Name of the Candidate :

3323

B.E. DEGREE EXAMINATION, 2015

(CIVIL ENGINEERING)

(EIGHTH SEMESTER)

CLEC-801. PRE-STRESSED CONCRETE

[Time : 3 Hours

November]

Maximum : 75 Marks

(Maximum 60 Marks for those who joined before 2011-12)

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT – I

1. A rectangular concrete beam, 300 mm deep and 200 mm wide is pre-stressed by means of 15 nos. of 5 mm diameter wires located at 65 mm from the bottom of the beam and 3 nos. of 5 mm diameter wires located a 25 mm from the top of the beam. If the wires are initially tensioned to a stress of 840 N/mm^2, calculate the percentage loss of stress in steel immediately after transfer, allowing for the loss of stress due to elastic deformation of concrete only.

(OR)

2. The cross-section of a pre-stressed concrete beam used over a span of 6 m is 100 mm wide and 300 mm deep, the initial stress in the tendons located at a constant eccentricity of 50 mm is 1000 N/mm^2 the sectional area of the tendons is 100 mm^2. Find the percentage increase in stress in wires when the beam supports a live load of 4 kN/m., γ = 24 kN/m^3.

UNIT - II

3. A T-section having a flange 1200 mm wide and 150 mm thick is pre-stressed by 4700 mm^2 of high tensile steel located at an effective depth of 1600 mm. The ribs have a thickness of 150 mm each. If the cube strength of the concrete is 40 N/mm^2 and tensile strength of steel is 1600 N/mm^2, determine the flexural strength of the T-girder using IS : 1343 provisions.

(OR)

4. The end block of a post-tensioned pre-stressed concrete beam, 300 mm wide and 300 mm deep, is subjected to a concentric anchorage force of 832800 N by a Freyssinet anchorage of area 11720 mm^2. Design and detail the anchorage reinforcement for the end block.

UNIT - III

5. A pre-cast pre-tensioned unit of rectangular section of size of 120 mm × 240 mm is used a part of a composite beam to span 6 m. This unit is pre-stressed by tendons with their centroid coinciding with the bottom kern point. The initial force in the tendon is 240 kN. The loss of pre-stress may be assumed to be 15%. The unit is incorporated as the web of a composite beam by casting a slab of flange width of 480 mm and a thickness of 40 mm. On the top of the pre-cast unit the composite beam supports a live load of 4·0 kN/m. Calculate the resultant stresses developed in the pre-cast and cast insitu concrete assuming the pre-tensioned unit as unpropped while casting the insitu slab. The ratio of modulii of elasticity of elasticity between the pre-cast unit and cast insitu slab is 1·25.

(OR)

6. Explain the following :

   (a) Propped and unpropped construction. (b) Differential shrinkage.

UNIT - IV

7. A continuous pre-stressed concrete beam ABC (AB = BC=10 m) having a uniform rectangular section with a width of 200 mm and depth of 400 mm is pre-stressing with a force of 100 kN using parabolic cable. The cable is concentric at supports A, B and C and has an eccentric of 100 mm towards soffit. at mid-span. Calculate the secondary and resultant moments developed in the beam due to pre-stressing B.

(OR)

8. Explain the following :

   (a) Linear trnsformation. (b) Concordant cables.

UNIT - V

9. Design the design procedure for circular tanks.

(OR)

10. Design a cylindrical pre-stressed cocnrete water tank to suit the following data :

    Capacity of the tank = $3 \cdot 5 \times 10^6$ litres. Ratio of diameter to height 4.

    Maximum compressive stress in concrete at transfer not to exceed 14 N/mm^2.

    Minimum compressive stress under working load to be 1 N/mm^2.

    The pre-stress is to be provided by circumferential winding of 5 mm wires and by vertical cables of 12 wires of 7 mm diameter.

    The stress in wires at transfer = 1000 N/mm^2. Loss ratio = 0·75.

