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F.E. Common EXAMINATION, 2019

BASIC CIVIL AND ENVIRONMENTAL ENGINEERING

(2015 PATTERN)

Time : Two Hours

Maximum Marks : 50

N.B. :— (i) Answer Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6 and Q. 7 or Q. 8.

(ii) Neat diagram must be drawn wherever necessary.

(iii) Figures to the right indicate full marks.

(iv) Use of electronic pocket calculator is allowed.

1. (a) How will you correlate the importance of Environmental Engineering and development activities ? Explain. [4]
- (b) State the various construction materials. Also mention *one* use of each material. [4]
- (c) Explain in brief the practical application of Transportation engineering. [4]

Or

2. (a) Comment on the statement “Use of recycled construction material is the need of the time”. [4]

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- (b) Define Irrigation Engineering. Highlight the importance of irrigation engineering in today's era. [4]
- (c) What is Prestressed concrete ? State any *two* applications of PSC. [4]
3. (a) The following consecutive readings were taken with a level of 4 m leveling staff at a common interval of 30 m. The readings are :
1.045, 0.865, 1.915, 2.165, 1.435, 0.915, 0.175, 2.165, 3.985
The level was shifted after second, fifth and seventh reading. The first reading was taken on permanent benchmark. The RL of first point was found to be 835.500 m. Calculate the reduced levels of remaining staff stations by collimation plane method. Apply usual arithmetic check. [6]
- (b) State various methods of carrying out EIA. Explain any *one* in brief. [4]
- (c) State various natural resources. Explain any *one* in brief. [2]
- Or*
4. (a) State and explain the principles Surveying. [6]
- (b) Differentiate between the biotic and abiotic factors. [4]
- (c) Write in brief about sustainable development. [2]
5. (a) Describe different changes which are incorporated to make ordinary building to a Green building. [5]

- (b) Aspect is the important principle of planning. Comment on the statement. [5]
- (c) Explain the importance of circulation in planning of any building. [3]

Or

6. (a) On a plot of 23 m × 20 m, a building of G + 1 is proposed with a built up area of 350 sq.m on the ground and first floor. Wall area is 15% and permissible FSI is 0.8. All margins will be 1.5 m as per bye-laws. Find :

- (i) Plinth area of building
- (ii) State with reason whether the plan will be sanctioned or not, based on allowable built up area as well as ground coverage. [5]

- (b) What is set back distance ? Why is it required ? Also state the prescribed values of setback distance for residential building. [5]

- (c) What do you mean by Elegance of building ? What are the various ways of achieving it ? [3]

7. (a) Enlist various sources of water pollution and effects due to polluted water. [5]

- (b) Discuss the advantages and disadvantages of renewable and non-renewable sources of energy. [5]

- (c) Explain any *three* sources of land pollution. [3]

Or

8. (a) As a responsible member of the Civil Society, how will you contribute yourself to reduce the Air pollution ? [5]
- (b) Explain with sketch the mechanism of production of wind energy [5]
- (c) Explain in brief the psychological effects of noise pollution on human health. [3]