Total No. of Questions—**12**] [Total No. of Printed Pages—**4+2**

Seat No.	

[4956]-5

F.E. (Common) (First Semester) EXAMINATION, 2016

BASIC CIVIL AND ENVIRONMENTAL ENGINEERING

(2008 PATTERN)

Time : Three Hours **Maximum Marks : 100**

N.B. **:—** (*i*) Answer Q. No. **1** *or* Q. No. **2**, Q. No. **3** *or* Q. No. **4**, Q. No. **5** *or* Q. No. **6** from Section I and Q. No. **7** *or* Q. No. **8**, Q. No. **9** *or* Q. No. **10**, Q. No. **11** *or* Q. No. **12** from Section II.

(*ii*) Answers to the two Sections should be written in separate answer-books.

(*iii*) Figures to the right indicate full marks.

(*iv*) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.

(*v*) Assume suitable data, if necessary.

(*vi*) Neat diagrams must be drawn wherever necessary.

SECTION I

1. (*a*) What are the various duties to be performed by civil engineer in any construction project. [6]

(*b*) Enlist the various modes of transportation. [4]

P.T.O.

(*c*) Briefly explain the scope of the following branches of civil engineering : [3+3]

(*i*) Irrigation Engineering

(*ii*) Project Management.

Or

2. (*a*) Give the classification of roads on the basis of the following : [3+3]

(*i*) Location and function (Nagpur Road plan)

(*ii*) Materials of construction.

(*b*) Define valuation. State any three practical applications of valuation. [1+3]

(*c*) Explain in brief the following branches of Civil Engineering :

(*i*) Earthquake Engineering

(*ii*) Surveying. [3+3]

3. (*a*) With the help of neat sketch differentiate between End bearing pile and Friction Pile. [3+3]

(*b*) What do you understand by Grade of cement ? State the various grades of cement commonly used in any construction work. [1+3]

(*c*) Explain with a neat sketch the following : [3+3]

(*i*) Wall footing

(*ii*) Rectangular combined footing.

Or

4. (*a*) State the uses of the following in construction work : [2+2]

(*i*) Stone

(*ii*) Sand.

(*b*) State comparison between load bearing structure and framed structures. [3+3]

(*c*) State the causes of Uniform settlement and differential settlement. [3+3]

5. (*a*) The following staff readings were observed by a dumpy level and 4 m leveling staff, at an interval of 20 m. The readings are 2.650, 1.650, 4.000, 3.250 and 1.555. Level was shifted after third reading. The first reading was taken on a BM of RL 1000.00 m. Calculate the reduced levels of staff stations by Rise and Fall Method. [6]

(*b*) Define the following : [2+2+2]

(*i*) Leveling

(*ii*) Bench Mark

(*iii*) Change point.

(*c*) Define contour line. State any four uses of contours. [2+4]

Or

6. (*a*) Explain with a neat sketch the procedure of determining area of an irregular figure by Digital Planimeter. [6]

(*b*) State various axes of dumpy level. Also state the desired relationship between them. [3+3]

(*c*) The following staff readings were observed by a dumpy level and 4 m leveling staff. The readings are 1.555, 1.950, 2.400, 0.850, 1.250, 1.200 and 0.650. Level was shifted after third and fifth reading. The first reading was taken on a BM of RL 260.350 m. Calculate the reduced levels of staff stations by collimation plane Method. [6]

SECTION II

7. (*a*) Discuss in brief the components of Grass land Ecosystem. [6]

(*b*) State the various sources of Urban and Industrial waste. Explain in brief three R's of management of solid waste. [6]

(*c*) Write a short note on Carbon cycle. [4]

Or

8. (*a*) State various natural resources. What measures should we take to conserve water-a precious resource. [2+4]

(*b*) Write a short note on Environment Impact Assessment. [6]

(*c*) Explain with a neat sketch Hydrological cycle. [4]

9. (*a*) Enlist all the principles of building planning. Explain any one in brief. [6]

(*b*) A plot owner wants to construct a bungalow with G+1 floor, on a plot who's length of Breadth ratio is 2.0 and perimeter is 66 m. Find the ground coverage and area on first floor, if the side margin is 2 m for all the sides. As per the rules FSI allowed is 1.0. [6]

(*c*) Differentiate between building line and control line. [3+3]

Or

10. (*a*) A rectangular plot measures 25 × 36 m. The front and side set backs are 2.5 m. Permissible FSI is 1.33. G+1 storeyed building is to be constructed to consume full FSI. Determine the built up area on each storey. [6]

(*b*) State the various points to be considered while selecting a site for industrial building. [6]

(*c*) Explain in brief the following principles of building planning : [2+2+2]

(*i*) Aspect

(*ii*) Roominess

(*iii*) Elegance.

11. (*a*) Explain in brief the following : [6]

(*i*) Geothermal energy

(*ii*) Solar energy.

(*b*) Discuss in brief sources and effects of air pollution. [6]

(*c*) Explain in brief the Mechanism of production of Hydropower. [4]

Or

12. (*a*) Define Noise. Also write remedial measures to control Noise pollution. [6]

(*b*) Discuss in brief effects and control of land pollution. [6]

(*c*) Write a short note on water pollution. [4]