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B.E. DEGREE EXAMINATION, 2013

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEC-701 / PCLEC-401.

GROUND WATER ENGINEERING

November]

[Time : 3 Hours

Maximum : 60 Marks

*(Maximum 75 marks
for the part-time candidate)*

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

UNIT – I

1. Explain the types of aquifers in detail. (12)

(OR)

2. Explain how the ground water gets originated in detail. (12)

UNIT – II

3. Explain the laboratory method of measuring permeability. (12)

(OR)

4. Explain about the steady radial flow to a well both in confined and unconfined aquifer. (12)

UNIT – III

5. Explain the method of drilling deep well. (12)

(OR)

6. What is infiltration gallery? Explain with neat sketch. (12)

UNIT – IV

7. Explain in detail how electrical resistivity method of ground water exploration is done. (12)

(OR)

8. Explain how seismic refraction method is used in exploring the ground water. (12)

UNIT - V

9. Explain Ghyben Herzberg relation between fresh and saline water. (12)

(OR)

10. Explain any three methods of artificially recharging ground water. (12)

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B.E. DEGREE EXAMINATION, 2013

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

**CLEC-702. IRRIGATION AND WATER
POWER ENGINEERING**

November]

[Time : 3 Hours

Maximum : 60 Marks

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT – I

1. Discuss in brief the benefits and ill-effects of irrigation.

(OR)

2. For border strip method of irrigation, determine the time required to irrigate strip of land of 0.04 hectare in area from tube well with a discharge

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of 0.02 cumec. The infiltration capacity of the soil may be taken as 5 cm/hour and the average depth of flow on the field as 10 cm. Also, determine the maximum area that can be irrigated from this tube well.

UNIT - II

3. Enumerate Bligh's theory and its limitations.

(OR)

4. Explain briefly the factors governing the design of weir.

UNIT - III

5. Classify various types of dams. Distinguish clearly between rigid and non-rigid dams.

(OR)

6. What do you understand by galleries and why are they provided in gravity dams?

UNIT - IV

7. Enumerate various types of linings used for canal.

(OR)

8. Explain the different types of cross drainage works.

UNIT - V

9. Describe the principle classification of water power.

(OR)

10. Discuss briefly the components of hydroelectric installations with an example.

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B.E. DEGREE EXAMINATION, 2013

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEC-703 / PCLEC-603.

ENVIRONMENTAL ENGINEERING

November]

[Time : 3 Hours

Maximum : 60 Marks

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT - I

1. Explain briefly about the classification of sewerage systems. (12)

(OR)

2. What are the commonly used appurtenances in sewerage system? Describe each one of them. (12)

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UNIT - II

3. Under what circumstances is pumping of sewage necessary? Explain briefly about functions and component parts of pumping station. (12)

(OR)

4. What is meant by water closets? Explain briefly about the two types of water closets with neat diagram. (12)

UNIT - III

5. Write short notes on :

(a) BOD and its significance. (6)

(b) Population equivalent. (6)

(OR)

6. Enumerate the two general methods adopted for sewerage disposal and discuss their merits and demerits explaining the conditions favourable for their adoption. (12)

UNIT - IV

7. Explain briefly about the trickling filter with a neat sketch. What is the principle on which it works? (12)

(OR)

8. Explain briefly about the design criteria's of Grit Chamber.

UNIT - V

9. Explain the operational principles of stabilization pond. (12)

(OR)

10. Enumerate the factors affecting sludge digestion and discuss the construction details of sludge digester. (12)

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B.E. DEGREE EXAMINATION, 2013

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

**CLEC-704 / PCLEC-602. REMOTE
SENSING AND GIS**

November]

[Time : 3 Hours

Maximum : 60 Marks

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT - I

1. Explain wave length regions in remote sensing and discuss its importance for remote sensing. (12)

(OR)

2. Explain typical spectral reflective characteristics of water, vegetation and soil. (12)

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UNIT – II

3. Define

(a) Sun synchronous and Geosynchronous.

(b) Microwave sensors. (6)

(OR)

4. (a) List the types of remote sensing data.

(6)

(b) Distinguish between Active and passive sensors.

(6)

UNIT – III

5. (a) Define :

(i) Digital image processing. (3)

(ii) Pre – processing. (3)

(b) Explain image enhancement techniques.

(6)

(OR)

6. (a) What are the primary objective of maps?

(6)

(b) What are the important conditions for producing vertical photographs?

(6)

UNIT – IV

7. (a) Explain the concepts that were introduced in data input. (6)
- (b) Explain basic components of GIS. (6)

(OR)

8. (a) List the major application areas of GIS? (6)
- (b) Briefly explain DBMS – Data Base Management system? (6)

UNIT – V

9. (a) Distinguish between.
- (i) Vector and Raster. (3)
- (ii) Digitization and scanning. (3)
- (b) What are the basic modules of a subsystem? (6)

(OR)

10. (a) Briefly explain the concept of manual digitizing. (6)
- (b) Briefly explain about modelling in GIS. (6)

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B.E. DEGREE EXAMINATION, 2013

(CIVIL / CIVIL AND STRUCTURAL ENGINEERING)

(SEVENTH SEMESTER)

CLEC-705 / CSEC-704.

