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**MGM University**  
**Jawaharlal Nehru Engineering College, Chh. Sambhajinagar. Mid**  
**Semester Examination – March 2024**

**Program: BTech in Third Year Civil Engineering**  
**Course Name: Design of Concrete structure 1**  
**Marks: 20**

**Sem: VI**  
**SubjectCode:20UCI601D Max**  
**Duration: - 1 Hr.**

**Date: -04-03-2024**

**Instructions to the students**

1. All questions are compulsory
2. Illustrate your answers with neat sketches, diagrams etc. where ever necessary.
3. Necessary data is given in the respective questions. If such data is not given, it means that the knowledge of that data is a part of the examination.
4. Use IS456-2000 is permitted.

Q No		C.O	B.L	Marks
<b>Q1</b>	<b>Solve All</b>			<b>02 * 3</b>
	1. Explain with neat Sketches Types of singly reinforced Section.	CO1	L1	02
	2. Explain In which situations DRB beam recommend.	CO1	L1	02
	3. State and Explain limit state method in detail.	CO1	L1	02
<b>Q2</b>	<b>Solve any One of the following</b>			<b>6* 1</b>
(A)	Determine the area of Tensile reinforcement required for a RCC beam 230 x 600 mm subjected to BM 120 KN-M, Use M20 & Fe250 Grades.	CO2	L1	
(B)	Determine the Ultimate moment of resistance of beam 300x600 mm is Reinforced with 4-25 mm tor bars, use M25 grade concrete. Draw detailed reinforcement sketch.	CO2	L3	
(C)	Designs shear reinforcement for a beam 230 mm wide and 450 mm effective deep. The beam is subjected to Ultimate 180 KN. On entire span of 6.00 Mtr, Use 25 MM Dia 6 no's on tension side. Use M20 & Fe415 Grades.	CO3	L3	
<b>Q3</b>	<b>Solve any one of the following.</b>			<b>8* 1</b>
(A)	A flanged beam with flange width 1200 mm and rib breadth 250 mm, thickness of flange 150MM. over all depth of beam 675MM, is carrying a 25 m Tor 05 No's at bottom .Determine the moment of resistance of the section. Use $f_{ck}=20 \text{ N/MM}^2$ , $F_y=415 \text{ N/MM}^2$ .	CO3	L3	
(B)	Design "L" beam for shorter span use following data. Room size 4 m x 5 m, wt of slab transferred to beam inclusive of self wt of slab 8 KN/m <sup>2</sup> . Thickness slab is 125 mm. Use M20 & Fe 415 Grades.	CO3	L3	
(C)	Design a Cantilever reinforced beam carries Ultimate UDL of 60 KN/M. On entire span of 2.50 Mtr, also Design Shear reinforcement, Curtailment is necessary .Use M20 & Fe415 Grades.	CO3	L3	

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**Mid Semester Examination – March 2024**

