	Unit-II				
3. a)	A simply supported beam having different loading as shown in figure.Sketch the SFD and BMD A B C D D C D R_A D R_D	5	3	2	1,2

OR3. c)A beam of length 10m is simply supported and carries point loads of 5kN cach at a distance of 3m and 7m from the left end and also a uniformly distributed load of 1kNm between the point loads. Sktech the S.F and B.M diagrams for the beam. A cantilever of length 6m carries two point loads 2KN and 3kN at a distance of 3m from the fixed end. Sktech the S.F and B.M diagrams for the cantilever. Total doad of 1kN work a length of 0m at a distance of 3m from the fixed end. Sktech the S.F and B.M diagrams for the cantilever.5221.24. a)and 6m from fixed end respectively. In addition to this the beam also carries a uniformly distributed load of 1kN work a length of 2m at a distance of 1m meth fixed end. Sktech the S.F and B.M diagrams for the cantilever.64331.24. b)Derive the bending equation for a beam. of 6 m. If the beam is subjected to central point load of 2k kN, find the maximum hending stress induced in the beam section.0R74. c)to a shear force F, is given by $r - F4$ 004231.24. d. $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ 4. d. $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ 4. d. $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ 5. a) $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ 6. d.431.2 $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ $\sqrt{1}$ 6. d.5241.2	3. b)	A cantilever of length 8m carries a uniformly distributed load of 4kN/m run over the whole span and a point load of 6 kN at a distance of 2m from the free end. Sketch the S.F and B.M diagrams for the cantilever.	5	3	2	1,2				
A beam of length 10m is simply supported and carries point loads of SN each at a 3. c) distributed load of 7m form the left end and also a nuinformly distributed load of SN And 3kN at a distance of 1m A vanitiever of length 6m carries two point loads 2N And 3kN at a distance of 3m from the fixed end respectively. In addition to this the beam also carries a uniformly distributed load of 1NNm over a length of 2m at a distance of 3m from the fixed end. Sketch the SI and B. M diagrams of the canallever. Unit-III2221,24. a)Derive the bending equation for a beam. A rectangular beam 60 mm wide and 150 mm deep is simply supported over a span den m is subjected to central point load of 12 kN, find the maximum bending stress induced in the beam section.64331,29Derive the bending equation for a beam. A rectangular beam 60 mm wide and 150 mm deep is simply supported over a span dending stress induced in the beam section.64331,24. c)Derive the shear stress at any point in the cross-section of a beam which is subjected to a shcar force F, is given by $r = F dx$ 1231,24. d)A T-beam having the cross section shown in figure projects 2 m from a wall as a cantilever beam and carries a uniformly distributed load of 8 kN/m. Determine the maximum tensile and compressive bending stresses.52241,25. a)A beam of uniform rectangular section 100mm width and 240mm deep is simply supported at its ends. It carries a uniformly distributed load of 9,125 kN/m run over the entire span of 4m. Find the deflection at the center if E-1,1k10/Nmm²5341,25. a)Dete		OR								
3. c) distance of 3m and 7m from the left end and also a uniformly distributed load of IKWn between the point loads. Stach the S.F. and B.M. diagrams for the beam. A cantilever of length 6m carries two point loads 2kN And 3kN at a distance of 1m and 6m from fixed end expectively. In addition to this the beam also carries a miformly distributed load of 1kN/m over a length of 2m at a distance of 3m from the fixed end. Sketch the S.F. and B.M. diagrams for the cancillover.5221.24. a)Derive the bending equation for a beam.64331.24. b)berlive the bending equation for a beam.64331.26. fm. If the beam is subjected to central point load of 12 kN, find the maximum of 6 m. If the beam section.0777Derive the shear stress at may point in the cross-section of a beam which is subjected to a shear force F, is given by $r = F \frac{dx}{2}$ 1.231.24. c)the asknowr for excess section shown in figure projects 2 m from a wall as a cantilever beam and carries a uniformly distributed load of 5 kN/m. Determine the maximum tensile and compressive heading stresses.5241.25. a)9. Determine the slope and deflection at free end of a cantilever beam of uniform rectangular bare of 4 m. Find the deflection at the center if E=1.1x10 ^N Nm ² 5341.2Out of uniform rectangular section 100m with and 240mm deep is simply supported bar of span of 4m. Find the deflection at the destler of a carrying point load W at its free end using moment area method.Out Unit-VOut Unit-VOu		A beam of length 10m is simply supported and carries point loads of 5kN each at a								
