Register Number:

3266

B.E. DEGREE EXAMINATION, 2012

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEC-701/PCLEC-401. GROUND WATER 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. Describe the various processes involved in hydrologic cycle.   (12)

2. Explain in detail the various types of aquifers and their characteristics.   (12)

UNIT-II

3. a) State Darcy's law and its limitations.   (6)
    b) Explain the significance of pumping test.   (6)

4. Derive an expression for steady state discharge of a well in a confined Aquifer. (12)

UNIT-III

5. Explain in detail the method of construction of a hollow well and a deep well. (12)

6. What is meant by infiltration galleries? Explain with neat sketches.   (12)

UNIT-IV

7. a) What are the advantages of ground water compared to surface water?   (6)
    b) Explain seismic refraction method.   (6)

8. Explain step by step procedures involved in conducting geophysical electrical resistivity
    method.   (12)

UNIT-V

9. Explain any three methods of artificial recharge of ground water.   (12)

10. a) Explain Ghyben-Hernerg relationship between the fresh and saline water.   (6)
    b) What are the methods to control the sea water intrusion?   (6)

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B.E. DEGREE EXAMINATION, 2012

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEE-706/PCLEE-702. WATER SHED CONSERVATION AND MANAGEMENT

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.   a)   Enumerate the problems faced due to soil erosion in India.   (6)
       b)   Explain the characteristics and features of watershed.   (6)

2.   Explain in detail the various types of soil and water conservation approaches recommended for different slope ranges of land surface.   (12)

UNIT-II

3.   Discuss the various types of soil erosion and list the methods to control it.   (12)

4.   Discuss in detail about various soil conservation practices.   (12)

UNIT-III

5.   Explain in detail the various water conservation measures and discuss the need for it in to-day's context.   (12)

6.   Elaborate the benefits and limitations of flood water harvesting.   (12)

UNIT-IV

7.   Explain in detail the various factors affecting water shed management.   (12)

8.   What do you understand by management of watersheds? How is it different form management of area development projects?   (12)

UNIT-V

9.   Explain the range and pastures management and grazing practices.   (12)

10.   In today's population growth and need for increase in agricultural production scenario, chart out a plan for waste land development.   (12)

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UNIT - IV

7. Explain with neat skeches the Imhoff tanks, also its advantages and disadvantages. (12)

(OR)

8. Explain the method of disposal of septic tank effluent. (12)

UNIT - V

9. Explain in brief the various methods of final disposal of sludge. (12)

(OR)

10. Explain with neat sketches of oxidation pond. (12)

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B.E. DEGREE EXAMINATION, 2012

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEC-703.
ENVIRONMENTAL ENGINEERING - II

November] [Time : 3 Hours

Maximum : 60 Marks

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

UNIT - I

1. (a) A stone-ware sewer, 30cm in diameter is laid at a gradient of 1 in 100. Using $N = 0.013$ in Manning's formula. Calculate the velocity, discharge and Chezy's constant when the sewer is running full.

(6)

2

(b) Find the minimum velocity and gradient required to transport coarse sand through a sewer of 60 cm diameter with sand particles of 1 mm diameter and specific gravity 2.66. Assume $\beta = 0.06$ and $f = 0.02$. Assume the sewer to run half full. Take $N = 0.012$. (6)

(OR)

2. What are the various factors affecting dry weather flow? (12)

UNIT - II

3. Explain with neat sketches the various types of joints used in sewer line. (12)

(OR)

4. Explain with the help of diagrams, various systems of plumbing used for house drainage. (12)

3

UNIT - III

5. Write short notes on the following : (12)

(a) Anaerobic process.

(b) Aerobic process.

(c) Nitrogen cycle.

(d) Carbon cycle.

(OR)

6. A city discharges sewage at the rate of 1,200 litres per seond, into a stream whose minimum flow is 5,000 litres per second. The temperature of both being 20°C. The five day BOD at 20°C for sewage is 160 mg/l and that of river water is 2 mg/l. The DO content of sewage is zero while that of stream is 90% of the saturation DO. Find out the degree of treatment required if the minimum DO to be maintained in the stream is 4 mg/l. Assume deoxygenation co-efficient as 0.1 and reoxygenation co-efficient as 0.3. Given saturation DO at 20°C as 9.17 mg/l. (12)

Register Number :

Name of the Candidate :

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B.E. DEGREE EXAMINATION, 2012

(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. (a) Distinguish between camera and sensor.