**Course :** B. Tech. in Civil Engineering

**Semester :** VI

**Subject Name:** Quantity Survey and Estimate

**Subject Code:** 20UCI605D

**Max Marks:** 20    **Date:** 05 March 2024

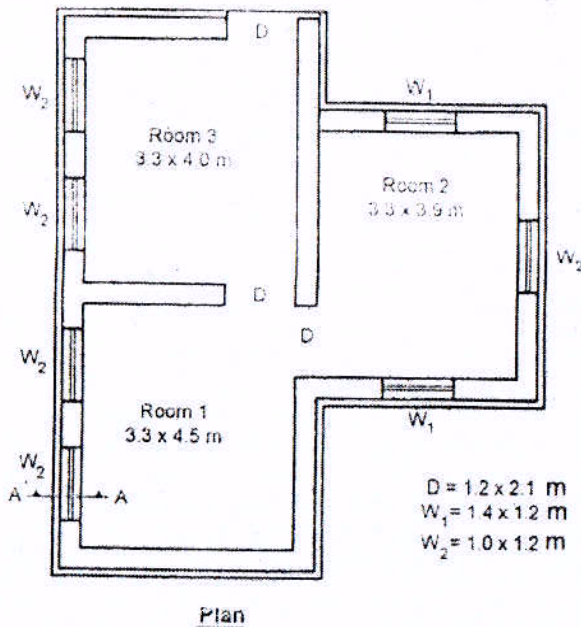
**Time:** 10:00 am to 11:00 am

**Duration:** 60 Minutes

**Instructions to the Students:**

1. Draw neat labeled sketches wherever necessary.
2. Assume suitable data, if necessary.

QUESTIONS		CO	BL	Marks
<b>Q.1</b>	<b>Attempt the following Questions -</b>			<b>6</b>
A	State the four principles of units.	CO1	L1	
B	List the classification of approximate estimate.	CO1	L1	
C	State mode of measurement - honey comb brickwork & collapsible gate.	CO1	L1	
D	State multiplying factor for painting of - Louvered door & Iron gill work.	CO1	L1	
E	Mention tolerance limit to measure- dimension, surface, cubic content, weight.	CO1	L1	
F	Draw the standard format of Abstract sheet.	CO1	L1	
<b>Q.2</b>	<b>Attempt any TWO of the following questions -</b>			<b>6</b>
A	Define specification and state any four necessities of preparing specification.	CO2	L2	
B	Explain the legal aspects of specification.	CO2	L2	
C	Draft detailed specification for PCC work in 1:1.5:3 proportion.	CO2	L2	
<b>Q.3</b>	<b>Attempt any ONE of the following questions -</b>			<b>8</b>
A	Refer the figure no. 1 and calculate the net quantity of - i. 12 mm thick internal plastering on walls, ceiling in CM 1:4 proportion ii. First class BBM in CM 1:6 proportion.	CO2	L3	
B	A RCC beam 230 mm wide, 330 mm deep and 4750 mm long is reinforced with 3 – 12 mm $\phi$ bent up. Also, 2 – 10 mm $\phi$ are provided at top. 6 mm $\phi$ stirrups are provided at 165 mm c/c. Overall cover is 25 mm. Prepare BBS.	CO2	L3	



D = 12 x 21 m  
W<sub>1</sub> = 14 x 12 m  
W<sub>2</sub> = 10 x 12 m

\* All dimensions are in meter

FIG. NO. 1

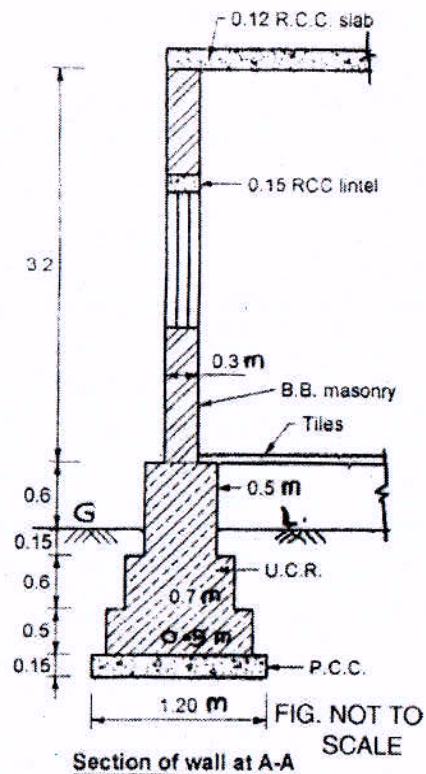


FIG. NOT TO SCALE



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**MGM UNIVERSITY, AURANGABAD**

