6TH SEM./CIVIL / 2025(S)

TH4 Concrete Technology

Full Marks: 80 **Time- 3 Hrs**

Answer any five Questions including Q No.1 & 2
Figures in the right-hand margin indicates marks

1. Answer **All** questions 2 x 10
   a. What is efflorescence?
   b. Define workability of concrete.
   c. What do you mean by hydration of cement?
   d. Define flexural strength of concrete.
   e. What is M20 grade of concrete?
   f. Why curing is essential for concrete work?
   g. What is creep in concrete?
   h. Define fineness modulus.
   i. What is stripping of formwork?
   j. What is the purpose of using a retarder in concrete?

2. Answer **Any Six** Questions 5 x 6
   a. Explain in brief about compacting factor test of concrete in laboratory.
   b. Write advantages and disadvantages of concrete.
   c. Write down the functions of admixture.
   d. Write down the difference between Design Mix concrete and Nominal Mix concrete.
   e. Write down different test conducted on cement. Explain about soundness test of cement.
   f. Describe causes and effects of corrosion of steel reinforcement in RCC works.
   g What are the quality requirements of water used for mixing and curing of concrete?

Answer **Any Three** Questions

3. Describe briefly about classification of aggregates. 10
4. Mention the different process of batching and mixing of materials in production of concrete. 10
5. a. What do you mean by curing of concrete? Write different methods of curing. Explain about any one. 1+2+2
   b. Describe briefly about accelerating admixture. 5
6. Explain how cracks are repaired in concrete. 10
7. Write Short notes on the following 2.5 x 4
   (a) Ready Mixed Concrete
   (b) High Performance Concrete
   (c) Silicafume Concrete
   (d) Shotcrete concrete

6TH SEM./ CIVIL ENGG. / 2025(S)

TH1 Land Survey-II

Full Marks: 80 **Time- 3 Hrs**

Answer any five Questions including Q No.1 & 2
Figures in the right-hand margin indicates marks.

1. Answer **All** questions 2 x 10

   a. Define additive and multiplying constant in tacheometry.

   b. Differentiate between simple curve and compound curve.

   c. What are the three views of information system in GIS?

   d. Differentiate between L1 signal and L2 signal used in GPS.

   e. Define thematic map with suitable example.

   f. Define quadrangle name.

   g. Write the classification of photogrammetry?

   h. Define Total Station. State two uses.

   i. State four errors in GPS surveying.

   j. Define relief displacement.

2. Answer **Any Six** Questions 5 x 6

   a. Two distances of 50 m and 75 m were accurately measured on a fairly level ground. The intercepts on the staff held vertical were 0.495 and 0.745 m respectively. Calculate the tacheometric constants of the instrument.

   b. Two straights intersect at the chainage 2056.44 m and the angle of intersection is 120 degrees. If the radius of the simple curve to be introduced is 600 m, find the following.

      (i) Tangent distance
      (ii) Chainage of point of commencement
      (iii) Chainage of point of tangency
      (iv) length of long chord

   c. How maps convey spatial relationship?

   d. Vertical photographs were taken from a height of 4000 m above the terrain with a camera of 20 cm focal length. Calculate the scale of the photograph.

   e. Explain in details the working principle of Total Station.

   f. Differentiate between GPS and DGPS.

   g Explain briefly the components of GIS.

Answer **Any Three** Questions

3. A staff was held vertically at a distance of 150 m and 350 m from the centre of theodolite fitted with stadia hairs and the staff intercepts with the telescope horizontal were 0.990 and 3.000 respectively. The instrument was then set over a station A of RL 850.50 m and height of instrument was 1.45 m. The stadia hair readings of a staff held vertically at station B were 1.00, 1.83 and 2.67 m while the vertical angle was -10 degrees. Find the distance AB and RL of B. 10

4. Two tangents intersect at chainage of 1290 m, the deflection angle being 36^0. Calculate all the data necessary for setting out a curve of radius 300 m by deflection angle method. The peg interval is 30 m. 10

5. Define map & map scale. Explain different types of maps specifying their uses. 10

6. Explain control survey in photogrammetry process. 10

7. Explain in detail the various processes involved in DGPS survey such as Base station set up, Rover set up and Pprocessing of GPS data. 10

4. $T = R\tan\frac{\theta}{2} = 97.47\text{m}$

$L = \frac{\pi R\theta}{180} = 188.50\text{m}$

Chainage of T_1 = 1290 − 97.47 = 1192.53m

Chainage of T_2 = 1192.53 + 188.50 = 1381.03m

Deflection angle per chord = $\frac{1718.9}{R}$ × chord length (30)

= 171.89 minutes = 2°51′33″

No. of chords = $\frac{L}{\text{peg interval}} = \frac{188.50}{30} = 6.28$ or, 6

Length of last chord = 188.50 − 6×30 = 8.50m

Deflection angle of last chord = $\frac{1718.9}{300} \times 8.50$ = 48.24 minutes

= 0°48′44″

3) $K = \frac{D_2 - D_1}{S_2 - S_1} = 99.50$

6TH SEM./ CIVIL ENGINEERING ./2025(S)

TH2 Construction Management

Full Marks: 80 **Time- 3 Hrs**

Answer any five Questions including Q No.1 & 2
Figures in the right-hand margin indicates marks.

