

G 714

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2014

Seventh Semester

Branch : Civil Engineering

CE 010 702 – ENVIRONMENTAL ENGINEERING – I (CE)

(2010 Admissions)

[Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. List the Indian standards for drinking water.
2. Explain hydraulic mean depth in pipe flow.
3. Distinguish between Surface water and Ground water.
4. Explain break point chlorination.
5. Explain gravity system of distribution of water.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Discuss the chemical tests for analysis of drinking water.
7. Explain the working of water meter in pipe flow.
8. Write brief note on Clarifiers.
9. Sketch and explain Pressure filter.
10. Explain Balancing reservoirs.

(5 × 5 = 25 marks)

Turn over

Part C

Answer all questions.

Each question carries 12 marks.

11. Explain for Casting population. Discuss different methods for casting population. List the merits and demerits.

Or

12. What are the probable impurities in water and discuss their importance in water supply. What are water borne diseases?

13. Explain the function, classification and selection of pumps for water supply.

Or

14. List and explain various appurtenances in the water distribution systems. Give neat sketches wherever necessary.

15. Define Sedimentation. Briefly explain the theory of sedimentation.

Or

16. What are coagulants? List generally used coagulants in water purification. Explain how to fix the dosage of coagulants in water purification.

17. Explain the design, construction and operation of rapid sand filter. Sketch the filter.

Or

18. Define Chlorination. Discuss how to fix the chlorine demand for water. Explain pre-chlorination and post chlorination.

19. Explain colour, odour and taste in drinking water. Discuss how and why it is removed from drinking water.

Or

20. Explain Detection and prevention of leaks in distribution system.

(5 × 12 = 60 marks)

G 737

(Pages : 2)

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B.TECH. DEGREE EXAMINATION, MAY 2014

Seventh Semester

Branch : Civil Engineering

CE 010 704 – ARCHITECTURE AND TOWN PLANNING (CE)

(2010 Admissions)

[Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. Explain the concept of space and tolerance space in architecture.
2. List the requirements for preparation of working drawing for a building.
3. Write short note on cross ventilation.
4. Briefly explain Radburn plan.
5. Write brief note on land acquisition.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Define Form and explain form related with structural design.
7. Explain the process of identifying activity area and linkage.
8. Sketch an wooden stair for a two storey building. List the merits and demerits of wooden stair.
9. Explain neighbouring unit planning.
10. Discuss the reasons for formation of slums.

(5 × 5 = 25 marks)

Turn over

Part C

Answer all questions.

Each question carries 12 marks.

11. Explain the types and theory of Architectural design.

Or

12. State and explain creative principles of architecture.

13. Explain the process of licensing for building works. List the different classes of licenses and their qualification.

Or

14. Briefly explain the functional requirements of residential buildings.

15. Explain the features, operation arrangements, location and types of Elevators in public buildings.

Or

16. Define Air-conditioning. Explain the calculation for air-conditioning load. List and discuss comfort factors.

17. Briefly explain the evolution in town planning acts and legislation.

Or

18. Briefly explain the problems of urban growth and requirements of New Town.

19. Define Master plan. Discuss the preparation and execution of master plan. Discuss the problems of execution.

Or

20. Explain Planning standards and land use allocation for public buildings.

(5 × 12 = 60 marks)

B.TECH. DEGREE EXAMINATION, MAY 2014**Seventh Semester****Branch : Civil Engineering****CE 010 703 – DESIGN OF CONCRETE STRUCTURES – II (CE)****(2010 Admissions)****[Improvement/Supplementary]****Time : Three Hours****Maximum : 100 Marks**

*Relevant IS codes are permitted.
IS 456, 875, 1343 and 3370 Part 2 and SP 16.*

Part A*Answer all questions.**Each question carries 3 marks.*

1. Distinguish between RCC and pre-stressed concrete.
2. Define Angle of repose of soil and its importance in earth retaining wall design.
3. Distinguish between Singly reinforced and Doubly reinforced slabs.
4. List the advantages of dome construction.
5. A circular water tank is to be designed for a storage capacity of 5000 litres. Sketch the internal dimensions of the tank required.