IkVm between the point loads. Sketch the S.F and B.M diagrams for the beam.A catilever of length (on carries two point loads 2KN and 3KN at a distance of 1 mad ofm fixed end respectively. In addition to this the beam also carries a unformly distributed load of 1KVm over a length of 2 m at a distance of 3m from the fixed end. Sketch the S.F and B.M diagrams for the cantilever	3. c)	distance of 3m and 7m from the left end and also a uniformly distributed load of	5	2	2	1,2				
A cantilever of length 6m carries two point loads 2kN And 3kN at a distance of 1m amiformly distributed load of 1kN/m over a length of 2m at a distance of 3m from the fixed end. Sketch the S.F and B.M diagrams for the cantilever.5221.24. a)Derive the bending equation for a beam.64331.24. b)Derive the bending equation for a beam.64331.2bending stress induced in the beam section.064231.2berive the shear stress at any point in the cross-section of a beam which is subjected a shear force F, is given by $r = F A^{a}$ 64231.24. c)berive the shear stress at any point in the cross-section of a beam which is subjected a shear force F, is given by $r = F A^{a}$ 6431.24. d)Image: the shear stress at any point in the cross-section of a beam which is subjected a shear force F, is given by $r = F A^{a}$ 6431.24. d)Image: the shear stress at any point in the cross-section shown in figure projects 2 m from a wall as a cantilever beam and carries a uniformly distributed load of 9.12 mm5241.25. a)Determine the slope and deflection at free end of a cantilever beam of length L carries a uniformly distributed load of 9.12 kN/m run over the entire span of 4m. Find the deflection at the center if E-1.1x10 ^N Nm ⁿ 5541.25. b)Determine the slope and deflection at free end of a cantilever beam of length L carrying point load V at its free end of a cantilever beam of length L earying point load	,	1kN/m between the point loads. Sketch the S.F and B.M diagrams for the beam.								
3. d)and ofm from fixed end respectively. In addition to this the beam also carries a If fixed end. Sketch the S.F and B.M diagrams for the cantilever.5221,24. a)Derive the bending equation for a beam.643331,24. b)of 6 m. If the beam is subjected to certral point load of 12 kN, find the maximum bending stress induced in the beam section.64331,2ORORUnit-IIIORUnit-IIIORORORUnit-INEOR <td c<="" td=""><td></td><td>A cantilever of length 6m carries two point loads 2kN And 3kN at a distance of 1m</td><td></td><td></td><td></td><td></td></td>	<td></td> <td>A cantilever of length 6m carries two point loads 2kN And 3kN at a distance of 1m</td> <td></td> <td></td> <td></td> <td></td>		A cantilever of length 6m carries two point loads 2kN And 3kN at a distance of 1m							
9.5 0 ft miformly distributed load of 1kNm over a length of 2 m at a distance of 3m from the solution of the cantilever. 5 2 1/2 Unit-III 4. a) Derive the bending equation for a beam. 6 4 3 3 1,2 bending stress induced in the beam escion. 6 6 4 3 3 1,2 OF Or creating ub ream 60 mm wide and 150 mm deep is simply supported over a span of 6 m. If the beam is subjected to central point load of 12 kN, find the maximum deep is simply supported to a shear force F, is given by $r = F^{A_p}$ 7 7	3 d)	and 6m from fixed end respectively. In addition to this the beam also carries a	5	2	2	1.2				
Inside and. Sketch the S.F. and B.M diagrams for the cantilever.Image: constraint of the const	5. u)	uniformly distributed load of 1kN/m over a length of 2m at a distance of 3m from the	5	2	2	1,2				
Unit-III4. a)Derive the bending equation for a beam.64331.2A rectangular beam 60 mm wide and 150 mm deep is simply supported over a span of 6 m. If the beam is subjected to central point load of 12 kN, find the maximum4331.2bending stress induced in the beam section.OR		fixed end. Sketch the S.F and B.M diagrams for the cantilever.								
4. a)Derive the bending equation for a beam.643A. Prectangular beam 60 mm wide and 150 mm deep is simply supported over a span of 6 m. If the beam is subjected to central point load of 12 kN, find the maximum bending stress induced in the beam section.64331,2ORColspan="4">OR4231,2A T-beam having the cross section shown in figure projects 2 m from a wall as a cantilever beam and carries a uniformly distributed load of 8 kN/m. Determine the maximum tensile and compressive bending stresses.4231,24. d)Unit-IVCurit-IVA T-beam having the cross section shown in figure projects 2 m from a wall as a cantilever beam and carries a uniformly distributed load of 8 kN/m. Determine the maximum tensile and compressive bending stresses.6431,2Unit-IVCurit-IVCurit-IVA beam of uniform rectangular section 100mm width and 240mm deep is simply supported at its ends.lt carries a uniformly distributed load of 9.125KN/m mu over the entire span of 4m. Find the deflection at the center if E=1.1x10 ⁵ N/mm ² 5241,2Curit-IVOROROut of 30 kN at a distance of 4 m from the left end Compute :) slope at the left ii) deflection at mid span iii maximum deflection and fice end of a cantilever beam of span 10Out of VOut of V <td <="" colspan="4" td=""><td></td><td>Unit-III</td><td></td><td></td><td></td><td></td></td>	<td></td> <td>Unit-III</td> <td></td> <td></td> <td></td> <td></td>					Unit-III				
