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<b>R-17</b>
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**Code: 7G689**

IV B.Tech. II Semester Regular & Supplementary Examinations June 2022

**Remote Sensing and GIS Applications**

( Civil Engineering )

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit ( 5x14 = 70 Marks )

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Marks	CO	Blooms Level
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**UNIT-I**

- |    |    |  |    |     |    |
|----|----|--|----|-----|----|
| 1. | a) | Explain the basic concepts of aerial Photography | 7M | CO1 | L1 |
|    | b) | Explain the types of stereoscopy                 | 7M | CO1 | L1 |

**OR**

- |    |    |  |    |     |    |
|----|----|--|----|-----|----|
| 2. | a) | Explain the Parallax measurements for height | 7M | CO1 | L2 |
|    | b) | Discuss about the photomaps and mosaics.     | 7M | CO1 | L1 |

**UNIT-II**

- |    |    |   |    |     |    |
|----|----|---|----|-----|----|
| 3. | a) | Explain the advantages and limitations of remote sensing. | 7M | CO2 | L1 |
|    | b) | Discuss the elements involved in remote sensing.          | 7M | CO2 | L1 |

**OR**

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|----|----|--|----|-----|----|
| 4. | a) | Explain the energy interactions with atmosphere. | 7M | CO2 | L2 |
|    | b) | Explain the types of sensors in remote sensing.  | 7M | CO2 | L1 |

**UNIT-III**

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|----|----|--|----|-----|----|
| 5. | a) | What is GIS? Explain the components of GIS | 7M | CO3 | L1 |
|    | b) | Explain the fundamental operations of GIS  | 7M | CO3 | L1 |

**OR**

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|----|----|---|----|-----|----|
| 6. | a) | Explain the Vector data and Raster data | 7M | CO3 | L1 |
|    | b) | Discuss the following                   |    |     |    |
|    |    | i) Digitizing      ii) File Management  | 7M | CO3 | L1 |

**UNIT-IV**

- |    |    |   |    |     |    |
|----|----|---|----|-----|----|
| 7. | a) | Explain in brief Visual Analysis Methods in GIS | 7M | CO4 | L2 |
|    | b) | Explain the methods of data storage in GIS.     | 7M | CO4 | L1 |

**OR**

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|----|----|---|----|-----|----|
| 8. | a) | Explain the overview of the data manipulation and analysis.                   | 7M | CO4 | L1 |
|    | b) | Discuss in brief about integrated analysis of the spatial and attribute data. | 7M | CO4 | L2 |

**UNIT-V**

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|----|----|--|----|-----|----|
| 9. | a) | Explain about the runoff relations and runoff potential indices of watersheds. | 7M | CO5 | L2 |
|    | b) | Discuss the role of remote sensing and GIS in watershed management.            | 7M | CO5 | L1 |

**OR**

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|-----|----|---|----|-----|----|
| 10. | a) | Explain briefly about identification of sites for artificial recharge structures. | 7M | CO5 | L1 |
|     | b) | Give a brief note on inland water quality survey and management.                  | 7M | CO5 | L1 |

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Hall Ticket Number :										
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<b>R-17</b>
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**Code: 7G685**

IV B.Tech. II Semester Regular & Supplementary Examinations June 2022

**Construction Planning and Project Management**

( Civil Engineering )

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit ( 5x14 = 70 Marks )

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	Marks	CO	Blooms Level
<b>UNIT-I</b>			
1. Compare the advantages and disadvantages of Concrete floor and Terrazzo floor.	14M	CO2	L5
<b>OR</b>			
2. Explain any three types of stair cases with neat sketches.	14M	CO4	L5
<b>UNIT-II</b>			
3. Write short notes on the followings.			
a). Damp proofing.	3M		
b). water proofing.	5M		
c). Termite proofing.	3M		
d). Fire proofing.	3M	CO2	L1
<b>OR</b>			
4. List out the materials used for plastering. Also explain the methods of plastering.	14M	CO1	L1
<b>UNIT-III</b>			
5. Describe the objectives of material management. Also explain the functions of material management departments.	14M	CO3	L3
<b>OR</b>			
6. Explain the factors affecting cost owning and operating various equipment's.	14M	CO3	L3
<b>UNIT-IV</b>			
7. Write short notes on the followings.			
a). Project planning.	4M		
b). Scheduling.	5M	CO2	
c). Controlling.	5M		L1
<b>OR</b>			
8. Explain the types of Organization.	14M	CO2	L5
<b>UNIT-V</b>			
9. Write short notes on the followings.			
a). Event.	5M		
b). Activity.	5M		
c). Dummy.	4M	CO2	L1
<b>OR</b>			
10. Describe all the components of CPM process.	14M	CO2	L3

