

Total No. of Questions—12]

[Total No. of Printed Pages—4+2

Seat No.	
-------------	--

[4756]-15

F.E. (First Semester) EXAMINATION, 2015

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 and Q. No. 5 or Q. No. 6 from Section I, Q. No. 7 or Q. No. 8, Q. No. 9 or Q. No. 10 and 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) Explain in brief the role of civil engineer in construction of a Expressway. [6]

P.T.O.

(b) State comparison between Rigid and Flexible Pavement. [4]

(c) State any *six* Practical Applications of Quantity Surveying. [6×1]

Or

2. (a) Explain in brief the general role of civil engineer in any construction work. [6]

(b) Define fluid mechanics. State any *three* practical applications of Fluid Mechanics. [1+3]

(c) Explain in brief the following branches of Civil Engineering : [3+3]

(i) Surveying.

(ii) Structural Engineering.

3. (a) State comparison between Load Bearing Structure and Framed Structure. [6]

(b) Draw neat labelled sketches of the following : [2+2]

(i) Friction Pile

(ii) Wall Footing.

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

(i) Uniform Settlement

(ii) Differential Settlement.

Or

4. (a) State any *three* types of mortars. Also state their uses. [3+3]
- (b) State any *four* characteristics of First Class Bricks. [4×1]
- (c) Write a short note on automation in construction. [6]
5. (a) The following consecutive readings were taken with a level and 4 m leveling staff. The readings are 2.350, 1.915, 3.210, 2.650, 1.445, 3.955 and 0.345. The first reading was taken on Permanent Bench of RL 975.850 m and the level was shifted after third and fifth reading. Calculate the reduced levels of remaining staff stations by Height of Instrument method. Apply Usual Arithmetic Check. [6]
- (b) Define the following : [2+2+2]
- (i) Line of Collimation
- (ii) Reduced Level
- (iii) Change Point.
- (c) State with a neat sketch any *three* characteristics of contour lines. [3+3]

Or

6. (a) Write a short note on EDM. [6]
- (b) State any *three* practical applications of the GPS and GIS. [3+3]
- (c) The following consecutive readings were taken with a level and 4 m leveling staff. The readings are 2.350, 1.915, 3.210, 2.650, 1.445, 3.955 and 0.345. The first reading was taken on Permanent Bench of RL 975.850 m and the level was shifted after third and fifth readings. Calculate the reduced levels of remaining staff stations by Rise and Fall Method. Apply usual Arithmetic check. [6]

Section II

7. (a) Explain in brief the components of Aquatic Ecosystem. [3+3]
- (b) State and explain the components of Forest Ecosystem. [6]
- (c) Write a short note on various Natural Resources. [4]

Or

8. (a) What do you understand by Sustainable Development ? State the importance of Sustainable Development. [2+4]
- (b) Write a short note on Environmental Impact Assessment. [6]
- (c) Explain with a neat sketch Hydrological Cycle. [4]

9. (a) Explain in brief the following principles of building planning : [3+3]
- (i) Roominess
- (ii) Circulation.
- (b) Write a short note on Sustainable Building. [6]
- (c) Explain in brief the following : [4]
- (i) Building Line
- (ii) Control Line.

Or

10. (a) A plot owner wants to construct a bungalow with G + 1 floor, on a plot size of 14 m × 19 m. He proposes 150 m² construction on each floor. Find the ground coverage and FSI consumed, if the side margin is 2 m for all the sides. As per the rules FAR allowed is 1.0. State with reasons whether the plan will be sanctioned or not ? [6]
- (b) State the various points to be considered while selecting a site for Industrial Building. [6]
- (c) Explain in brief the “Privacy” as a principle of building planning. [4]

11. (a) Write a short note on Global Warming. [6]
- (b) State comparison between Conventional and Non-conventional sources of energy. [6]
- (c) Explain in brief the mechanism of production of Biogas energy. [6]

Or

12. (a) Write a short note on primary and secondary Air Pollutants. [6]
- (b) Explain in brief the various sources of Water Pollution. [6]
- (c) As a responsible member of the Civil Society, how will you contribute yourself to reduce the pollution due to Automobiles. [6]