

Register Number :

Name of the Candidate :

0 4 3 6

**B.E. DEGREE EXAMINATION, 2016**

( CIVIL ENGINEERING )

( EIGHTH SEMESTER )

**CLEC-801. PRE-STRESSED CONCRETE**

May ]

[ Time : 3 Hours

Maximum : 75Marks

*Answer any FIVE FULL questions, choosing ONE from each unit.*

*ALL questions carry EQUAL Marks.*

**UNIT - I**

1. A post-tensioned beam 250 mm wide and 300 mm deep is pre-stressed by 12 wires each of 7 mm diameter initially stressed to  $1200 \text{ N/mm}^2$  with their centroids located 100 mm from the soffit. Estimate the final percentage loss of pre-stress using the following data :

- (a) Relaxation of steel stress =  $100 \text{ N/mm}^2$ .  
(b)  $E_s = 210 \text{ kN/mm}^2$ ;  $E_c = 35 \text{ kN/mm}^2$ .  
(c) Creep co-efficient ( $\phi$ ) = 1.6.  
(d) Slip of anchorage = 1 mm.  
(e) Shrinkage of concrete =  $2 \times 10^{-4}$ .  
(f) Curvature effect = 0.6.  
(g) Wave effect = 0.003/m.  
(h) Relaxation of steel stress = 3%. (15)

(OR)

2. Explain the basic principle of pre-stressing by : (15)  
(a) Stress concept. (b) Lever arm concept. (c) Load balancing concept.

**UNIT - II**

3. The end block of pre-stressed concrete girder is 200 mm wide by 300 mm deep. The beam is post-tensioned by two Freyssinet anchorages each of 100 mm diameter with their centres located at 75 mm from the top and bottom of the beam. The force transmitted by each anchorage being 2000 kN. Compute the bursting force and design suitable reinforcement. (15)

(OR)

4. An unsymmetrical I-section has an overall depth of 2000 mm. The top flange width and depth are equal to 1200 mm and 300 mm respectively and the bottom flange width and depth are equal to 750 mm and 200 mm respectively. The thickness of the web is 300 mm. The tendons having a cross-sectional area of  $7000 \text{ mm}^2$  are located 200 mm from the soffit.

If the ultimate compressive strength of concrete and tensile strength of steel are  $42 \text{ kN/mm}^2$  and  $1750 \text{ N/mm}^2$  respectively, and the tendons are effectively bonded to concrete, estimate the flexural strength of the section. (15)

### UNIT - III

5. Design a composite slab for the bridge deck using inverted T-section. The top flange is 250 mm wide and 100 mm thick. The bottom flange is 500 mm wide and 250 mm thick. The web thickness is 100 mm and the overall depth of the inverted T-section is 655 mm. The bridge deck has to support a characteristic imposed load of  $50 \text{ kN/m}^2$  over an effective span of 12 m. M-40 grade of concrete is used for the pre-cast pre-tensioned T-with a compressive strength at transfer of  $36 \text{ N/mm}^2$ . M-30 grade of concrete is used for the in situ part. Determine the minimum pre-stress necessary and check for safety under serviceability limit state. (15)

(OR)

6. A post-tensioned pre-stressed concrete girder having a span of 40 m between bearings is required for an aircraft hanger. The live load on the girder is  $5 \text{ kN/m}$ . The specified 28-day cube strength is  $50 \text{ N/mm}^2$ . The cube strength of concrete at transfer is  $30 \text{ N/mm}^2$ . Permissible stresses should conform to the provisions of IS - 1343. The pre-stress is to be provided by seven wire 15 mm strand cables, each tensioned to 1200 kN, housed in cable ducts of 64 mm. Ultimate tensile strength of each cable is 1750 kN. Loss ratio = 0.80. Design the cross section and draw the cable profile only. (15)

### UNIT - IV

7. State Guyon's theorem of linear transformation of cable and its practical application. (15)

(OR)

8. A continuous concrete beam of two span each 10 m has a uniform rectangular cross section 100 mm wide and 300 mm deep. A cable carrying an effective pre-stressing force of 350 kN varies linearly with an eccentricity of 50 mm towards the soffit at the end supports to 50 mm towards the top of the beam at the mid support. Determine the resultant moment at the mid support due to pre-stress. If the eccentricity of the cable at the mid support is 25 mm, show that the cable is concordant. (15)

