| Seat No. | |
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**[5056]-16**

### FE (Common) EXAMINATION, 2016
### 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, and 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, electronics pocket calculator and steam tables is allowed.

(iv)  Neat diagrams must be drawn wherever necessary.

(v)  Assume suitable data, if necessary.

**1.** (a) State the role of Civil Engineer in construction of a Bungalow.

[1×4=4]

(b) Define Settlement and state its types. Also mention various causes of settlements

[2×2=4]

(c) State any *two* practical applications of the following :

[1×4=4]

(1) Irrigation Engineering

(2) Project Management.

*Or*

**2.** (a) Define the term 'GAUGE'. State various types of gauge with their dimensions.

[1+3=4]

(b) State comparison between PCC and RCC.

[1×4=4]

(c) Define Concrete. State various types of Concrete. Also mention *one* practical application of each.

[1+3=4]

3. (a) The following staff readings were taken with a dumpy level and 4 m leveling staff on a sloping ground. The readings are 0.500, 0.900, 1.200, 3.800, 0.400, 1.600, 2.200, 3.600, 0.700, 1.500, 2.700 and 3.400. The first reading was taken on BM of RL 100.000 m. Calculate the reduced levels of staff stations by rise and fall method. Apply usual arithmetic check. [5]

(b) Explain in brief the importance of Forest as a Natural Resource. [4]

(c) Define the following terms used in leveling : [3×1=3]
   (1) Benchmark
   (2) Line of collimation
   (3) Change point.

*Or*

4. (a) With the help of a neat sketch explain any *four* characteristics of contour lines. [4×1=4]

(b) During a differential leveling work the following readings were taken with the help of level and 4 m staff. The readings are 2.305, 1.880, 3.205, 2.235, 1.975, 0.500, 2.105 and 0.985. The level was shifted after fourth and sixth reading. **The BM of elevation 102.50 m was given at the bottom of Lintel.** Calculate The Reduced Levels of all Staff stations by Collimation Plane Method. Apply Usual Arithmetic check. [5]

(c) State various Natural Resources. Explain any *one* in brief. [1+3=4]

5. (a) State various ways of achieving economy while constructing a building. [5]

(b) Explain the following terms : [1×4=4]
   (1) Built up area
   (2) Floor Area Ratio
   (3) Privacy
   (4) Roominess.

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(c) Explain the importance of circulation as a principle of planning. [4]

*Or*

6. (a) Explain in brief the concept of green building. [5]

(b) Enlist important factors to be considered for selecting the site for residential building. [4]

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

(1) Classroom

(2) Water Closet.

7. (a) Distinguish between Conventional and Non-Conventional sources of energy. [4]

(b) Comment on a statement "Efficient use of renewable sources of energy will help us to reduce air pollution in rural area of our country" [5]

(c) State various greenhouse gases. What are the ill effects of these gases. [4]

*Or*

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

(b) State comparison between renewable and non-renewable energy sources. [5]

(c) What measures will you suggest to reduce different kinds of pollution in urban area ? [4]