1. Answer **All** questions 2 x 10
   a. Define management.
   b. What do you mean by Invoice?
   c. What is meant by "Dummy activity"?
   d. What is workmen's compensation act?
   e. What do you mean by equipment schedule?
   f. What is expected time and critical path?
   g. Define organization.
   h. What is a tender?
   i. What is meant by work study?
   j. Define owning and operating cost.

2. Answer **Any Six** Questions 5 X 6
   a. What do you mean by planning and state the objectives of planning.
   b. What are the causes of conflicts?
   c. Define construction management and what are the objectives of construction management.
   d. State the factors to be considered while selecting equipment.
   e. Differentiate between CPM and PERT.
   f. Define motivation and state different types of motivation.
   g. Differentiate between Bin card and stores ledger.

Answer **Any Three** Questions

3. Describe about the types of organization with merits and demerits. 10

4. Explain the causes of accidents on a construction site. Describe the safety measures required in excavation and demolition work. 5+5

5. Briefly describe the factors governing the layout of a construction project. 10

6. A project has the following time schedule 10

Activity	1-2	1-3	2-4	3-4	4-5
Duration	3	7	5	9	10

Draw the Network diagram of this project and calculate Earliest start time, Earliest Finish Time, Latest start time and latest Finish time for each activity.

7. Write short notes on 5+5
   a)Motion study
   b)Non-destructive method of quality control

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TH3 Advanced Construction Techniques And Equipment

Full Marks: 80 **Time- 3 Hrs**

Answer any five Questions including Q No.1 & 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10
   a. What is pre fabrication?
   b. What is earthing?
   c. What is Cladding?
   d. Define building configuration?
   e. What is geo synthetics?
   f. What is roof band?
   g. What is intensity of light?
   h. What is FRP?
   i. Define artificial sand?
   j. Define soil reinforcing?

2. Answer **Any Six** Questions 5 x 6
   a. Mention properties and uses of glass fiber as construction material.
   b. What are building characteristics in earthquake resistant structure?
   c. Describe briefly lateral load resisting structures.
   d. Write short notes on-
      i) Power shovel
      ii) Smooth Wheel Roller
      iii) Tractor
   e. What is Escalator? Mention with its types.
   f. Explain geo textiles and geo grids.
   g. What is owning and operation cost?

Answer **Any Three** Questions

3. Explain structural irregularities in a building. 10
4. Explain the process of cold water distribution in high rise building? 10
5. Describe types of ventilation in buildings. 10
6. Discuss the classification of prefabrication system? 10
7. What is Artificial timber? Describe different types of artificial timber with examples. 2+8

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TH4 Disaster Management

Full Marks: 80 **Time- 3 Hrs**

Answer any five Questions including Q No.1 & 2
Figures in the right-hand margin indicates marks

1. Answer **All** questions 2 x 10
   a. Distinguish between hazard and disaster.
   b. List the earthquake hazard zones of India.
   c. Define flood and drought.
   d. What are the causes of epidemic?
   e. What are the instruments used for measuring magnitude and intensity of earthquake?
   f. Write the name of different authorities of institutional arrangement for disaster management in India.
   g. Differentiate between Capacity and Risk.
   h. Write the classification of flood based on duration.
   i. Define heat waves. State two causes of heat waves.
   j. State the classification of Tsunami based on their origin.

2. Answer **Any Six** Questions 5 x 6
   a. Explain the role of community in mitigating the hazardous effects of floods.
   b. How do Geographic Information System (GIS) and Remote Sensing contribute to disaster risk assessment and management?
   c. Explain Disaster Management Cycle.
   d. Write the causes of drought. What are the elements at risk during a drought? 2.5 x 2
   e. Explain chemical and industrial hazards.
   f. Explain the role of policy makers in disaster risk reduction.
   g. State the causes and effects of forest fire.

Answer **Any Three** Questions

3. Explain the causes, effects and mitigation measures of cyclone. 10
4. Define Tsunami. Identify three causes of Tsunami. What are the after effects of Tsunami? Write two mitigation measures of Tsunami. 2+2+3+3
5. List out five major causes of landslides in India and suggest different mitigation measures of Landslides. 10
6. Explain the causes, effects and preventive measures of earthquake. 10
7. Write short notes on: 2.5 x 4
   (a) Disaster Preparedness
   (b) Vulnerability
   (c) Epidemic
   (d) Forest Fire Management