**Mid Semester Examination – March 2024**

**Course: B. Tech in \_CIVIL ENGINEERING**

**Sem: VI**

**Subject Name: Highway & Airport Engineering**

**Subject Code: 20UCI603D**

**Max Marks:20**

**Date:-06/03/2024**

**Duration:- 1 Hr.**

**Instructions to the Students:**

**1. All Questions are compulsory.**

		Level BT	CO 20UCI603D	Marks
<b>Q. 1</b>	<b>Answer in one sentence (All Questions carry equal marks)</b>			<b>6</b>
<b>1</b>	The second twenty year road development plan was also known as - -----	<b>1</b>	<b>1</b>	
<b>2</b>	----- street Collects and distributes traffic from local streets and Provides access to arterial roads and sub arterial roads.	<b>1</b>	<b>1</b>	
<b>3</b>	----- highways run through the Length and Breadth of the country.	<b>1</b>	<b>1</b>	
<b>4</b>	-----committee studied the existing conditions of the roads at that time and submitted its report in the year 1928.	<b>1</b>	<b>1</b>	
<b>5</b>	The position or the layout of the central line of the highway on the ground is called the -----	<b>1</b>	<b>1</b>	
<b>6</b>	The government of India have launched ----- in year 2000 with the objective of providing road connectivity to all villages.	<b>1</b>	<b>1</b>	
<b>Q.2</b>	<b>Solve Any Two of the following.</b>			<b>3 X 2</b>
<b>(A)</b>	Enlist various tests carried out on soil, discuss any one in detail	<b>2</b>	<b>3</b>	
<b>(B)</b>	Discuss Impact test on Aggregates in detail	<b>2</b>	<b>3</b>	
<b>(C)</b>	Discuss the Shape test on Aggregates in detail	<b>2</b>	<b>3</b>	
<b>Q. 3</b>	<b>Solve Any One of the following.</b>			<b>8</b>
<b>(A)</b>	Derive the expression for stopping sight distance on plain road	<b>3</b>	<b>2</b>	
<b>(B)</b>	Calculate stopping sight distance to avoid head on collision of two cars running in opposite direction at a speed of 80 kmph and 85 kmph respectively. Assume suitable data as per IRC recommendation	<b>3</b>	<b>2</b>	
<b>*** End ***</b>				

MGM'S  
Jawaharlal Nehru Engineering College  
Civil Engineering Department  
Academic Year 2023-24  
Part – II

Course: TY-II Date: 7/03/2024  
Duration: -1 Hr.

Class Test- MID SEM

Subject Name: Foundation Engineering  
Max Marks: 20

<b>Instructions to the Students:</b>				
1. Illustrate your answers with neat sketches, diagrams etc. where ever necessary. 2. ALL Question are compulsory				
		(CO)	(Level)	Marks
Q.1	Solve any three from following. a) Explain elastic and consolidation settlements. b) Explain the terms disturbed and undisturbed sample. c) Explain Effect water table on Bearing Capacity. d) Explain Meyerhof's analysis of bearing capacity.	CO1 CO2 CO2 CO3	L1 L1 L2 L2	06
Q.2	a) Determine safe bearing capacity for a footing 2mx2m resting on c- $\phi$ soil at depth of 1.6m below ground surface. The unit weight of soil is 17 KN/m <sup>2</sup> , Cohesion = 15 KN/m <sup>2</sup> and $\phi = 25^\circ$ . (for $\phi = 25^\circ$ , $N_c = 25.1$ , $N_q = 12.7$ and $N_\gamma = 9.7$ ) <b>OR</b> b) Explain electric resistivity method in detail with diagram.	CO2 CO1	L3 L2	06
Q.3	a) Explain the assumptions and limitation of Terzaghi's Bearing capacity analysis. <b>OR</b> b) Drive Terzaghi's bearing capacity equation for strip footing.	CO3 CO2	L2 L3	8

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MGM University  
Jawaharlal Nehru Engineering College, AurangabadMid  
Semester Examination -2024

Program: B. Tech in Third Year Civil Engineering  
Course Name: Environmental Engineering-II  
Marks: 20

Sem: VI  
Subject Code: 20UCI602DMax  
Duration: - 1 Hr.