    Design the walls of the tank and the details of the circumferential wire winding and vertical cables for the following joint conditions at base as fixed.

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B.E. DEGREE EXAMINATION, 2015

(CIVIL ENGINEERING)

(EIGHTH SEMESTER)

CLEC-802. MAINTENANCE AND REHABILITATION OF STRUCTURES

[Time : 3 Hours

November]

Maximum : 75 Marks

(Maximum 60 Marks for those who joined before 2011-12)

Answer any ONE FULL question from each unit.

UNIT – I

1. Write about the importance of maintenance and discuss the various facts of maintenance.

(OR)

2. Discuss in detail any two methods adopted for assessing the extent of damage in deteriorated structures.

UNIT - II

3. Enumerate about the various cracks that occur in plastic concrete and hardened concrete.

(OR)

4. Discuss briefly about different types of distress and their causes in reinforced concrete structure.

UNIT - III

5. Write about the shotcrete and the types of shotcrete process.

(OR)

6. Write in detail about corrosion mechanism and the method of cathodic protection.

UNIT - IV

7. Write about the external reinforcing techniques adopted for repairing reinforced concrete structures.

(OR)

8. What is the necessity of surface coatings is repaired structures and explain different types of coatings.

UNIT - V

9. Explain about the recent techniques adopted for demolishing a structure in densely populated areas.

(OR)

10. Enumerate any one case study you have come across with regarding demolition of distressed structures.

3325

B.E. DEGREE EXAMINATION, 2015

(CIVIL ENGINEERING)

(EIGHTH SEMESTER)

CLEC-803. INTERIOR DECORATION AND PLANNING

November] [Time : 3 Hours

Maximum : 75 Marks

(Maximum 60 Marks for those who joined before 2011-12)

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT – I

1. Explain the following :
   (a) Anthropometrics data relating to human body. (7)
   (b) Principles of universal design. (8)

(OR)

2. Differentiate between presentation drawings and working drawings. Explain also, its uses and necesssity. (15)

UNIT - II

3. Write short notes on the following :
   (a) Maintenance of furniture. (b) Importance of furniture. (7 + 8)

(OR)

4. Briefly outline the following :
   (a) Theory of Ergonomics. (b) Theory of Anthropometrics. (7 + 8)

UNIT - III

5. Sketch your dream room based on space concept. (15)

(OR)

6. Discuss in detail about anthropometric data related to kitchens. (15)

UNIT - IV

7. Differentiate between panelling and partitions based on method of construction. Also, explain its advantages. (15)

(OR)

8. List out the types of false ceilings and its area of application. (15)

UNIT - V

9. Briefly explain the following process of landscape :
   (a) Site analysis. (b) Site assessment. (7 + 8)

(OR)

10. Write short notes on transistional zones between interior and exterior. Also, explain xeriscape. (15)

3326

B.E. DEGREE EXAMINATION, 2015

(EIGHTH SEMESTER)

CLEC-804. ETHICS IN ENGINEERING

(Common To ALL Branches of Engineering)

November] [Time : 3 Hours

Maximum : 75 Marks

(Maximum 60 Marks for those who joined before 2011-12)

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT – I

1. (a) Discuss in detail engineering ethics and philosophy. (9)

   (b) State Gilligan's theory. (6)

(OR)

2. (a) State the uses of ethical theories. (8)

   (b) Justify moral obligations. (7)

UNIT - II

3. (a) Write a note on code of ethics. (5)

   (b) State the problems with law in engineering. (5)

   (c) What are the relevant information on moral autonomy? (5)

(OR)

4. (a) List the knowledge of risk. (5)

   (b) Give some examples of improved safety. (5)

   (c) State the methods for prior warning. (5)

UNIT - III

5. (a) Explain the responsibilities to employers. (8)

   (b) Discuss on paramount obligations. (7)

(OR)

6. (a) Discuss the need for changing jobs and management policies. (8)

