Total No. of Questions—**8**] [Total No. of Printed Pages—**5**

Seat No.	

[5151]-102

F.E. (Common) EXAMINATION, 2017

BASIC CIVIL AND ENVIRONMENTAL ENGINEERING

(2015 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**, 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*) State precisely the role of civil engineer in the following activities : [4×1=4]

(*i*) Planning

(*ii*) Tendering

(*iii*) Construction

(*iv*) Maintenance.

(*b*) What is Prestressed Concrete ? State any *two* applications of PSC. [2+2=4]

(*c*) State any *four* field applications of Geotechnical Engineering/ Soil Mechanics. [1×4=4]

P.T.O.

Or

2. (*a*) Define Irrigation Engineering. Highlight the importance of irrigation engineering in today's era. [1+3=4]

(*b*) Explain with a neat sketch the following : [2+2=4]

(*i*) Pile Foundation

(*ii*) Uniform settlement.

(*c*) Comment on a statement "Use of Recycled materials is the nees of the present era. [4]

3. (*a*) During a surveying practical on Fly Leveling, following reading were taken with a dumpy level and 4 m Leveling staff. While determining the reduced levels it was found that, some of the reading are missing. [8]

Calculate the missing reading marked as "X". Also apply the usal Arithmetic Check.

Sr. No.	BS	IS	FS	Rise	Fall	RL	Remarks
1.	×					463.875	TBM1
2.		×		0.550		×	
3.	0.965		3.655		×	×	Change Point 1
4.	×		1.400		×	461.885	Change Point 1
5.			1.025	×		463.875	TBM 1

(*b*) How will you stress the importance of sustainable development for developing nations ? [4]

Or

4. (*a*) The following consecutive reading were taken with a level and 4 m leveling staff. Instrument was shifted after third and fifth reading :1.215, 0.965, 0.685, 2.175, 1.805, 1.745, 0.905, and 2.305. The first reading was taken on reference point whose RL is known to be 151.235 m. Calculate the Reduced Levels of all Staff stations by Collimation Plane Method. Apply usual Arithmetic check. [8]

(*b*) What is E-Waste ? What measures should we take to reduce E-waste ? [1+3=4]

5. (*a*) A plot owner has purchased rectangular plot whose length to breadth ratio is 3.0 and perimeter of the plot is 120 m. He wants to construct Two Storeyed building. As per town planning riles permissible FSI is 1.00, Front margin is 3.0 m and all other margin are 2.5 m. [5]

Calculate :

(*i*) Ground Coverage

(*ii*) Area on First Floor.

Note : Breadth of plots is parallel to road

(*b*) Define the following terms : [4]

(*i*) Set-Back distance

(*ii*) Floor Area

(*iii*) F.A.R

(*iv*) Plinth area.

(*c*) Differentiate clearly between Aspect and Prospect. [4]

Or

6. (*a*) A plot owner has purchased rectangular plot whose length to breadth ratio is 3.0. and perimeter of the plot is 120 m. He wants to construct two storeyed building. As per town planning rules permissible FSI is 1.00, Front margin is 3.0 m and all other margins are 2.5 m. [5]

Calculate :

(*i*) Ground Coverage

(*ii*) Area on First Floor.

Note : Breadth of plots is parallel to road

(*b*) While constructing your own house. What measures will you take to improve the following : [4]

(*i*) Circulation

(*ii*) Elegance.

(*c*) State with reasons the desirable aspects for the following : [2+2=4]

(*i*) Study Room

(*ii*) Sanitary Units.

7. (*a*) Write a short note on Global Warming. [4]

(*b*) Comment on a statement "Efficient use of Renewable sources of Energy will be help us to reduce air pollution in rural area of our country. [5]

(*c*) Explain in brief the mechanism of production of Biogas energy. [4]

Or

8. (*a*) Write a short note on Water Pollution. [4]

(*b*) Explain in brief the various causes of Land Pollution. [5]

(*c*) What measures you will suggest to reduce Land Pollution in Urban ares. [4]