Total No. of Questions—**8**] [Total No. of Printed Pages—**4**

| Seat No. | |
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# [4856]-104

## F.E. (Common) EXAMINATION, 2015
## BASIC CIVIL AND ENVIRONMENTAL ENGINEERING
## (2012 PATTERN)

**Time : Two Hours** **Maximum Marks : 50**

***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** and Q. No. **7** *or* Q. No. **8.**

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

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

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

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

**1.** (*a*) "Any civil engineering project is the best illustration of inter-disciplinary approach in engineering." Justify the statement by giving suitable example. [4]

(*b*) State the various construction materials, which you have seen during your visit to construction site. Also state the *one* use of each. [4]

(*c*) Explain in brief the technique (engineering) by which the data of Drought affected area is callected without visiting the site. [4]

*Or*

**2.** (*a*) State comparison between Rigid Pavement and Flexible Pavement. [4]

P.T.O.

(*b*) Suggest the appropriate type of foundation for the following structures. Also draw a neat sketch of the foundation suggested :

(*i*) Ten storied building on Black cotton soil

(*ii*) Two storied building on hard strata. [4]

(*c*) What is Prestressed Cement Concrete ? State the merits and demerits of prestressed cement concrete. [4]

**3.** (*a*) The following consecutive readings were taken with a level and 4 m leveling staff. The readings are 0.785, 1.326, 2.538, 3.435, 1.367, 2.328, 1.234 and 1.657. The first reading was taken on Permanent Benchmark established on bottom of slab of RL 100.00 m and the Level was shifted after fourth reading. Calculate the Reduced levels of staff stations by collimation plane method. Apply usual Arithmetic check. [5]

(*b*) Explain in brief the Living and Non-Living components of Ecosystem. [3]

(*c*) Enlist the various methods of disposal of Solid Waste. Write in brief about eco-friendly method of disposal of solid waste. [4]

*Or*

**4.** (*a*) The following consecutive readings were taken on continuously sloping ground with a level and 4 m leveling staff, at an interval of 20 m. The readings are 0.785, 1.326, 2.538, 3.435, 1.367, 2.328, 2.657 and 2.834. The first reading was taken on starting point of RL 200.00 m. Calculate the reduced levels of staff stations by Rise and Fall method. Also calculate the Gradient (slope) of the ground. [5]

(*b*) Enlist the various modern instruments used in surveying. Explain any *one* in brief. [4]

(*c*) Write a short note on hydrological cycle. [3]

**5.** (*a*) A plot owner wants to construct a bungalow with G+1 floor, on a square plot whose perimeter is 80 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 FAR allowed is 1.2. [5]

(*b*) Write a short note on sustainable building. [4]

(*c*) Explain with a neat sketch the following : [4]

(*i*) Circulation

(*ii*) Grouping.

*Or*

**6.** (*a*) A plot owner wants to construct a bungalow with G+1 floor, on a square plot whose perimeter is 80 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 1.2. [5]

(*b*) State with reasons the desirable aspects for the following rooms in a residential building : [4]

(*i*) Study room

(*ii*) Kitchen.

(*c*) State the various points to be considered while selecting a site for industrial building. [4]

**7.** (*a*) State the various sources of energy. What measures you will take to conserve them ? [4]

(*b*) Explain in brief the various remedial measures to control air pollution. [5]

(*c*) Define water pollution. What are the various sources of water pollution ? [4]

*Or*

**8.** (*a*) Write a short note on Ozone depletion. [4]

(*b*) Explain in brief the mechanism of production of wind energy. [5]

(*c*) Explain in brief the physiological and psychological effects of noise pollution on human health. [4]