### UNIT - V

9. Explain with sketches the different shapes of pre-stressed concrete water tanks and different types of joints used in pre-stressed concrete tanks. (15)

(OR)

10. What are the advantages of pre-stressed concrete poles? List the various design criteria to be considered while designing poles for power transmission lines. (15)

Register Number:

0437

Name of the Candidate:

**B.E. DEGREE EXAMINATION, 2016**

**(CIVIL ENGINEERING)**

**(EIGHTH SEMESTER)**

**CLEC-802. MAINTENANCE AND REHABILITATION OF  
STRUCTURES**

May]

[Time: 3 Hours

Maximum: 75 Marks

*Answer any ONE FULL question from each unit*

**UNIT – I**

1. a) Discuss the importance of maintenance. (5)
- b) Explain any two NDT test with neat sketches. (10)
2. What is inspection of a structure? What are the objectives and stages of inspection? (15)

**UNIT – II**

3. Write briefly about the quality assurance concepts and how it is applied in Civil engineering field. (15)
4. Briefly explain about the strength, permeability and thermal properties of concrete. (15)

**UNIT – III**

5. Explain in detail about the rust eliminators and polymer coating for rebar. (15)
6. Briefly explain the characteristics and types of fibre reinforced concrete. (15)

**UNIT – IV**

7. a) How leak-sealing methods can be classified? (5)
- b) Explain the steps involved in the repair of marine structures. (10)
8. Briefly explain various strengthening techniques for existing building. (15)

**UNIT – V**

9. How do you demolish a overhead water tank situated in a thickly populated area? Systematically explain. (15)
10. What are different methods of demolitions? Explain working and safety precautions of any two methods. (15)

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**B.E. DEGREE EXAMINATION, 2016**

( CIVIL ENGINEERING )

( EIGHTH SEMESTER )

**CLEC - 803. INTERIOR DECORATION AND PLANNING**

May]

[Time : 3 Hours

Maximum : 75 Marks.

*Answer any ONE FULL question from unit.*

**UNIT - I**

1. Explain the basic concept of presentation drawing with examples.

(OR)

2. Discuss the organization of office space planning with suitable examples.

**UNIT - II**

3. How will you use decorative furniture in a weekend two-bed room cottage? Explain.

(OR)

4. Sketch the layout of a bedroom indicating the furniture arrangement.

**UNIT - III**

5. Discuss in detail with sketches modular kitchen - the ergonomic triangle.

(OR)

6. Draw the floor plan of a bathroom of size 8 feet × 10 feet with bathroom fittings and briefly explain them.

**UNIT - IV**

7. Explain the following:

(i) Floor coverings. (ii) Carpets. (iii) Curtains and upholstery.

(OR)

8. Write in detail the types of false ceiling and its area of applications.

**UNIT - V**

9. Explain the various principles of designing a landscape with illustrations.

(OR)

10. Describe the importance of site analysis in landscaping and the role played by climatic factors, clients, colour schemes and utility components.

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0 4 3 9

**B.E. DEGREE EXAMINATION, 2016**

( COMMON TO ALL BRANCHES )

( EIGHTH SEMESTER )

**CLEC-804. ETHICS IN ENGINEERING**

May ]

[ Time : 3 Hours

Maximum : 75Marks

Answer any ONE FULL question from each unit.

**UNIT - I**

1. Write short notes on : (3 × 5)  
(a) Consensus and controversy. (b) Multiple motives. (c) Senses of responsibility.  
(OR)  
2. Discuss in detail the uses of ethical theories. (15)

**UNIT - II**

3. Enumerate the role of law in engineering. (15)  
(OR)  
4. Explain the concept of risk in detail. (15)

**UNIT - III**

5. (a) Discuss the two senses of loyalty. (5)  
(b) State the respect for institutional authority. (10)  
(OR)  
6. Write short note on : (15)  
(a) Occupational crime. (b) Price fixing. (c) Industrial espionage.

