

Register Number:

4063

Name of the Candidate:

**B.E. DEGREE EXAMINATION, 2018**

**(CIVIL ENGINEERING)**

**(EIGHTH SEMESTER)**

**CLEC-801: PRESTRESSED CONCRETE**

November]

[Time : 3 Hours

Maximum : 75 Marks

**Answer any ONE FULL question from each unit (5 × 15 = 75)**  
**(Required IS Codes are permitted)**

**UNIT - I**

1. A rectangular concrete beam of cross section 30cm deep and A pretensioned beam, 300mm wide and 450mm deep is prestressed by 14 wires of 7mm dia. Initially stressed to 1300 N/mm<sup>2</sup>. With their centroids located 150mm from the soffit. Find the maximum stress in concrete immediately after transfer, allowing only for elastic shortening of 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 wire using the IS code regulation and the following data:  
ES = 210 KN/mm<sup>2</sup>, EC = 5700 (fcu)<sup>1/2</sup>, fcu = 45 N/mm<sup>2</sup> creep coefficient = 1.6 Total residual shrinkage strain = 3 × 10<sup>-4</sup>.
2. A rectangular concrete beam 150mm wide 300mm deep and 6m span with 87mm radius of gyration is prestressed by 8 wires of 8mm diameter of 400 KN force. The tendon eccentricity at mid span is 75mm and zero at supports. The beam supports on Udl of 5 KN/m over the entire span. Determine the magnitude of central deflection for the following cases, ignoring all losses in prestress.
  - (i) Self weight + prestress
  - (ii) Self weight + prestress + imposed load.

**UNIT - II**

3. A pretensioned T-section has a flange 1200mm wide and 150mm thick. The width and depth of rib are 300 and 1500mm respectively. The high tensile steel has an area of 4700mm<sup>2</sup> and is located at an effective depth of 1600mm. If the characteristic cube strength of the concrete and the tensile strength of steel are 40 and 1600 N/mm<sup>2</sup>. Resp calculate the flexural strength of the T-Section.
4. The end block of a prestressed concrete beam, rectangular in section, is 100mm wide and 200mm deep. The prestressing force of 100 KN is transmitted to concrete by a distribution plate, 100mm wide and 50mm deep, concentrically located at the ends calculate the position and magnitude of the maximum tensile stress on the horizontal section through the centre and edge of the anchore plate. Compute the bursting tension on the horizontal places.

**UNIT - III**

5. A composite beam consist of an inverted prestressed T section with bottom flange 400mm × 100mm thick and web 100mm × 200mm deep. The prestressed portion is subjected to a triangular stress distribution across the depth zero at top and 10.5 N/mm<sup>2</sup> at bottom under effective prestress after all losses. The beam is erected on a simple span of 6m and in-situ concrete is laid to make the composite section 400mm × 400mm overall. Estimate the life load the composite beam can carry for zero stress at bottom of the midspan section. Assume relevant data.
6. a) Explain different types of composite construction with neat sketches.  
b) How will you estimate the flexural strength of composite section?

**UNIT - IV**

7. A prestressed concrete beam of section 120mm wide by 300mm deep is used over an effective span of 6m to support a uniformly distributed load of 4 KN/m, which includes the self weight of the beam. The beam is prestressed by a straight cable carrying a force of 180 KN and location at eccentricity of 50mm. Determine the location of the thrust line in the beam and plot its position at quarter and central span section.
8. A concrete beam having a rectangular section, 150mm wide and 300mm deep is prestressed by a parabolic cable having an eccentricity at 75mm at centre of span towards the soffit and an eccentricity of 25mm towards the top of at support section. The effective force in the cable is 350 KN. The beam support a concentrated load of 20 KN at the centre of span in addition to the self weight. If the modulus of elasticity of concrete is 38 KN/m<sup>2</sup> and span is 8m calculate.
- (i) Short term deflection at centre of span under prestress, self weight and live load.  
(ii) Long term deflection assuming the loss ratio as 0.8 and creep coefficient as 1.6.

**UNIT - V**

9. Explain in detail the step by step design procedure for a PSC circular water tank.
10. A prestressed concrete pipe of 1.2m dia, having a core thickness of 75mm is required to withstand a service pressure of intensity of 1.2 N/mm<sup>2</sup>. Estimate the pitch of 5mm dia high tensile wire winding of the initial stress is limited to 1000 N/mm<sup>2</sup> permissible stresses in concrete being 12.0 N/mm<sup>2</sup> in compression and zero in tension. The loss ratio is 0.8 if the direct tensile strength of concrete is 2.5 N/mm<sup>2</sup> estimate load factor against cracking.

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4065

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**B.E. DEGREE EXAMINATION, 2018**

**(CIVIL ENGINEERING)**

**(EIGHTH SEMESTER)**

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

November]

[Time : 3 Hours

Maximum : 75 Marks

*Answer any ONE FULL question from each unit (5 × 15 = 75)*

**UNIT - I**

1. Discuss in detail on analysis, synthesis and evaluation. (15)
2. Explain the following in details
  - (i) Uses of presentation drawing (5)
  - (ii) Necessity of presentation drawing (5)
  - (iii) Difference between presentation and working drawings. (5)

**UNIT - II**

3. Explain the arrangement of furniture in a drawing hall with neat sketches. (15)
4. Discuss the basic terminology in furniture. (15)

**UNIT - III**

5. Discuss the requirements of a residential Indian kitchen with all fixtures. (15)
- ~~6. Explain the types of kitchen with respect to modern trends and olden days with sketches. (15)~~