A. b)A rectangular beam 60 mm wide and 150 mm deep is simply supported over a span of m. If the beam is subjected to central point load of 12 kN, find the maximum A4331,2ORColspan="4">OR4231,2A T-beam having the cross section shown in figure projects 2 m from a wall as a cantilever beam and carries a uniformly distributed load of 8 kN/m. Determine the maximum tensile and compressive bending stresses.4231,24. d)Unit-IVCurie VCurie VCurie VCurie VOne <td cols<="" td=""><td>4. a)</td><td>Derive the bending equation for a beam.</td><td>6</td><td>4</td><td>3</td><td></td></td>	<td>4. a)</td> <td>Derive the bending equation for a beam.</td> <td>6</td> <td>4</td> <td>3</td> <td></td>	4. a)	Derive the bending equation for a beam.	6	4	3				
4. b) of 6 m. If the beam is subjected to central point load of 12 kN, find the maximum 4 3 3 1.2 OR 4. c) Derive the shear stress at any point in the cross-section of a beam which is subjected to a shear force F, is given by $r = F^{\frac{1}{22}}$ 4 2 3 1.2 4. c) Derive the shear stress at any point in the cross-section of a beam which is subjected to a shear force F, is given by $r = F^{\frac{1}{22}}$ 4 2 3 1.2 4. d) A T-beam having the cross section shown in figure projects 2 m from a wall as a cantilever beam and carries a uniformly distributed load of 8 kN/m. Determine the maximum tensile and compressive bending stresses. 4 2 3 1.2 4. d) Image: transmemory traspoint toad stansmemory		A rectangular beam 60 mm wide and 150 mm deep is simply supported over a span								
bending stress induced in the beam section.OR4. c)Derive the shear stress at any point in the cross-section of a beam which is subjected to a shear force F, is given by $r = F^{\frac{N}{2}}$ 4231.2A T-beam having the cross section shown in figure projects 2 m from a wall as a cantilever beam and carries a uniformly distributed load of 8 kN/m. Determine the maximum tensile and compressive bending stresses.4231.24. d)Image: the stress of the stress of the stresses in the stress of	4. b)	of 6 m. If the beam is subjected to central point load of 12 kN, find the maximum	4	3	3	1,2				
OR4. c)Derive the shear stress at any point in the cross-section of a beam which is subjected to a shear force F, is given by $r = F \Delta r$ 4231,24. c)A T-beam having the cross section shown in figure projects 2 m from a wall as a cantilever beam and carries a uniformly distributed load of 8 kN/m. Determine the maximum tensile and compressive bending stresses.4231,24. d)Image: the stress at uniformly distributed load of 8 kN/m. Determine the maximum tensile and compressive bending stresses.6431,25. d)A beam of uniform rectangular section 100mm width and 240mm deep is simply supported at its ends.It carries a uniformly distributed load of 9.125KN/m run over the entire span of 4m. Find the deflection at the center if carrying point load W at its free end using moment area method.5241,25. e)A simply supported beam of span 10 m carries a point load of 30 kN at a distance of 4 m from the left end Compute :) slope at the left in judflection at mid span iii) maximum deflection and its location. Take $E = 2X10^5$ N/mm ² and $E = 0.210^6$ N/mm ² .5141,2Unit-VCurit-VCurit-VCurit-VOR		bending stress induced in the beam section.								
Derive the shear stress at any point in the cross-section of a beam which is subjected to a shear force F, is given by $r = F \frac{dx}{dx}$ 4231,2A T-beam having the cross section shown in figure projects 2 m from a wall as a cantilever beam and carries a uniformly distributed load of 8 kN/m. Determine the maximum tensile and compressive bending stresses.4231,24. d)Image: the transformation of the transfo		OR	r		1					
4. c)to a shear force F, is given by $r = F \Delta^2$ 4231,2A T-beam having the cross section shown in figure projects 2 m from a wall as a cattilever beam and carries a uniformly distributed load of 8 kN/m. Determine the maximum tensile and compressive bending stresses.aaaaa4. d)aaaaaaaaaaa4. d)aaa		Derive the shear stress at any point in the cross-section of a beam which is subjected								
A T-beam having the cross section shown in figure projects 2 m from a wall as a cantilever beam and carries a uniformly distributed load of 8 kN/m. Determine the maximum tensile and compressive bending stresses.Image: Comparison of the tension of the tensio	4. c)	to a shear force F, is given by $r = F \frac{Ay}{Ay}$	4	2	3	1,2				
A 1-beam having the cross section shown in figure projects 2 m from a wall as a cantilever beam and carries a uniformly distributed load of 8 kN/m. Determine the maximum tensile and compressive bending stresses.4. d) $I = 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1$										
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	6. d)	Explain in detail about stresses in compound thick cylinders	4	2	5	1,2				