(5 × 3 = 15 marks)**Part B***Answer all questions.**Each question carries 5 marks.*

6. Explain methods of pre-stressing.
7. Explain Earth pressure diagram and sketch an earth pressure diagram for an earth retaining wall.
8. Explain with examples, the application of circular beams over uniformly loaded and supported on symmetrically placed columns.

Turn over

9. Explain the classification of concrete dome.
 10. List and discuss different types of water tank.

(5 × 5 = 25 marks)

Part C*Answer all questions.**Each question carries 12 marks.*

11. A pre-tensioned pre-stress concrete beam 9 M span has a cross-section of 400 mm × 800 mm, and is pre-stressed with 2400 KN at transfer. The cable has a cross-sectional area of 2000 sq.mm. of steel and has a parabolic profile with maximum eccentricity of 120 mm at middle of span. Determine the loss of pre-stress.

Given $E_s = 2.1 \times 10^5 \text{ N per sq.mm}$, Mix M30.

Minimum ultimate tensile strength of pre-stressing steel assume 1500 N per sq.mm.

Or

12. A rectangular concrete beam $b \times d$, 100 mm × 300 mm having span 10 m is pre-stressed by a straight cable carrying an effective pre-stress force of 300 kN located at an eccentricity of 30 mm. The beam supports a live load of 1.5 kN per m. Calculate the resultant stress distribution for the central cross-section of the beam. Also determine the magnitude of the pre-stress force with an eccentricity of 30 mm which can balance the stress due to dead and live loads at the bottom fibre of the central section of the beam. Given density of RCC 25 kN per cum.

13. Design a cantilever retaining wall for the following data :

Height of earth to be retained above base level	=	6 m.
Surcharge load	=	20 kN per sq.m.
Angle of repose of soil	=	30°.
Bearing capacity of soil	=	150 kN per sq.m.
Coefficient of friction between soil and base slab	=	0.50.
Concrete grade M 30 and steel F 415.		
Length of retaining wall	=	62 m.

Or

14. Design a counter fort retaining wall for the following data :

Height of earth retained above basement level	=	6 m.
Density of earth	=	16 kN per cum.
Angle of repose of soil	=	30°.
Bearing capacity of soil	=	120 kN per sq.m.
Length of retaining wall	=	50 m.

Use M20 Concrete and F415 steel.

15. A school building 6 m wide 18 m length as inner dimensions is designed as Brick column supported RCC beam and roof structure. The brick column 50 cm × 40 cm, 8 numbers support the continues beam on length direction and tie beams connecting them. Sketch the column and beam alignment and design the beams. Assume data required suitably.

Or

16. A rectangular beam 400 mm wide is subjected to the following at a section :

Bending moment = 45 kN-m, shear force = 30 kN, Torsional moment = 20 kN-m.

Design the section and torsional reinforcement. Given $C = 5 \text{ N per sq.mm.}$, $T = 140 \text{ N per sq.mm.}$, $m = 18.$, FY 250 N per sq.mm and concrete M15.

17. Briefly explain the membrane analysis for the dome roof of a circular water tank. State the assumptions and limitations.

Or

18. Design a dome for the following particulars for a circular water tank.

Diameter of the water tank (inner) = 12 m.

Rise of the water tank = 2 m

Thickness = 100 mm

Live load = 1400 N per sqm.

Assume any other data required suitably. Sketch the reinforcement details.

19. Design the dimensions of a circular water tank to store 500,000 litres of water. Assuming the structural dimensions of the tank, design the side wall and sketch the reinforcement details. Explain the necessity of free board and water cushion.

Or

20. Design a ground water tank to store 600,000 litres of water. The tank must be rectangular in size such that depth and width are double the length. Also design the side walls. Use M20 concrete and F415 steel. Discuss the uplift pressure at action at the contact between ground and base slab. List the necessity of free board above full tank level.

(5 × 12 = 60 marks)