



Nov-Dec  
2011

[4061] – 105

F.E. (Semester – I) Examination, 2011  
BASIC CIVIL AND ENVIRONMENTAL ENGINEERING  
(2008 Pattern)

Time : 3 Hours

Max. Marks : 100

**Instructions :** 1) Answers to the **two** Sections should be written in **separate** books.

- 2) **Neat** diagrams must be drawn **wherever** necessary,
- 3) Black figures to the **right** indicate **full** marks.
- 4) **Use** of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is **allowed**.
- 5) **Assume** suitable data, if necessary.
- 6) Solve Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6 from Section I and Q. 7 or Q. 8, Q. 9 or Q. 10, Q. 11 or Q. 12 from Section II.

SECTION – I

1. a) Explain in brief the role of civil engineer in construction of dam. 6
- b) State comparison between roadways (Highways) and Railways (any six points). 6
- c) State and explain any four basic areas/branches of civil engineering, involved in a construction of fly over bridge. 4

OR

2. a) Define valuation. State any four purposes of valuation. 6
- b) Mention the name of construction work carried out by civil engineer in following branches of engineering. 4
  - i) Mechanical engineering
  - ii) E and TC
  - iii) Chemical engineering
  - iv) Electrical engineering.
- c) State the two practical application of : 6
  - i) Geotechnical engineering
  - ii) Remote sensing
  - iii) Fluid mechanics.

P.T.O.



3. a) State the comparison between first class bricks and second class bricks. 4
- b) Suggest the suitable stone/materials of construction for the following works : 4
- i) Kitchen platform
  - ii) Flooring
  - iii) Footing (foundation)
  - iv) Fine Aggregate in concrete
- c) Define foundation. Draw neat sketches of any two types of shallow foundations. 4
- d) State any four fundamental requirements of masonry. 4

OR

4. a) State the comparison between R.C.C. and P.C.C. 4
- b) State and explain in brief the following loads. 4
- i) Dead load
  - ii) Live load.
- c) Write a short note on prestressed concrete (PSC). 4
- d) Comment on the statement “Automation in construction is the replacement of manpower with machine power.” 4
5. a) What is Map ? State any four types of maps. 4
- b) Following consecutive readings were taken with a dumpy level and 4 m levelling staff. 0.750, 1.435, 1.800, 0.400, 1.705, 1.525, 0.865 and 1.300. 6
- The instrument was shifted after 3<sup>rd</sup> and 6<sup>th</sup> reading. The first reading was taken on a Arbitrary Bench Mark of R.L. 100.00 m. Calculate the reduced levels of remaining points by rise and fall method. Apply usual arithmetic check.
- c) What is GPS ? State any four applications of GPS. 4
- d) Define the following terms used in levelling 4
- 1) Line of collimation
  - 2) Bench Mark
  - 3) Change point
  - 4) Fore sight reading (F.S.).

OR



6. a) Define surveying. Explain in brief the principle of 'working from whole to the part'. 4
- b) The following staff readings were taken using dumpy level and 4 m levelling staff 2.150, 1.630, 1.450, 1.200, 1.500 and 1.450. The level was shifted after 3<sup>rd</sup> reading. Calculate the R.L.'s of the points by collimation plane method. The first reading was taken on a BM of RL 500 m. Apply usual arithmetic check. 6
- c) Explain the functions of following keys of digital planimeter. 4
- 1) MEMO
  - 2) UNIT
  - 3) AVERAGE
  - 4) START
- d) State two applications of the following : 4
- 1) Total station
  - 2) G.I.S.

## SECTION – II

7. a) State the various natural resources. What is the need of conserving natural resources ? 4
- b) What is Environmental Impact Assessment ? State the various methods of carrying out EIA. (only names) 4
- c) Explain in brief biotic and abiotic components of ecosystem. 4
- d) List out the various methods of disposal of solid waste. Explain any one in brief. 4

OR

8. a) Explain with a neat sketch Nitrogen cycle. 4
- b) Comment on the statement, "Management of E-waste would be the biggest challenge" for the engineers. 4
- c) Explain in brief the ill effects of technological advancement on environment. 4
- d) Write a short note on carbon cycle. 4



9. a) Explain with a neat sketch the following principles of building planning. 6  
1) Horizontal circulation 2) Roominees  
b) Define setback distance. What are the limits of setback distance for industrial building and residential building. 6  
c) Write a short note on eco-friendly materials in construction. 4

OR

10. a) Write a short note on green building. 4  
b) A residential building is to be constructed in a locality where FSI is 1.2. If the area of the open plot is 450 m<sup>2</sup>, and the owner wants to construct a two storeyed building having a built up area on the ground floor as twice the built up area on the first floor. Calculate the maximum permissible built up area on each floor. 6  
c) State with reason the desirable aspect for the following rooms. 6  
1) Kitchen 2) Living  
3) Bed 4) Study room  
11. a) Explain in brief, how green house gases are contributing to the global warming. 6  
b) Define noise. Explain in brief various sources of noise. 4  
c) Write a short note on wind energy. 4  
d) Define land pollution. Explain in brief various sources of land pollution. 4

OR

12. a) Explain in brief the ill effects of air pollution on men, materials and vegetation. 6  
b) Explain in brief how urbanization and industrialisation is resulted into water pollution. 6  
c) Write a short note on following : 6  
1) Acid rain  
2) Ozone depletion.