MAHATMA GANDHI INSTITUTE OF TECHNOLOGY

(Autonomous)

B.Tech. III Semester End Examinations

(Model Question Paper)

Note: Answer <u>ALL</u> Questions

Course Title: Building Materials, Construction and Planning Time: 3 hours Course Code: CE304PC

Max. Marks : 70

	Part-A (10 x 2 = 20 Marks)				
Q. No.	Stem of the Question	Μ	L	CO	PO
	Unit-I		1		
1. a)	List the good qualities of stones	2	1	1	1
1.b)	What is the composition of brick earth?	2	1	1	1
1)	Unit-II	2	1		1
1. c)	Name the important ingredients of cement	2	1	2	1
1. 0)		2	1	Z	1
1 a)	What is damp proof course?	2	2	3	15
1.e) 1.f)	Classify the fire resistant materials	2	2	3	1,5
1.1)		2	2	5	1,5
1 σ)	Differentiate between lime and cement mortars	2	3	4	7.12
$\frac{1.g}{1 h}$	Classify the scaffoldings	2	4		7.12
1.11)	Unit-V	2		-	7,12
1 i)	Can you explain about floor area ratio	2	3	5	6.12
1. i)	Write the building bylaws	2	5	5	6.12
1. j/	Part-B (5 x 10=50 Marks)		U	5	0,12
O. No.	Stem of the Question	М	L	CO	PO
Q .1100	Unit-I			00	10
2. a)	Discuss the quarrying methods of stones and their structural requirements.	5	2	1	1
$\frac{2}{2}$ h)	Explain about characteristics of good bricks	5	2	1	1
2.0)	OR	5	2	1	-
2 a)	List out the parts in structure of timber and Evaluin the defeats in Timber	5	1	1	1
2.0)	List out the parts in structure of timber and Explain the defects in Timber.	5	1	1	1
2. d)	State the properties, uses and simple classification of glass.	5	1	1	1
	Unit-II			-	
3. a)	Discuss the steps involved in manufacture of cement in dry and wet process.	5	2	2	1
3. b)	Explain the applications of chemical admixtures in detail.	5	2	2	1
	OR			1	
3. c)	List out the laboratory tests on cement and explain them briefly.	5	1	2	1
3. d)	What are the admixtures and their uses in concrete?	5	2	2	1
	Unit-III				
4. a)	Write the parts of lintels and arches with neat sketches	5	1	3	1,5
4. b)	Define air-conditioning and explain any one method of air-conditioning.	5	2	3	1,5
	OR			•	
4. c)	Discuss about the essential requirements of good acoustic material.	5	2	3	1,5
4. d)	Differentiate between flat and curved roofs	5	4	3	1,5
,	Unit-IV			1	
5. a)	Differentiate between brick masonry and stone masonry.	5	4	4	7.12
5. b)	Discuss in detail the various types of finishing works in buildings.	5	3	4	7.12
/	OR				- 7
5. c)	Why shoring is needed and Explain the methods of shoring	5	4	4	7.12
5 d)	Discuss in detail underninning of structure and methods of underninning	5	3	4	7.12
5. u)	Init. V	5	5		1,12
	Unite short notes on: i) Building hus laws for size of rooms ii) Buo laws for alight				
6. a)	area regulations	5	3	5	6,12
6 b)	Give the steps to be followed in executing the building planning	5	Λ	5	6.12
0.0)		5	+	5	0,12
6 0	Explain how the minimum open spaces are not in building design?	5	5	5	6.12
(0, 0)	Left have the huilding are abasifed based on their stille 2	ر -	5	5	0,12
6. d)	Justify now the buildings are classified based on their utility?	5	6	5	6,12





