Register Number :

Name of the Candidate :

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B.E. DEGREE EXAMINATION, 2016

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEC-701 / PCLEC-401. GROUND WATER ENGINEERING

May]

[Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.

UNIT – I

1. Explain the various types of aquifers with neat sketches. (15)

(OR)

2. (a) Explain transmissivity and storage co-efficient of an aquifer. (10)

(b) Write the factors affecting the permeability. (5)

UNIT - II

3. Derive an expression for the discharge from a well fully penerating a confined aquifer. (15)

(OR)

4. A 30 cm well fully penetrates a confined aquifer 30 m deep. After long period of pumping at a rate of 1200 litres per minute, draw downs in the wells at 20 m and 45 m from the pumping well are found to be 2·2 m and 1·8 m respectively. Determine the transmissibility of the aquifer and also, draw down in the well. (15)

UNIT - III

5. Explain with a neat sketch infiltration gallery. (15)

(OR)

6. Write short notes on the following : (5 + 5 + 5)

(a) Conjuctive use. (b) Collector wells. (c) Groundwater management.

UNIT - IV

7. Explain in detail seismic refraction method of surface investigation with sketch. (15)

(OR)

8. Explain any one method sub surface investigation with sketch. (15)

UNIT - V

9. Explain with sketches, the various methods adopted for groundwater recharge. (15)

(OR)

10. With a sketch, explain seawater intrusion. Explain the causes of intrusion and remedial measures to control it. (4 + 5 + 6)

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B.E. DEGREE EXAMINATION, 2016

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEC-702. IRRIGATION AND WATER POWER ENGINEERING

May]

[Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.

UNIT – I

1. What is irrigation? What has been its impact on human environment? (15)

(OR)

2. What are the factors affecting duty and enumerate the different terms by which duty can be improved ? (15)

UNIT - II

3. Draw a layout of diversion headworks and indicate the various components with neat sketches and explain in detail of any one.

(OR)

4. (a) Draw the elementary profile of a weir. (8)
   (b) Differentiate a weir with a dam using a sketch. (7)

UNIT - III

5. What are the various factors which govern the selection of a typical dam? (15)

(OR)

6. What are the force acting on a dam and explain them with a neat sketch. (15)

UNIT - IV

7. Explain the different ways of alignment of canals . (15)

(OR)

8. Describe the properties of canal lining material suitable for canal lining. (15)

UNIT - V

9. What are canal regulation works? Explain any one in detail. (15)

(OR)

10. Explain the components of hydroelectric installation with neat sketch. (15)

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B.E. DEGREE EXAMINATION, 2016

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

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

(Common with Part-Time)

May] [Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.

UNIT – I

1. Design a circular sewer so as to cater a residential colony in town, having the following data:

   Area of the colony = 36 hectares. Population = 8000.

   Perception water consumption 170 lphd. Critical rain-fall = 4 cm/hr.

   Ground slope = 1 in 900.

   Assume any other data not given and if needed.

(OR)

2. Design a sewer running 0·7 times fall at maximum discharge for a town provided with the separate system serving a population of 80,000 persons. The water supplied from the water works to the town is at a rate of 190 litres / day / person / day. The sewer is made up of brick work plastered smooth with cement mortar ($n = 0{\cdot}013$) and the permissible slope is 1 in 600. The variation of n with depth may be neglected. Assume any other data needed.

UNIT - II

3. Explain the steps involved in laying, joining and testing sewers.

(OR)

4. Explain the pumping and types of pumps.

UNIT - III

5. Explain the objectives of sewage disposal.

(OR)

6. What are the different zones of pollution in a river polluted by waste water?

UNIT - IV

7. Write short notes on :

   (a) Grit chamber. (b) Screen chamber.

(OR)

8. Explain design consideration for septic tank.

UNIT - V

9. Explain the methods of aeration and oxidation ponds.

(OR)

10. Give the flow diagram for the activated sludge process and describe the working principles of the activated sludge plant.

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B.E. DEGREE EXAMINATION, 2016

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

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

(Common with Part-Time)

May]

[Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.