(3)

   (b) Explain the neat sketch the components of a remote sensing system.   (9)

(OR)

Turn Over

2. (a) What is spectral signature? (2)

   (b) Explain the interaction of electromagnetic energy with earth surface features. (water, soil and vegetation) (10)

UNIT – II

3. Write notes on the following :

   (a) Different types of platforms. (4)

   (b) How are satellites classified? (4)

   (c) Different types of resolution. (4)

(OR)

4. Explain in detail about the three types of sensors used in the landsat? (12)

UNIT – III

5. Explain the elements of interpretation with an example for each one of them. (12)

(OR)

6. Explain the following :

   (a) Density slicing. (4)

   (b) Buffering. (4)

   (c) Reclassification. (4)

UNIT – IV

7. Explain with neat sketch the components of a GIS. (12)

(OR)

8. (a) What is Projection? (2)

   (b) What are the broad classification of projections? (10)

UNIT – V

9. Describe the raster and vector data structure. What are the relative advantages and disadvantages of the two data structure? (12)

(OR)

10. Describe in detail remote sensing and GIS application in highway alignment studies. (12)

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B.E. DEGREE EXAMINATION, 2012

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEE-705 / PCLEC-701.
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. What are the various objects and principles of Zoning? (12)

(OR)

2. Explain briefly the slum clearance. (12)

UNIT – II

3. Explain briefly satellite towns. (12)

(OR)

4. Describe briefly the modern development of town. (12)

UNIT – III

5. What are the various levels of planning review? (12)

(OR)

6. Explain briefly the national planning development control. (12)

UNIT – IV

7. What are the various differences of rural and urban? (12)

(OR)

8. Explain briefly the term Urbanisation. (12)

UNIT – V

9. Design of environmental sanitation by low cost materials. (12)

(OR)

10. Give the basic principle and design of environmental sanitation. (12)

3 2 7 1

B.E. DEGREE EXAMINATION, 2012

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEC-705. EARTHQUAKE ENGINEERING

November]   [Time : 3 Hours

Maximum : 60 Marks

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

UNIT – I

1. Write notes on :

(a) Types of faults. (6)

(b) Elastic Rebound Theory. (6)

(OR)

2. Briefly explain plate tectonics and lithospheric plates. (12)

Turn Over

UNIT – II

3. Define seismic intensity scale. Explain the details of Modified Mercalli Intensity (MMI) with intensity number. (12)

(OR)

4. (a) Explain the working principle of seismogram with neat sketches. (6)

(b) Explain the characteristics of string ground motion. (6)

UNIT – III

5. (a) Determine the Natural frequency of the system. (Figure - 1) (6)

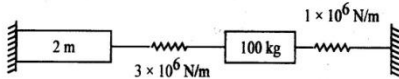$A = 2 \times 10^{-5} \ m^2$.

$E = 10 \times 10^9 \ N/m^2$.

Figure - 1

UNIT – IV

7. (a) Explain the importance of ductility in earthquake resistant design of R.C. buildings. (6)

(b) Discuss the factors affecting ductility? (6)

(OR)

8. (a) Discuss in detail the effects and applications of base isolation. (6)

(b) Explain the architectural design concepts in seismic zone areas. (6)

UNIT – V

9. A four storied single bay building frame is of reinforced concrete situated in zone IV. The height between floors is 3 m. The total height of the building is 12 m. The dead and live loads are lumped at the respective floor levels. The soil below the foundation is hard rock. It is a hospital building. Determine the total base shear and the equivalent lateral loads at various levels, using the empirical method of IS 1893-2002 (part - I). Stiffness of each column in I,

(b) Compare the under damping and over damping systems with time versus displacement curve. (6)

(OR)

6. In a free vibration test on a one story structure, a cable is attached to a roof and lateral horizontal force of 80 kN is applied which pulls the roof horizontally by 50 mm. The cable is suddenly cut and the resulting free vibration record initiates that at the end of complete cycles, the time in 2 sec and the amplitude is 25 mm. For this system, determine

(i) Lateral stiffness and natural period of undamped vibration.

(ii) Damping ratio and damping co-efficient.

(iii) No. of cycles and time required for the amplitude to decrease to 5 mm. (12)

Turn Over

II, III and IV floors are 500 kN/m, 400 kN/m, 300 kN/m and 300kN/m respectively. The seismic weight of I, II, III and IV floors are 80 kN, 80 kN, 40 kN and 40 kN respectively. (12)

(OR)

10. (a) Explain the important points in mitigating the effects of earthquake on structures.(8)

(b) List out some past disastrous earth quakes in India. (4)