Date: - 08/03/2024

**Instructions to the students**

1. All questions are compulsory
2. Illustrate your answers with neat sketches, diagrams etc. where ever necessary.
- 3 Necessary data is given in the respective questions. If such data is not given, it means that the knowledge of that data is a part of the examination

		C.O	B.L	Marks
<b>Q 1</b>	<b>Solve</b>			
	1 What is BOD?			06
	2 What is the Function of Skimming Tank?	CO 1	L1	01
	3 What is Overflow rate for Coagulation sedimentation?	CO 1	L2	01
	4.Convert 17.5 MLD into Unit M <sup>3</sup> /hrs	CO 1	L1	01
	5 What is the permissible limit for BOD when disposal on land .	CO 1	L1	01
	6 Write formula for HRT.	CO 1	L2	01
<b>Q 2</b>	<b>Solve any two of the following</b>			3 * 2
(A)	What do you understand by unit operation and processes? What is its importance in water and waste water treatment? Elaborate various types of unit operations used for waste water	CO 2	L1	03
(B)	Draw flow diagram for wastewater treatment plant with their functions.	CO 2	L2	03
(C)	Explain in detailed self cleaning Velocity in sewer	CO 2	L2	03
<b>Q 3</b>	<b>Solve any one of the following.</b>			08
(A)	Design a grit chamber for a maximum wastewater flow of 8000m <sup>3</sup> /day, to remove particles up to of 0.2mm dia.having specific gravity of 2.65. The settling velocities of these practicles is found to range from 0.018 to 0.022m/sec.maintain a constant flow through velocity of 0.3 m/sec through the provision of a proportional flow weir	CO 3	L3	08
(B)	Determine design discharge for combined system having population of 60000 with the rate of water supply of 150Lpcd.The catchment area is 100 hector and avg.coefficient of run-off is 0.60 the time of concentration for the design rainfall is 30min. and relation between intensity of rainfall and duration is $I = 1000/(t + 20)$ .	CO 3	L3	08

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**MGM UNIVERSITY**  
**JAWAHARLAL NEHRU ENGINEERING COLLEGE**  
**DEPARTMENT OF CIVIL ENGINEERING**

**B. TECH. Civil Engineering (2021-2025)**  
**COURSE: Geospatial Data Analysis and Applications**  
**SEMESTER: VI**

**Mid Semester Examination**  
**Max Marks: 20**  
**Time: 1 hr**

Note:

- (a) Write clearly and legibly.
- (b) Write all the answers to a question together.
- (c) All questions carry equal marks

		CO	B. L.	Marks
Q1.	Answer all of the following:			
	a) A photogram is _____.	CO2	1	1
	b) GIS means: (i) Geographic Information Science (ii) Geographic Information Systems (iii) Geological Information Science (iv) Geoinformatics Information Systems	CO2	1	1
	c) A good digital photograph requires (i) _____, (ii) _____, and (iii) focal length, as inputs.	CO2	1	2
	d) Stefan-Boltzmann law tells us about _____.	CO1	1	1
Q2.	An open channel has to be carved out in an undulating terrain at Gandheli, between two points A and B. What kind of data do we need to compute the best path of the open channel?	CO2	3	5
Q3.	Establish the mathematical relationship between image coordinates $(x_i, y_i)$ and the corresponding Earth coordinates $(X_i, Y_i)$ for a-linear model for georeferencing. The following are the steps:	CO1	3	
	a. Write the linear model equations for the Earth (X, Y) coordinates.			1
	b. Write the matrix form for all the coordinate pairs.			1
	c. Derive the solution in the matrix form			3
Q4.	Answer any one question:	CO2	3	5
	a. The scale of an aerial photograph is 1cm = 100m. The photograph size is 25cm×25cm. Determine the number of photographs required to cover an area of 9 km × 14.5km, if the longitudinal lap is 60% and the side lap is 30%.			
	b. A section line AB appears to be 9.25cm on a photograph where the focal length is 16cm. On a map of 1:40000, the length of the line is 2.24cm. The terrain has an average elevation of 190m above mean sea level. Calculate the flying altitude of the aircraft above mean sea level, when the photo was taken.			



