B.E. DEGREE EXAMINATION, 2012
(CIVIL ENGINEERING)
(EIGHTH SEMESTER)
CLEC-801. PRESTRESSED CONCRETE

Nov]   [Time : 3 Hours

Maximum: 60 marks

Answer any ONE FULL question from each unit
Use of IS 1343-1980 code is permitted
All questions carry equal marks

UNIT-I

1. A rectangular concrete beam of cross section 30cm deep and 20cm wide is prestressed by means of 15 wires of 5mm diameter located 6.5cm from the bottom of the beam and 3 wires of diameter of 5mm, 2.5cm from the top. Assuming the prestress in the steel as 840N/mm^2. Calcaulte the stresses at the extreme libres of the mid –span section when the beam is supporting its own weight over a span of 6m. If a uniformly distributed live load of 6kn/m is imposed, evaluate the maximum working stress in concrete. The density of concrete is 24kN/m^3.   (12)

(OR)

2. A Pretensioned beam 200mm wide and 300mm deep is prestressed by 10 wires of 7mm diameter initially stressed to 1200N/mm^2 , with their centroids located 100mm from the soffit. Find the maximum stress in concrete immediately after transfer, allowing only for elastic shortening of concrete. If the concrete under goes a further shortening due to creep and shrinkage while there is a relaxation of 5 percent of steel stress, estimate the final percentage loss of stress in the wires using Indian standard code (IS:1343-1980) regulations and the following data :

   ES=210kN/mm^2
   EC=5700(f$_{cu}$)$^{1/2}$
   F$_{cu}$=42N/mm^2
   Creep co-efficient(ϑ)=1.6
   Total residuel shrinkage strain =3×10^4

UNIT-II

3. A post –tensioned bridge girder with unbonded tendons is of box sections of overall dimensions 1200mm wide by 1800mm deep, with wall thickness of 150mm. The high tensile steel has an area of 4000mm^2 and is located at an effective depth of 1600mm. the effective prestress in steel after all losses is 1000N/mm^2 and the effective span of the girder is 24m. If f$_{ck}$=40N/mm^2 and f$_p$=1600N/mm^2, estimate the ultimate flexural strength of the section.   (12)

(OR)

4. A pre-tensioned beam of 8m span has a symmetrical I-section .the flanges are 200mm wide and 60mm thick. The web thickness is 80mm and the overall depth of girder is 400mm. The member is prestressed by 8 wires of 5mm diameter located on the tension side such that the effective eccentricity is 90mm. The initial stress in the wires is 1280N/mm^2 and the cube strength of concrete at transfer is 42N/mm^2.

a) Determine the maximum vertical tensile stress developed in the transfer zone and

b) Design suitable mid steel reinforcement , assuming the permissible stress in steel as 140N/mm^2. (12)

UNIT-III

5. A composite beam of rectangulasr section is made up of a pretensioned inverted T-beam having a slab thickness and width of 150 and 1000mm respectively. The rib size is 150mm by850mm. The cast in the situ concrete has a thickness and width of 1000mm with a modulus of elasticity of 30kN/mm^2 .If the differential shrinkage is 100×10^{-6} units, estimate the shrinkage stresses developed in the precast and cast in situ units.

(OR)

6. A cross section of composite beam is of T-section having a pretensioned rib, 80mm wide and 240mm deep and an in situ cast slab, 350-mm wide and 80mm thick. The pre tensioned beam is reinforced with eight wires of 5mm diameter with an ultimate tensile strength of 1600 N/mm^2, located 60mm from the soffit of the beam. The compressive strength of concrete in the in situ cast and precast elements is 20 and 40N/mm^2 respectively. If adequate reinforcement are provided to prevent shear failure at the interface estimate the flexural strength of the composite section. (12)

UNIT-IV

7. A continuous prestressed concrete beam ABC=(AB=BC=10m) has a uniform rectangular cross section with a width of 100mm and depth of 300mm. The cable carrying an effective prestressing force of 360 kN is parallel to the axis of the beam and located at 100mm from the soffit.
   a) Determine the secondary and resultant moment at the central support B.
   b) If the beam supports an imposed load of 1.5kN/m; calculate the reaultuants stresses at top and bottom of the beam at B. Assume density of concrete as 24kN/m^3.
   c) Locate the resultant line of thrust through beam AB. (12)

(OR)

8. A continuous beam ABC (AB=BC=BC=10m) has a rectangular section, 400mm wide and 650mm deep. The beam is prestressed by a concordant cable having a cross sectional area of 1200mm^2, located 50mm from the soffit at mid span points and 50mm form the top of beam at B. If the beam supports two concentrated loads of 200kN each at mid span points, determine the load factor against collapse assuming.
   a)Elastic distribution of moments and
   b) Complete redistribution of moments
   Assume f$_p$= 1600N/mm^2 and f$_{ck}$=40N/mm^2 (12)