**UNIT - IV**

7. Explain the basic rights of professional conscience. (15)  
(OR)  
8. Justify the problems encountered in defence industry. (15)

**UNIT - V**

9. Write a short note on : (3 × 5)  
(a) Advisers in planning. (b) Differentiate consultants from leaders.  
(c) Provision for resolution of disputes.  
(OR)  
10. Explain in detail citicrop skyscraper. (15)

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**B.E. DEGREE EXAMINATION, 2014**

( CIVIL ENGINEERING )

( EIGHTH SEMESTER )

**CLEE-805. ARCHITECTURE**

November ] :

[ Time : 3 Hours

Maximum : 60 Marks

*( For the candidates of 2007-08 batch and later )*

*Answer any ONE FULL question from each unit.*

*ALL questions carry EQUAL marks.*

**UNIT - I**

1. Explain in detail the cultural influences on architecture throughout history.

(OR)

2. Discuss the nature, climate and topography influences on architecture.

**UNIT - II**

3. Analyse the orientation of building while architectural design.

(OR)

4. Enumerate the character and principle of composition in architecture.

**UNIT - III**

5. Review the history of architecture as per classical.

(OR)

6. Sketch the Indian Architecture.

**UNIT - IV**

7. List the steps involved in planning of buildings and explain its significance.

(OR)

8. Explain the principles of acoustics and mention the need for it.

**UNIT - V**

9. Draw a neat sketch showing the various features of a residential building and explain their functions.

(OR)

8. List out the need for perspective drawing and explain the features.
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**B.E. DEGREE EXAMINATION, 2016**

( CIVIL ENGINEERING )

( EIGHTH SEMESTER )

**CLEE - 805 / 806. HYDRO POWER ENGINEERING**

( Elective - III )

May]

[ Time : 3 Hours

Maximum : 75 Marks

*Answer any ONE FULL question from each unit.*

*ALL questions carry EQUAL marks.*

**UNIT - I**

1. Explain dead end and radial method of layout of water distribution system.

(OR)

2. Write short notes on : (i) Surge tanks. (ii) air chambers and control rods.

**UNIT - II**

3. Enlist types of spillways and explain any two with sketches.

(OR)

4. (a) Write the advantages and types of hydraulic jump.

(b) Discuss on channel transitions.

**UNIT - III**

5. Explain in detail the planning and analysis of hydro power plants.

(OR)

6. What are chimneys? Also, explain the design procedure of chimneys.

**UNIT - IV**

7. Explain any two types of intake towers with neat sketches.

(OR)

8. Discuss on any one type of supporting structures.

**UNIT - V**

9. Write short notes on: (i) Joints in hydro power plants (ii) Layout of cavities.

(OR)

10. Explain the various safety measures to be undertaken in power plants.

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0442

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**B.E. DEGREE EXAMINATION, 2016**

**(CIVIL ENGINEERING)**

**(EIGHTH SEMESTER)**

**CLEE -806: INDUSTRIAL WASTE WATER TREATMENT AND DISPOSAL**

**(Elective)**

May]

[Time : 3 Hours

Maximum : 75 Marks

*Answer any ONE full question from each Unit*

(5 × 15 = 75)

UNIT - I

1. Discuss the various effects of industrial waste on streams. (15)
2. Explain water quality criteria and effluent standards. (15)

UNIT - II

3. Discuss the principles and significance in leather industries. (15)
4. Explain the characterization of sugarcane industries. (15)

UNIT - III

5. Discuss the various conventional treatment methods for chemical industries. (15)
6. Write short notes on : i) Sedimentation and ii) Ponding (15)

UNIT - IV

7. Discuss the stabilization ponds with neat sketch. (15)
8. Explain activated sludge process. (15)

UNIT - V

9. Explain the importance of sludge neutralization in tannery industry. (15)
10. Discuss on neutralization and flocculation. (15)

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**B.E. DEGREE EXAMINATION, 2016**

(CIVIL ENGINEERING)

(EIGHTH SEMESTER)

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

(Elective - IV)

May]

[ Time : 3 Hours.

Maximum : 75 Marks

*Answer any ONE FULL question from each unit.*

**UNIT - I**

1. Explain the various factors influencing solid waste generation.
2. Explain the various social aspects and health factors in solid waste management.

**UNIT - II**

3. Explain the various options for storage of solid wastes.
4. Discuss the common principles to be considered while planning collection routes of solid wastes.

**UNIT - III**

5. List and discuss the five phases a landfill undergoes during the process of stabilization of wastes.
6. In detail, explain the post closure care required for a secure landfill.

**UNIT - IV**

7. Discuss the effects of improper disposal of e-wastes on environment.
8. Explain the precautions required for the operation of the project on constructing landfill.

**UNIT - V**

9. Enlist the various composting methods. Explain any one in detail.
10. Discuss the disposal of industrial solid wastes in coastal areas..