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Hall Ticket Number :

**R-17**

**Code: 7G682**

IV B.Tech. II Semester Regular & Supplementary Examinations June 2022

**Green Buildings**

( Civil Engineering )

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit ( 5x14 = 70 Marks )

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Marks CO Blooms Level

**UNIT-I**

1. a) List the green building Materials and explain their uses? 7M CO1 L1  
b) Discuss the Important Sustainable features for green building? 7M CO1 L2

**OR**

2. a) Explain, what are the equipment's used to construction of green building in India? 10M CO1 L2  
b) List the short comings of green buildings 4M CO1 L1

**UNIT-II**

3. a) Explain the Benefits Experienced in Green Buildings 7M CO2 L2  
b) Explain in detail about the Green Building Features? 7M CO2 L2

**OR**

4. a) Discuss about the Opportunities of Green Building? 7M CO2 L2  
b) Describe the green building rating system in India 7M CO2 L2

**UNIT-III**

5. a) Discuss the Maximizing the System Efficiency of a green building. 7M CO3 L2  
b) Explain the use of renewable energy sources of green building? 7M CO3 L3

**OR**

6. Explain in detail about Eco-friendly captive power generation for factory 14M CO3 L2

**UNIT-IV**

7. Explain about the role of HVAC system design in green building? 14M CO4 L2

**OR**

8. a) Discuss about the Design philosophy of a green building 7M CO4 L2  
b) Write a short note on Design interventions of a green building. 7M CO4 L1

**UNIT-V**

9. a) Explain how to reduce the waste during construction of a building 7M CO5 L2  
b) List the Reasons for poor IAQ 7M CO5 L1

**OR**

10. Explain the Minimum fresh air requirements to avoid use of asbestos in the building 14M CO5 L2

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Hall Ticket Number :

**R-17**

**Code: 7G688**

IV B.Tech. II Semester Regular & Supplementary Examinations June 2022

**Ground Water Development and Management**

( Civil Engineering )

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit ( 5x14 = 70 Marks )

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	Marks	CO	Blooms Level
<b>UNIT-I</b>			
1. a) With a neat sketch, explain the vertical distribution of Groundwater.	8M	1	L1
b) Explain the groundwater in hydrological cycle with labeled diagram.	6M	1	L1
<b>OR</b>			
2. a) Explain Darcy's law governing Groundwater movement. Discuss it's limitations and validity.	8M	1	L1
b) Describe the tracer method of determination of Coefficient of Permeability.	6M	1	L1
<b>UNIT-II</b>			
3. a) Illustrate the assumptions and limitations of Dupit's theory.	6M	2	L2
b) Explain Cooper-Jacob method to determine aquifer constants S & T for unsteady radial flow towards well.	8M	2	L2
<b>OR</b>			
4. a) A well of 0.5m diameter penetrate fully into a Confined aquifer of thickness 20m & Hydraulic conductivity $8.2 \times 10^{-4}$ m/s. What is the maximum yield expected from this well, if the drawdown in the well is not to exceed 3M. The radius of influence may be taken as 260m.	8M	2	L2
b) Explain Thesis method to determine Aquifer constants.	6M	2	L2
<b>UNIT-III</b>			
5. a) Explain Wenner and Schlumberger method of groundwater exploration.	10M	3	L3
b) Write a note on Sonic logging.	4M	3	L3
<b>OR</b>			
6. a) What is Groundwater exploration? Explain the necessity of Groundwater exploration.	7M	3	L3
b) Explain the role of borehole data in Groundwater exploration.	7M	3	L3
<b>UNIT-IV</b>			
7. a) Explain the concept of Artificial Recharge.	6M	4	L4
b) Describe major objectives and benefits of Artificial Recharge.	8M	4	L4
<b>OR</b>			
8. a) Enumerate different Subsurface practice of Artificial Recharge.	6M	4	L4
b) With sketch, explain Ditches and flooding type of Artificial Recharge.	8M	4	L4
<b>UNIT-V</b>			
9. a) What is Sea Water intrusion? Discuss causes for Sea Water intrusion	6M	5	L4
b) Discuss the methods of controlling Sea Water intrusion	8M	5	L4
<b>OR</b>			
10. a) What is Conjunctive use of Water? What are the benefits from Conjunctive use	7M	5	L4
b) Explain abatement of Sea Water intrusion	7M	5	L4

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Hall Ticket Number : 

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<b>R-17</b>
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**Code: 7G683**