UNIT-V

9. Explain the different types of Poles with neat sketches. (12)

(OR)

10. Explain the design procedure for circular tanks. (12)

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B.E. DEGREE EXAMINATION, 2012

(CIVIL ENGINEERING)

(EIGHTH SEMESTER)

CLEC-802. MAINTENANCE AND REHABILITATION OF STRUCTURES

(Time: 3 Hours

ov)   **Maximum: 60 Marks**

Answer any ONE FULL question from each unit
All questions carry equal marks

UNIT-I

1. Explain the terms: (4)
   a) Maintenance   (4)
   b) Repair   (4)
   c) Rehabilitation
                              (OR)   (12)
2. What are the various causes of deterioration? Discuss critically.

UNIT-II

3. Explain the terms designs and construction errors in concrete structures.   (12)
                              (OR)
4. What is tracking? How to arrest the tracks in concrete structure? Explain all the methods of   (12)
   tracking.

UNIT-III

5. What is Polymer concrete? Explain the various types of polymer concrete.   (12)
                              (OR)
6. Write a note on various types of special concrete used in repair.   (12)

UNIT-IV

7. What are various repair techniques in concrete structures? Explain it.   (12)
                              (OR)
8. Write notes on the following:
   a) Weathering corrosion.
   b) Wear   (4+4+4)
   c) Fire leakage.

UNIT-V

9. Explain demolition techniques for Dilapidated structures.   (12)

10. Discuss any one case study for demolition structures.   (12)

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Register Number:

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B.E. DEGREE EXAMINATION, 2012

(CIVIL ENGINEERING)

(EIGHTH SEMESTER)

CLEC-803.INTERRIOR DECORATION AND PLANNING

Nov)

(Time: 3 Hours

Maximum: 60 Marks

Answer any ONE FULL question from each unit
All questions carry equal marks

UNIT-I

1. What is meant design process? Explain them in detail. (12)

(OR)

2. Differentiate between presentation and working drawing in detail with example. (12)

UNIT-II

3. Explain anthropometric data related to kitchen with neat sketch. (12)

(OR)

4. Explain the need for furniture maintenance. (12)

UNIT-III

5. Explain the types of bathroom and also detail the changes in the profile of bathroom over the last ten years. (12)

(OR)

6. Explain the concept of modular kitchen stating its advantages over conventional kitchen. (12)

UNIT-IV

7. Explain the construction methods of paneling and also explain the reasons for using it. (12)

(OR)

8. Explain the types of false ceiling? List out the requirements of good false ceiling.(12)

UNIT-V

9. Explain the process of landscape design. (12)

(OR)

10. Explain the elements of design of landscaping and also differentiate between externa and internal landscaping. (12)

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Register Number :

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B.E. DEGREE EXAMINATION, 2012

(EIGHTH SEMESTER)

CLEC-804. ETHICS IN ENGINEERING

(Common to ALL Branches)

November]   [Time : 3 Hours

Maximum : 60 Marks

Answer any ONE FULL question from each unit.
ALL questions carry EQUAL marks.

UNIT - I

1. Explain Kohlberg's theory in detail.   (12)

(OR)

2. Write short notes on :

    (a) Professional responsibility.   (3)

    (b) Integrity and self respect.   (6)

    (c) Utilitarianism.   (3)

Turn over

UNIT - II

3. State and explain the similarities and contrasts between standard experiments and engineering as experimentation. (12)

(OR)

4. Describe the roles of "Code of Ethics" formulated by various professional engineering societies. Indicate the relative importance of the broad categories into which these roles are classified. (12)

UNIT - III

5. What is occupational crime? Explain the causes for occupational crime. (12)

(OR)

6. What is management policies? How it relates to changing jobs with confidentiality? (12)

UNIT - IV

7. Explain whistle blowing and list the problems associated with it. (12)

(OR)

8. What is professional rights? Explain institutional recognition of rights in detail. (12)

UNIT - V

9. Discuss how engineer as a manager manages the conflict and disputes. (12)

(OR)

10. Write short notes on :

    (a) Moral leadership. (4)

    (b) Ingenuity. (4)

    (c) Normative modes of advisers. (4)

B.E. DEGREE EXAMINATION, 2012

(CIVIL ENGINEERING)

(EIGHTH SEMESTER)

CLEE-805. ARCHITECTURE

Nov.]   [Time: 3 Hours

Maximum: 60 Marks

Answer any ONE Question from each UNIT   *(5×12=60)*
All questions carry equal marks

