Register Number :

Name of the Candidate :

0 3 6 4

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEC-701 / PCLEC-401. GROUND WATER ENGINEERING

(Common with Part-Time)

April] [Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.

UNIT – I

1. (a) Draw a neat sketch of hydraulic cycle showing the ground water in it. (7)

   (b) Define the following : (8)

   (i) Void ratio. (ii) Specific yield. (iii) Specific retention.

   (iv) Hydraulic conductivity.

2. Name the types of aquifiers and explain them. (15)

UNIT – II

3. (a) Derive an expression for steady state radial flow into a well under unconfined aquifer condition. (8)

   (b) Write in detail about the pumping test by Cooper Jacob method. (7)

4. Explain in detail the field measurement of permeability with a neat sketch. (15)

UNIT – III

5. Name the different types of wells. Explain the construction of deep well. (15)

6. Describe the infiltration gallery with a neat sketch. Also, explain the components of a infiltration gallery. (15)

UNIT – IV

7. Explain in detail the electrical resistivity method of ground-water exploration. (15)

8. Describe the seismic refraction method of surface investigation. (15)

UNIT – V

9. Explain Glyben-Herzberg relation between fresh-water and saline-water. (15)

10. Explain any three methods of artificial recharge of ground-water. (15)

Register Number :

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0 3 6 5

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEC-702. IRRIGATION AND WATER POWER ENGINEERING

April] [Time : 3 Hours

Maximum : 75 Marks

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

UNIT – I

1. (a) Describe the basic necessity of irrigation. (10)

   (b) Define the terms duty and delta. (5)

2. Briefly describe the following : (3 × 5 = 15)

   (a) Notch type fall. (b) Ogee fall. (c) Cylinder fall.

UNIT – II

3. Briefly describe with neat sketches on the various types of weirs. (15)

4. Discuss about the Khosla's and Bligh's theory and its applications. (15)

UNIT – III

5. With neat sketches, explain the various types of earthern dams. (15)

6. Explain briefly about the various components in gravity dam with neat sketches. (15)

UNIT – IV

7. Describe the various causes and effects of water logging. (15)

8. With neat sketches, explain the following : (7 + 8)

   (a) Aquaduct. (b) Super passage.

UNIT – V

9. With neat sketch, explain a head regulator and cross regulator. (15)

10. Describe briefly about the high, medium and low head hydel power plant. (15)

Register Number :

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B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEC-703 / PCLEC-603. ENVIRONMENTAL ENGINEERING - II

(Common with Part-Time)

April] [Time : 3 Hours

Maximum : 75 Marks

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

UNIT – I

1. Design a sewer running 0·7 times full at discharge conditions for a town with a population of 90,000 and provided with a water supply of 200 litres per day. Take slope 1 in 400, N-0·013 and 85 % of water is sewage. (15)

2. (a) Discuss in detail the various hydraulic formulae for the design of sewage systems. (7)

   (b) How will you classify the sewerage systems ? Explain them briefly. (8)

UNIT – II

3. (a) Discuss in detail the various types of pumps used in sewage pumping with neat sketches. (7)

   (b) Write a note on laying and testing of sewers. (8)

4. (a) What are traps and discuss the various types of traps with neat sketches. (7)

   (b) Write a note on one pipe system and two pipe system. (8)

UNIT – III

5. (a) Derive an expression for biological oxidation reaction of BOD. (8)

   (b) Write a detailed note on characteristics and composition of sewage. (7)

6. (a) Explain the various actions involved in the self purification of rivers. (7)

   (b) Explain the methods of disposal of sewage. (8)

UNIT – IV

7. Design a circular sedimentation tank for a population of 50,000 and the rate of water supply is 135 litres / head / day. (15)

8. Determine the size of high rate trickling filter for the following data : (15)

Flow = 4·5 MLD. BOD removal in primary tank = 30 %.

Recirculation ratio = 1·5. BOD of raw sewage = 250 mg/*l*.

Final effluent BOD = 30 mg/*l*.

UNIT – V

9. (a) Explain with neat sketch, the function and operation of activated sludge process. (9)

(b) What are the characteristics of sludge ? (6)

10. (a) Describe the anaerobic sludge digestion process and its effects of pH, temperature on it. (9)

(b) Describe the methods of sludge disposal. (6)

Register Number :

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0 3 6 7

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

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

(Common with Part-Time)

April] [Time : 3 Hours

Maximum : 75 Marks

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

UNIT – I

1. (a) Explain about the wave length regions which are important for remote sensing. (10)
   (b) Define electromagnetic spectrum. (5)
2. Briefly describe the spectral reflective characteristics of water, vegetation and soil. (15)

UNIT – II

3. (a) Briefly describe about passive and active sensor. (10)
   (b) Discuss in brief on an orbitting type platform used in remote sensing. (5)
4. Discuss briefly about microwave remote sensing, its types and its specific applications. (15)