MAHATMA GANDHI INSTITUTE OF TECHNOLOGY (Autonomous)

B.Tech. III Semester End Examinations (Model Question Paper)

Course Title: Fluid Mechanics Time: 3 hours Course Code: CE305PC

Max. Marks : 70

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

Q. No.	Stem of the Question	Μ	L	CO	РО			
	Unit-I							
1. a)	Discuss the concept of Specific gravity	2	2	1	1,2,6			
1. b)	Distinguish between simple manometers and differential manometers	2	4	1	1,2,6			
	Unit-II							
1. c)	Distinguish between rotational and irrotational flow	2	4	2	1,6			
1. d)	Define acceleration and write its types	2	1	2	1,6			
	Unit-III							
1. e)	Differentiate Venturimeter and orifice meter	2	4	3	1,2,6			
1. e) 1. f)	Write the equation of discharge through rectangular notch by considering	2	1	3	126			
1.1)	the end contractions and velocity of approach	2	1	$ \begin{array}{ c c c } 1 \\ 1 \\ $	1,2,0			
	Unit-IV				-			
1. g)	Distinguish between TEL and HGL with a sketch.	2	4	4	1,3,6			
1. h)	List various minor losses	2	1	4	1,3,6			
	Unit-V		-		-			
1. i)	Define boundary layer and write its types	2	1	5	1,2,6			
1. j)	Discuss the concept of Magnus effect	2	2	5	1,2,6			

Part-B (5 x 10=50 Marks)

Q. No.	Stem of the Question	Μ	L	CO	PO				
	Unit-I								
2. a)	Define capillarity and derive the equation for capillary rise / capillary depression	5	1	1	1,2,6				
2. b)	Determine the value of dynamic viscosity in N-sec/m ² when density of fluid flowing is 0.8 gm/cm ³ and Kinematic viscosity of flowing fluid is 3 X 10^{-4} stokes.	5	3	1	1,2,6				
	OR								
2. c)	Show that the equation for total pressure is $P = w^*A^*y$ when an inclined plane surface is immersed in a static fluid of specific weight 'w', where A is area of plane surface and y is centre of gravity distance of plane surface from free liquid surface.	5	1	1	1,2,6				
2. d)	Determine the values of specific weight, density and specific volume of a fluid when specific gravity of fluid is 0.78. Use any system of units of your choice.	5	3	1	1,2,6				
	Unit-II								
3. a)	Discuss the concepts of Stream line, path line, streak line and stream tube with sketches	5	2	2	1,6				
3. b)	Find the velocity vector and resultant velocity at point (2, 3) If velocity potential function (ϕ) is given by $\phi = x^2 + y^2$.	5	1	2	1,6				
	OR								
3. c)	Write the statement of momentum principle and derive momentum equation when flow take place on pipe bend	5	1	2	1,6				
3. d)	Determine loss of head and direction of flow when a pipe line is carrying oil of specific gravity of 0.8 and changes the diameter from 300mm at section (1) to 600mm at section (2). The section (2) is at a higher level of 5m compared to section (1). If the pressures at section (1) and (2) are 100 kN/m ² and 60 kN/m ² respectively and the discharge is 300 Litres /sec.	5	3	2	1,6				
	Unit-III								
4. a)	Explain the measurement of velocity of flow at any point using a pitot- tube with a sketch.	5	2	3	1,2,6				