IV B.Tech. II Semester Regular &amp; Supplementary Examinations June 2022

**Prestressed Concrete**

( Civil Engineering )

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit ( 5x14 = 70 Marks )

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	Marks	CO	Blooms Level
<b>UNIT-I</b>			
1. a) Explain with sketches Magnell's system of post tensioning?	8M	01	01
b) Discuss why high grade concrete and high strength steel are basic requirements for a PSC member	6M	01	01
<b>OR</b>			
2. a) Explain principles of pre-stressing pretensioning and post tensioning	7M	01	01
b) Discuss the analysis of stresses at anchorage by Magnel's method.	7M	02	01
<b>UNIT-II</b>			
3. A pretensioned beam, 200 mm wide and 300 mm deep, is prestressed by 10 wires of 7 mm diameter initially stressed to 1200 N/mm <sup>2</sup> , with their centroids located 100 mm from the soffit. Find the maximum stress in concrete immediately after transfer, allowing only for elastic shortening of concrete. If the concrete undergoes a further shortening due to creep and shrinkage while there is a relaxation of five percent of steel stress, estimate the final percentage loss of stress in the wires using the Indian standard code IS: 1343 regulations, and the following data: Es=210 kN/mm <sup>2</sup> ; Ec = 5700 kN/mm <sup>2</sup> ; fcu = 42 kN/mm <sup>2</sup> ; Creep coefficient ( ) = 1.6; Total residual shrinkage strain = 3 x 10 <sup>-4</sup> .	14M	03	03
<b>OR</b>			
4. a) What are the different types of losses of prestress	4M	01	01
b) A pre tensioned beam 400 mm wide and 600 mm deep is pre stressed by 10 wires each of 10 mm diameter initially stressed to 1000 N/mm <sup>2</sup> with their centroids located 100 mm from the soffit. Estimate the final percentage loss of stress due to elastic deformation, creep, shrinkage and relaxation using the following data: Relaxation of steel stress = 90 N/mm <sup>2</sup> Es =210 kN/mm <sup>2</sup> , EC = 35 kN/mm <sup>2</sup> Creep coefficient = 1.5 Residual shrinkage strain = 2 x 10 <sup>-4</sup>	10M	03	03
<b>UNIT-III</b>			
5. a) A rectangular concrete beam 100mm wide & 250mm deep spanning over 8m is prestressed by a straight cable carrying a effective prestressing force of 250 KN located at an eccentricity of 40mm. The beam supports a live load of 12 kN/m. Find the magnitude of prestressing force with an eccentricity of 40mm which can balance the stresses due to dead load & live load at the soffit of the centre span section	7M	03	03
b) A post tensioned beam of 15m of rectangular cross section, 250 mm wide and 475 mm deep, is 10 m long and carries an applied load of 10kN/m.UDL on the beam. The effective prestressing force in the cable is 650 kN. The cable is Parabolic with zero eccentricity at the supports and a maximum eccentricity of 150 mm at the center of span. Calculate the principal stresses at the supports	7M	04	03

**OR**

6. The cross section of a pre stressed concrete beam used over a span of 10m is 200mm wide and 400mm deep. The initial stress in the tendons located at a constant eccentricity of 50mm is  $1000\text{N/mm}^2$ . Find the percentage increase in stress in the wires when the beam supports a live load of  $10\text{kN/m}$ . The density of concrete is  $24\text{kN/m}^3$ . Modulus of elasticity of concrete =  $36\text{ N/mm}^2$ , Modulus of elasticity of steel =  $210\text{kN/mm}^2$
- 14M 04 03

## UNIT-IV

7. A Prestressed concrete beam of rectangular cross section 400mm x 800mm deep is Prestressed by 2 post tension cables area  $500\text{mm}^2$  each initially. Stressed to  $1500\text{N/mm}^2$ . The span of the beam is 8 m, if  $f_{ck} = 30\text{ N/mm}^2$ . Estimate the shear resistance of support section.
- 14M 04 03

OR

8. Write the design procedure of rectangular section according to IS code 1343.
- 14M 04 03

## UNIT-V

9. a) Describe Magnels method for end block design. 7M 01 01  
 b) Define End block. What is bursting force and end zone reinforcement? 7M 01 01

OR

10. a) The end block of prestressed concrete is of size 120mm x 1300mm, an effective pre stressing force of 300 kN is transmitted. The distribution plate is of size 150mm wide and 150mm deep concentrically loaded at the ends. Calculate the maximum tensile force and bursting tension. Use Guyon's method. 8M 03 03  
 b) Discuss the stress distribution in end block 6M 04 02

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