UNIT – III

5. (a) Describe the various types of image interpretation. (10)
   (b) Discuss how digital image processing is used in civil engineering. (5)
6. Explain about the supervised and unsupervised multi-spectral image classifications. (15)

UNIT – IV

7. (a) Briefly describe about the various standard softwares used in GIS. (10)
   (b) Explain about map analysis. (5)
8. Discuss brifely about the spatial and non-spatial data and its types. (15)

UNIT – V

9. Briefly describe about the attribute data analysis and integrated data analysis. (15)
10. Discuss about the GIS usage in Land Information System. (15)

Register Number :

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0 3 6 8

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEE-705 / PCLEE-701. URBAN AND RURAL PLANNING

(New Regulations)

(Elective - I)

(Common with Part-Time)

April] [Time : 3 Hours

Maximum : 75 Marks

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

UNIT – I

1. Discuss the planning of residential neighbourhood, parks and play grounds.
2. Explain the uses of master plan and urban renewal conservation.

UNIT – II

3. Explain the development of urban town with an example.
4. Discuss the necessity of satellite towns, where it is applicable.

UNIT – III

5. Explain the building bye-laws in India. Discuss in brief.
6. Explain the National Planning Development.

UNIT – IV

7. Discuss in detail about principles of rural planning.
8. Explain about the integrated rural development progrmme.

UNIT – V

9. Explain the principles involved in design of sanitation works for housing, with neat sketches.
10. What do you mean by grouping of houses ? Explain the various grouping done in our country.

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0369

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEE – 705 / CSEE – 704 / PCSEC – 702: EARTHQUAKE ENGINEERING

(Common with Civil and Structure Engg. & Part - Time)

April] [Time : 3 Hours

Maximum : 75 Marks

Answer any ONE full question from each Unit **(5 × 15 = 75)**

(IS 1983:2002; IS 4236:1976;IS 3920:1993; SP 22; IS456:2000 are permitted)

UNIT – I

1. Explain causes of earth quakes and geological faults. (15)
2. Explain the plate tectonic theory in detail with sketch. (15)

UNIT – II

3. Write short notes on : (15)

   a) Types of seismic waves b) earthquake intensity c) Seismic zones of India.

4. a) Explain the design spectra with neat graph. (8)

   b) Explain the concepts of Peak Ground Acceleration. (7)

UNIT – III

5. Derive the equation for the displacement response of a viscously damped SDOF system due to initial velocity is {0} for three cases. (15)

   a) Under damped system.

   b) Critically damped system.

   c) Cover damped systems .plot $u(t)+u(0) / \omega_n$ aginst t/T_n for ε=0.1,1 and 2.

6. In a free vibration test on a one storey structure, a cable is attached to the roof and a lateral horizontal force of 80 kN is applied which pulls the roof horizontally by 50mm. the cable is suddenly cut and the resulting free vibration record initiates that at the end of complete cycles, the time is 2 seconds and the amplitude is 25mm. For this system determine. (15)

   a) Lateral stiffness and natural period of undamped vibration.

   b) Damping ratio and damping co-efficient.

   c) Number of cycles and time required for the amplitude to decrease to 5 mm.

UNIT – IV

7. With neat sketches explain the different types of base isolation techniques. (15)
8. Discuss the importance of ductility in earthquake resistance design of R.C. buildings and factors affecting ductility. (15)

UNIT – V

9. a) Explain the general principles of IS 1893 : 2002 (7)

   b) Explain the plan irregularities of irregular buildings with heat sketch. (8)

10. A three storeyed symmetrical RC school building situated at Bhuj with the following data: (15)

Plan dimensions.	7m
Storey height	3.5m
Total weight of beam in a storey	140 kN
Total weight of slab in a storey	260 kN
Total weight of column in a storey	60 kN
Total weight of walls in a storey	540kN
Live load	140kN
Weight of terrace floor	675kN

The structure is resting on hard rock. Determine the total base shear and lateral loads at each floor levels for 5% of damping using seismic coefficient method.

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0370

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEE– 706 / PCLEE – 702: WATERSHED CONSERVATION AND MANAGEMENT

(Elective – II)

(Common with Part - time)

April] [Time : 3 Hours

Maximum : 75 Marks

Answer any ONE full question from each Unit **(5 × 15 = 75)**

UNIT – I

1. Explain the concept of water shed and list its merits.
2. Discuss the history of erosion and its approaches to water conservation.

UNIT – II

3. Explain the soil erosion by wind and water.
4. Write short notes on 1) Soil conservation practices and 2) Vegetative practices.

UNIT – III

5. Explain the water conservation methods with neat sketches.
6. Explain the roof rain water harvesting with neat diagram.

UNIT – IV

7. List out the various watershed management practices, explain any one in detail.
8. Explain the different planning of watershed works.

UNIT – V

9. Explain with suitable drawing about the procedure adopted in the joint Forest management practices.
10. What is grazing? Discuss the effects and methods of grazing.

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