No charts, Tables, Hand books, Codes, Standard chart be required.

UNIT – I

1. (a) Explain the atmospheric interaction with EMR in terms of absorption, transmission and scattering. (12)

   (b) Define Weins displacement law. (3)

(OR)

2. (a) Define Stefan Boltzmann law. (3)

   (b) Explain the interaction of EMR with earth surface feature in terms of reflected, transmitted and absorbed energies. (12)

UNIT - II

3. (a) Differentiate active and passive sensors. (5)

   (b) Explain in brief the payload characteristics of IRS series mission satellites (any two). (10)

(OR)

4. (a) Differentiate between geo-stationary and sun-synchronous satellites. (5)

   (b) Explain in detail of payload characteristics of any two meteorological satellites. (10)

UNIT - III

5. (a) Define digital image processing. Explain in detail. (7)

   (b) What are the basic elements of image interpretation? (8)

(OR)

6. (a) What is meant by image classifications? Explain in detail. (9)

(b) Define pixels and digital numbers. Write its specific usages. (6)

UNIT - IV

7. (a) Define map projections. Explain the different types of map projection system and write its necessity. (9)

(b) Define scale and explain the different types of scales. (6)

(OR)

8. (a) Explain different components of GIS. (9)

(b) Define maps and explain types of maps. (6)

UNIT - V

9. (a) Define land information system. Explain land informaiton system in detail with its specific applications. (12)

(b) Define data model. (3)

(OR)

10. (a) Briefly explain different types of data input for GIS. (10)

(b) What is meant by data integration? Write the possibilities of GIS based integration with other databases. (5)

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B.E. DEGREE EXAMINATION, 2016

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEE-705-A / CSEE-704 / PCSEE-702. EARTH QUAKE ENGINEERING

(Elective)

(Common with Civil, Structural Engineering Part- Time)

May] [Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.

IS 1983 : 2002; IS 4236 : 1976 ; IS 3920 : 1993; SP -22 IS 456 : 2000 are permitted.

UNIT – I

1. Discuss briefly the causes and effects of earth-quake. (15)

(OR)

2. (a) Explain plate tectonic theory. (7)

   (b) Write short notes on spectral acceleration and types of faults with neat sketches. (8)

UNIT - II

3. What are seismic waves? Explain each type of seismic waves with sketches. (15)

(OR)

4. Briefly write about earth-quake reading instruments. (15)

UNIT - III

5. Derive an expression for single degree of freedom in damped system for free vibration. (15)

(OR)

6. Explain in detail the seismic response of SDOF structures. (15)

UNIT - IV

7. Why ductility considerations are more important in earth-quake resistant design of RC buildings? Explain the ductile detailing considerations in flexural members as per IS 13920-1993. (15)

(OR)

8. Discuss the design concepts in horizontal and vertical eccentricities due to mass and stiffness distribution. (15)

UNIT - V

9. Explain in detail the main causes of damage for earth-quake to occur. (15)

(OR)

10. (a) Discuss about equivalent static method. (7)

    (b) Discuss about the recent earth-quake that occurred in India. (8)

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B.E. DEGREE EXAMINATION, 2016

(CIVIL ENGINEERING)

(SEVENTH SEMESTER)

CLEE-706 / PCLEE-702. WATERSHED CONSERVATION AND MANAGEMENT

(Elective - II)

(Common with Part- Time)

May]

[Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.

UNIT – I

1. Define erosion. State the problems involved in erosion at India.

(OR)

2. Discuss in detail the approaches to soil conservation.

UNIT - II

3. Explain the methods to control soil erosion by wind and water.

(OR)

4. Discuss the model to estimate soil loss.

UNIT - III

5. Discuss the need for water conservation.

(OR)

6. Discuss the principle and techniques involved in flood water harvesting.

UNIT - IV

7. Explain in detail the programmes involved in watershed.

(OR)

8. Discuss the procedure involved in watershed management practices.

UNIT - V

9. Explain green land farming.

(OR)

10. Discuss the methods to convert waste land to usable land.