URBAN AND RURAL PLANNING

November]

[Time : 3 Hours

Maximum : 60 Marks

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT – I

1. Briefly explain re-establishment and redevelopment of slum clearance. (12)
2. Discuss briefly the different stages of modern planning for the development of industries.(12)

UNIT – II

3. List the basic commodities for the development of satellite town. (12)
4. Distinguish between satellite and modern towns. (12)

UNIT – III

5. Write short notes on the following :
 - (i) Country Planning Acts. (6)
 - (ii) Building bye-laws. (6)
6. Discuss the different levels of planning review and development control. (12)

UNIT – IV

7. Differentiate rural planning from urban planning. (12)
8. Discuss in detail about the urbanization. (12)

UNIT – V

9. Describe the need for usage of low cost materials in the design of environmental sanitation. (12)
10. What is meant by grouping of houses? State the advantages and disadvantages in it. (12)

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B.E. DEGREE EXAMINATION, 2013

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

**CLEC-705 / CSEC-704 / PCSEC-702.
EARTHQUAKE ENGINEERING**

November]

[Time : 3 Hours

Maximum : 75 Marks

*(Maximum 60 marks those who joined
before 2011-12)*

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

UNIT – I

1. (a) Briefly explain the effect of strong earthquake on surface topography. (8)

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- (b) Describe the schematic representation of movement of Indian Plate. (7)

(OR)

2. (a) Explain the soil structure interaction effects. (8)
- (b) Explain the causes of earthquake and geological faults. (7)

UNIT - II

3. (a) Explain the different types of seismic waves. (8)
- (b) List the do's and don'ts during and after earthquake for protection of life and property. (7)

(OR)

4. With neat sketches, explain the working principle of seismogram. (15)

UNIT – III

5. (a) A 200 kg machine is placed at the end of 1.8 m long steel ($E = 210 \times 10^9 \text{ N/m}^2$) cantilever beam. The machine is observed to vibrate with a natural frequency of 21 Hz. What is the moment of inertia of the beam's cross section about its neutral axis? (10)
- (b) Differentiate the design spectra and response spectra with neat sketches. (5)

(OR)

6. Derive the equation of motion of single degree of freedom system for free vibration and hence the solution for (15)
- (a) Under damped system.
 - (b) Critically damped system.
 - (c) Over damped system.

UNIT - IV

7. "The taller the building, the lesser will be the lateral forces due to earthquake" – Can you substantiate this statement from the codal provisions? (15)

(OR)

8. What are the irregularities to be avoided during the design of buildings for earthquake resistant and narrate the importance of ductility in earthquake resistant design. (15)

UNIT - V

9. Analyze by equivalent static method for 10-storeyed 3 bay reinforced each concrete building having dimensions of storey height 4 m and bay distance at 5 m each. The live load on all the floors is 2.5 kN/m^2 and soil below the building is hard. The site is at Zone V. All the beams are of size $400 \text{ mm} \times 500 \text{ mm}$ and slabs are 150 mm thick. The size of columns are $600 \text{ mm} \times 600 \text{ mm}$ in all storeys and the wall around is 120 mm. (15)

(OR)

10. (a) Describe the effect of building characteristics on its seismic performance. (8)

- (b) Explain the effect of soil properties and liquefaction of soils. (7)

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B.E. DEGREE EXAMINATION, 2013

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEE-706 / PCLEE-702.

**WATERSHED CONSERVATION AND
MANAGEMENT**

November]

[Time : 3 Hours

Maximum : 60 Marks

(For the candidates of 2007-08 and after)

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT – I

1. Discuss in detail the various types of water conservation approaches recommended for different slope of land. (12)

(OR)

Turn Over

2. Define watershed and classify. What are the advantages of soil conservation methods? (12)

UNIT – II

3. Explain various practices adopted to control soil erosion in India. (12)

(OR)

4. How will you estimate the soil loss in various land surfaces? Explain in detail. (12)

UNIT – III

5. Discuss in detail the various water conservation measures and explain the need for it. (12)

(OR)

6. (a) What are the advantages of water harvesting? (6)
- (b) Explain the principle and various techniques of water harvesting. (6)

UNIT – IV

7. What is the need for watershed development in India? Explain the activities that are undertaken for watershed development. (12)

(OR)

8. Explain in detail the socio-economic aspects of watershed management. (12)

UNIT – V

9. Discuss in detail the necessity and importance of forest management. (12)

(OR)

10. Discuss in detail the range and pastures management. (12)