**UNIT - IV**

7. Discuss the requirements of good false ceiling materials and name few of them. (15)
8. Explain the following in details
  - (i) Paneling materials (7)
  - (ii) Paneling method of construction with sketches. (8)

**UNIT - V**

9. Explain the following in detail
  - (i) Transitional zone b/w interior and exterior (8)
  - (ii) Xeriscape. (7)
10. Discuss the following in detail
  - (i) Process of landscape design (7)
  - (ii) Types of landscape. (8)

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Name of the Candidate:

4066

**B.E. DEGREE EXAMINATION, 2018**  
**(COMMON TO ALL BRANCHES)**  
**(EIGHTH SEMESTER)**

**CLEC-804/CSEC-805/MEEC-803/MFEC-804/EEEC-801/  
EIEC-801/CHEC-805/ITEC-802/ECEC-801:  
ETHICS IN ENGINEERING**

November]

[Time : 3 Hours

Maximum : 75 Marks

**Answer any ONE FULL question from each unit (5 × 15 = 75)**

**UNIT - I**

1. a) State some issues on Engineering Ethics. (5)
- b) Brief about the general types of inquiries involved in Engineering Inspection. (10)
2. Briefly explain the three main levels of moral development developed by Lawrence Kohlberg. (15)

**UNIT - II**

3. Discuss the reasons for Charnobyl disaster. What are the safety precautions and measures to be taken in the plant design of Nuclear power industry on public interest? (15)
4. a) State the necessity of risk benefit analysis. (5)
- b) Discuss the roles played by the codes of ethics set by professional societies. (10)

**UNIT - III**

5. a) Discuss the significance of loyalty and collegiality in team work. (7)
- b) Under what conditions, a loyalty as identification may be said as obligation. (8)
6. Explain the conflict and crime in 'price-fixing' with suitable examples. (15)

**UNIT - IV**

7. a) Discuss the ethical issues related to computer ethics and internet. (7)
- b) Write briefly on environmental ethics and weapon development. (8)
8. Mention some multinational companies and their establishment of business. What are the benefits enjoyed by the host company. (15)

**UNIT - V**

9. Discuss the following:
  - (i) Engineers as Managers (5)
  - (ii) Engineers as Advisors (5)
  - (iii) Engineers as expert witnesses. (5)
10. a) How do the consulting engineers involve in company's advertising? (8)
- b) What is meant by competitive bidding in an engineering profession? (7)

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Register Number:

**4068**

Name of the Candidate:

**B.E. DEGREE EXAMINATION, 2018**

**(CIVIL ENGINEERING)**

**(EIGHTH SEMESTER)**

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

November]

[Time : 3 Hours

Maximum : 75 Marks

**Answer any ONE FULL question from each unit (5 × 15 = 75)**

**UNIT - I**

1. a) Describe any two pipe appurtenance commonly used in pipe flow. (5)  
b) Briefly describe Hardy -Cross method of pipe network analysis. (10)
2. a) Explain the transient pressure in pipe flow. (5)  
b) Briefly describe the types and functions of surge tanks. (10)

**UNIT - II**

3. Define hydraulic jump. What are its types? How the energy dissipated? Explain in detail. (15)
4. What is a spill way? State its functions. Also describe the various types of spillway. (15)

**UNIT - III**

5. a) State the advantages and disadvantages of various types of power plants. (5)  
b) Enumerate the salient features in the design of a hydro power plant. (10)
6. Briefly explain the Induced draught and natural draught cooling towers. (15)

**UNIT - IV**

7. Briefly describe the salient features in the analysis and design of turbo generator foundation. (15)
8. Brief about the materials handling structures in a hydroelectric power plant. (15)

**UNIT - V**

9. Sketch the layout of a hydro power plant and describe the functions of its various components. (15)
10. a) State the advantage and disadvantages of under ground power house. (5)  
b) Brief about any four power plant equipment's. (10)

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Register Number:

4070

Name of the Candidate:

**B.E. DEGREE EXAMINATION, 2018**  
**(CIVIL ENGINEERING)**  
**(EIGHTH SEMESTER)**  
**CLEE-806/805: SOLID WASTE AND HAZARDOUS**  
**WASTE MANAGEMENT**

November]

[Time : 3 Hours

Maximum : 75 Marks

*Answer any ONE FULL question from each unit (5 × 15 = 75)*

**UNIT - I**

1. Explain the following in detail.
  - (i) Generation of solid wastes (7)
  - (ii) Method of disposal from e-wastes. (8)
2. Discuss how domestic, Agriculture and Industrial solid waste are different based on their typical characteristics. (15)

**UNIT - II**

3. Discuss the design and operation of Hazardous waste incinerators from e-waste. (15)
4. Explain the following in details
  - (i) Discuss the collection facility from e-waste (5)
  - (ii) Frequency of collection from e-waste (5)
  - (iii) Transportation method from e-waste. (5)

**UNIT - III**

5. What is leachate? Discuss the problems posed by leachate and how would you overcome. (15)
6. Explain the sanitary landfill operation and methods of landfill. (15)

**UNIT - IV**

7. Explain the characteristics of hazardous wastes and discuss the options for safe disposal methods. (15)
8. Explain the following in detail
  - (i) Discuss the recovery and reuse from e-waste (7)
  - (ii) Discuss the cost consideration of solid waste management system. (8)

**UNIT - V**

9. Write short notes on:
  - (i) Hazardous refuse (7)
  - (ii) Composting methods. (8)
10. Discuss in detail about disposal of Industrial solid waste and hazardous refuse from e-waste. (15)

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