UNIT-I

1. Explain the history of architecture with neat sketches.   (12)

2. What are the basic principles of composition to space enclosing elements? Explain   (12)

UNIT-II

3. Discuss briefly about the growth of mass from Plan and Representation.   (12)

4. What are the principles of composition and contrast proportion?   (12)

UNIT-III

5. What are the general principles of acoustics in the design of auditorium?   (12)

6. Discuss in detail about the period and various types of Indian Architecture. (12)

UNIT-IV

7. Explain briefly the influential factors of nature in architectural planning of buildings. (12)

8. How will you enforce the town planning schemes?   (12)

UNIT-V

9. Why ventilation is necessary in buildings? How is it taken care of?   (12)

10. How organization of space influences the aesthetics and architecture?   (12)

B.E. DEGREE EXAMINATION, 2012

(CIVIL ENGINEERING)

(EIGHTH SEMESTER)

CLEE-805. HYDRO POWER ENGINEERING

Nov.]   [Time: 3 Hours
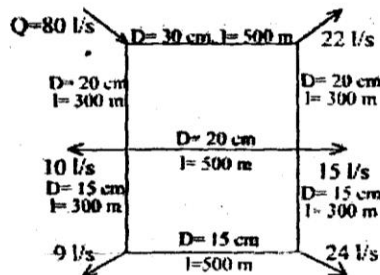
Maximum: 60 Marks

Answer any ONE Question from each UNIT   ***(5×12=60)***
All questions carry equal marks

UNIT-I

1. Calculate the head losses and the corrected flows in the various pipes of a distribution network as shown in figure. The diameters and the lengths of the pipes used are given against each pipe. Compute corrected flows after one corrections.   (12)

2. Derive an expression for loss due to sudden enlargement .   (12)

UNIT-II

3. Analyze the water-surface profile in a long rectangular channel lined with concrete (n=0.013). The channel is 10 m wide, the flow rate is 400 m³/sec and the channel slope changes abruptly from 0.0150 to 0.0016. Find also the horsepower loss in the resulting jump.   (12)

4. Inorder to dissipate energy below the spillway, it is proposed to form a hydraulic jump in the stilling basin. Due to this, the depth of flow changes from 1m to 3.8m. Calculate the discharge over the spillway, the crest length of which is 110m.   (12)

UNIT-III

5. Explain the various steps in planning and analyzing types of power plants.   (12)

6. Explain natural draught cooling towers in detail.   (12)

UNIT-IV

7. Explain the design of turbo generator foundation.   (12)

8. Explain the various equipment supporting structures.   (12)

UNIT-V

9. Explain the components of hydro power plants with a neat sketch.   (12)

10. Write short notes on sizing of power house and joints in hydropower plants.   (12)

B.E. DEGREE EXAMINATION, 2012

(CIVIL ENGINEERING)

(EIGHTH SEMESTER)

CLEC-806. INDUSTRIAL WASTE WATER TREATEMENT AND DISPOSAL

v)

(Time: 3 Hours

Maximum: 60 Marks
Answer any ONE FULL question from each unit
Assume any other data, if necessary
All questions carry equal marks

UNIT-I

1. a) Discuss the effects of industrial wastewater on land. (6)

   b) Differentiate between "Stream Standards" and "Effluent Standards". (6)

   (OR)

2. a) Enumerate the process to be accomplished to reduce the volume of the waste. (6)

   b) Explain the by product recovery principles to reduce the strength of waste in the industries with suitable example. (6)

UNIT-II

3. a) Discuss the characteristics of waste water from the paper mill industry. (6)

   b) Enumerate the characteristics of Petrochemical wastes. (6)

   (OR)

4. a) Write the characteristics of sugar mills wastes. (6)

   b) Explain the characteristics of waste water form diary plant. (6)

UNIT-III

5. a) What is the mechanism of waste treatment in an oxidation pond? (6)

   b) How do inorganic dissolved solids are removed by dialysis and ion exchange methods? (6)

   (OR)

6. a) Write short notes on filtration techniques in waste water treatment. (6)

   b) How will you design a sedimentation tank for waste water treatment? (6)

UNIT-IV

7. a) Explain the thickening of sludge. (6)

   b) What is the role of stabilization ponds? (6)

   (OR)

8. a) Distinguish between aerobic and anaerobic digestion process. (6)

   b) Write a short note on activated sludge process. (6)

UNIT-V

9. Explain the various physico –chemical treatment methods employed in treatment of ir waste water. (12)

10. Explain in detail the combined treatment methods of industrial and municipal wastes. (12)

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