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**MGM University**

**Mid Semester Examination – March 2023**

**Course : B. Tech in Civil Engineering**

**Semester : VI**

**Subject Name:- Engineering Management: Process and People**

**Subject Code: 20UCI606E**

**Max Marks: 20**

**Date: 09 March 2024**

**Time: 10.00to 11.00am**

**Duration: 1 hr**

**Instructions to the Students:**

1. Draw neat labeled sketches wherever necessary.
2. Figures to the right indicate full marks.

QUESTIONS		CO	BT	Marks
<b>Q. 1</b>	<b>Attempt any Four of the following questions</b>		<b>L</b>	
A	Enlist the benefits of scientific Management.	CO 1	L 2	5
B	Explain the elements of scientific Management.	CO 1	L 2	5
C	Explain Line and staff Organization.	CO 2	L 2	5
D	Explain controlling	CO 2	L 2	5
E	Write Note on Steps in decision making	CO 3	L 2	5
F	Explain the decision under certainty.	CO 3	L 2	5

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**MGM University**

**Mid Semester Examination – March 2023**

**Course : B. Tech in Civil Engineering**

**Semester : VI**

**Subject Name:- Engineering Management: Process and People**

**Subject Code: 20UCI606E**

**Max Marks: 20**

**Date: 09 March 2024**

**Time: 10.00to 11.00am**

**Duration: 1 hr**

**Instructions to the Students:**

1. Draw neat labeled sketches wherever necessary.
2. Figures to the right indicate full marks.

QUESTIONS		CO	BT	Marks
<b>Q. 1</b>	<b>Attempt any Four of the following questions</b>		<b>L</b>	
A	Enlist the benefits of scientific Management.	CO 1	L 2	5
B	Explain the elements of scientific Management.	CO 1	L 2	5
C	Explain Line and staff Organization.	CO 2	L 2	5
D	Explain controlling.	CO 2	L 2	5
E	Write Note on Steps in decision making	CO 3	L 2	5
F	Explain the decision under certainty.	CO 3	L 2	5

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**Instructions to the Students:**

1. Draw neat labeled sketches wherever necessary. 2. Figures to Right Indicate full Marks.

	QUESTIONS	CO	BL	Marks
<b>Q. 1</b>	<b>Attempt following Questions (6 Marks)</b>			<b>6</b>
A	List the various earthwork equipments.	CO1	C1	
B	Define cycle time.	CO1	C2	
C	State the use of Jack hammer.	CO2	C1	
D	State the use of Sheep foot roller.	CO2	C1	
E	Define RMC.	CO3	C2	
F	Define Mixing drum.	CO3	C2	
<b>Q.2</b>	<b>Solve ANY TWO of the following.</b>			<b>6</b>
A	Explain the construction and working of site accessibility and services.	CO2	C1	
B	State necessity and points observed for dewatering of excavation trenches.	CO2	C1	
C	Explain construction and working of a Power shovel with a neat sketch.	CO2	C2	
<b>Q. 3</b>	<b>Solve ANY ONE of the following.</b>			<b>8</b>
A	Explain the construction and working of RMC plant with a neat sketch.	CO3	C2	
B	Differentiate between RMC and Manual mixing of concrete.	CO3	C2	

**Instructions to the Students:**

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<b>Q. 1</b>	<b>Attempt following Questions (6 Marks)</b>			<b>6</b>
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B	Define cycle time.	CO1	C2	
C	State the use of Jack hammer.	CO2	C1	
D	State the use of Sheep foot roller.	CO2	C1	
E	Define RMC.	CO3	C2	
F	Define Mixing drum.	CO3	C2	
<b>Q.2</b>	<b>Solve ANY TWO of the following.</b>			<b>6</b>
A	Explain the construction and working of site accessibility and services.	CO2	C1	
B	State necessity and points observed for dewatering of excavation trenches.	CO2	C1	
C	Explain construction and working of a Power shovel with a neat sketch.	CO2	C2	
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