   (b) Explain in detail the occupational crime. (7)

UNIT - IV

7. (a) Discuss in detail the recognition and conscientious refusal. (8)

   (b) Explain in detail the sexual harassment. (7)

(OR)

8. Enumerate the engineer's involvement in weapons work. (15)

UNIT - V

9. Discuss in detail the provision for resolution of disputes. (15)

(OR)

10. Enumerate citicorp skyscrapers. (15)

Name of the Candidate :

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B.E. DEGREE EXAMINATION, 2015

(CIVIL ENGINEERING)

(EIGHTH SEMESTER)

CLEE-806 / 805. HYDRO POWER ENGINEERING

November] [Time : 3 Hours

Maximum : 75 Marks

(Maximum 60 Marks for those who joined before 2011-12)

Answer any ONE FULL question from each unit.

UNIT – I

1. Explain the various pipe appurtenances used in water distribution.

(OR)

2. (a) Explain the objectives of water distribution system. (5)

   (b) Explain the grid iron system of layout of water distribution system. (10)

UNIT - II

3. Explain the following:

   (a) Formation of hydraulic jump. (b) Types of surge.

(OR)

4. What are energy dissipaters? Explain any two types of energy dissipaters.

UNIT - III

5. Explain the layout of tidal power plant.

(OR)

6. What are cooling towers? Explain any one type with neat sketch.

UNIT - IV

7. What do you mean by material handling? Explain briefly.

(OR)

8. Write short notes on :

   (a) Turbo generator foundation. (b) Storage structures.

UNIT - V

9. Explain with neat sketch, layout of hydro power plant.

(OR)

10. List the types of under ground power plants. Explain any one.

Name of the Candidate

3329

B.E. DEGREE EXAMINATION, 2015

(CIVIL ENGINEERING)

(EIGHTH SEMESTER)

CLEE-806. INDUSTRIAL WASTE-WATER TREATMENT AND DISPOSAL

[Time : 3 Hours

November]

Maximum : 60 Marks

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT – I

1. Explain the different waste established recovery methods for by-products generated within a leather tanning industry.
2. Discuss the optimized design of waste-water treatment systems for the application in the dying industry.

UNIT - II

3. Explain the importance of industrial waste-water and describe their management approach.
4. Explain the need and significance of waste recovery in chemical manufacturing industries.

UNIT - III

5. Discuss the various conventional treatment methods available for a paper and pulp industry.
6. Explain the principle of separation of solids from industrial effluent.

UNIT - IV

7. Brief the significance of characterization of organic content in a industrial effluent.
8. Explain with neat sketch :

   (a) Stabilization pond. (b) Oxidation pond.

UNIT - V

9. Discuss the importance of sludge neutralization in a tannery industry.
10. Explain the various physio chemical treatment methods available for an oil refinery.

Name of the Candidate :

3330

B.E. DEGREE EXAMINATION, 2015

(CIVIL ENGINEERING)

(EIGHTH SEMESTER)

CLEE-805 / 806. SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT

(New Regulations)

[Time : 3 Hours

November]

Maximum : 75 Marks

(Maximum 60 Marks for those who joined before 2011-12)

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT – I

1. Discuss the various collection of municipal solid waste.
2. Explain the system of storage of solid wastes and frequency of collection and the factors affecting the frequency.

UNIT - II

3. Explain the design procedure and operation of any one type of incinerator.
4. Explain the term volume reduction and grinding of garbage.

UNIT - III

5. Describe the physical and chemical changes that takes place in a landfill during its life.
6. How does Leachate characteristics change with time? What are the environmental implications?

UNIT - IV

7. Explain the recovery in solid waste management methods adopted.
8. Discuss the various precautions required for the operation of the project and its cost conditions with respect solid to waste management.

UNIT - V

9. Explain in detail the methods of disposal of solid and hazardous waste and precautions taken.
10. Explain the recommended procedure of environment impact assessment.