4. b)	Find the depth of water over the rectangular weir, when water flows through a right-angled triangular weir first and then over a rectangular weir of 1m width. The discharge co-efficient of the triangular and rectangular weirs are 0.6 and 0.7 respectively and the depth of water over the triangular weir is 360mm.	5	1	3	1,2,6		
	OR						
4. c)	Define Orifice and derive the equation of discharge through small circular orifice.	5	1	3	1,2,6		
4. d)	Find the discharge of water through pipe when an orifice meter with orifice diameter 10cm is inserted in a pipe of 20 cm diameter. The pressure gauges fitted upstream and downstream of the orifice meter were given readings of 19.62 N/cm ² and 9.81 N/cm ² consider C _d value as 0.6.	5	1	3	1,2,6		
	Unit-IV						
5. a)	Demonstrate Reynolds Experiment with a neat sketch	5	3	4	1,3,6		
5. b)	Find the discharge in each pipe when two reservoirs, the difference of water levels of which is 15m are connected by two parallel pipes of diameter 75mm and 150mm and length 100m each. Take f=0.0075 for all pipes. Ignore minor losses	5	1	4	1,3,6		
	OR						
5. c)	Illustrate the phenomenon of water hammer in pipes and discuss its control measures	5	3	4	1,3,6		
5. d)	Determine the Pressure gradient and average velocity through pipe when a fluid of viscosity 8 poise and specific gravity 1.2 is flowing through circular pipe of diameter 100mm.The maximum shear stress at pipe wall is 210 N/m ² .	5	3	4	1,3,6		
	Unit-V		•				
6. a)	Explain the characteristics of boundary layer over a flat plate with a neat sketch.	5	2	5	1,2,6		
6. b)	Determine the drag force on one side of the plate, when 1.8m wide 5m long plate moves through stationary air of density 1.22 Kg/m ³ and viscosity $1.8x10^{-5}$ N-s/m ² at a velocity of 1.75 m/sec parallel to its length Assuming turbulent flow condition.	5	3	5	1,2,6		
	OR		T				
6. c)	Describe the separation of boundary layer with the help of a neat sketch.	5	2	5	1,2,6		
6. d)	Compute the displacement thickness, momentum thickness and value of shape factor for velocity distribution $u / U = (y / \delta)^{1/7}$	5	3	5	1,2,6		



MAHATMA GANDHI INSTITUTE OF TECHNOLOGY



(Autonomous) B.Tech. III Semester End Examinations

(Model Question Paper)

Note: Answer ALL Questions

Course Title: Constitution of India

Time: 3 hours

Course Code: MC301HS

Max. Marks : 70

-	Fart-A (10 x 2 = 20 Marks)		-		
Q. No.	Stem of the Question	Μ	L	CO	PO
	Unit-I			1.	
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	1
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	1
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	Μ	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				- 7 5
- `	Explain the power of the parliament to amend the constitution referring to decided	_	-		
5. a)	case	5	2	4	6,8
5. b)	Describe the procedure of amendment of the constitution.	5	2	4	6.8
/	OR				
- `	Discuss in detail the federal structure and distribution of legislative and financia	1 -			
5. c)	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
0.1 47	Init-V	U	-	·	0,0
6 a)	Classify the role of Local Government	5	2	5	6.8
$\frac{6. \text{ h}}{6. \text{ h}}$	Write shorts on finance commission of India	5	3	5	6.8
0.0)		5		5	0,0
	What are the important provisions relating to the Election Commission in the				
6. c)	Indian Constitution	5	2	5	6,8
	List the important constitutional bodies and explain about election commission of				+
6. d)	India	5	1	5	6,8
		1	1	1	1