

Total No. of Questions : 12]

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F. E. (2008 Course) Examination - 2008

BASIC CIVIL AND ENVIRONMENTAL ENGINEERING

Time : 3 Hours]

[Max. Marks : 100

Instructions :

- (1) Attempt Q. No. 1 or 2, Q. 3 or 4, Q. 5 or 6. from section I. Attempt Q. 7 or 8, Q. 9 or 10, Q. 11 or 12 from section II.
- (2) Answers to the **two** sections should be written in **separate books**.
- (3) Black figures to the right indicate full marks.
- (4) Neat diagrams must be drawn wherever necessary.
- (5) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam table is allowed.
- (6) Assume suitable data if necessary.

SECTION - I

Q.1) (A) Explain the role played by a Civil Engineer in the construction of dams. **[06]**

(B) Write a brief note on following :

(1) Transportation Engineering

(2) Town Planning

Your answer shall include following points

(1) What it deals with ?

(2) Two practical applications of each.

[05x02=10]

OR

Q.2) (A) Explain the importance of Interdisciplinary Approach in Civil Engineering. **[06]**

(B) Briefly explain three practical applications of the following :

(1) Project Management

(2) Environmental Engineering

[03x02=06]

(C) Enlist and briefly explain the infrastructural facilities required for the proper development of an area. **[04]**

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- Q.3)** (A) Enlist any six causes of the Settlement of Foundation. Explain with a sketch Uniform Settlement. [03+02+01=06]
- (B) Explain with neat sketch, what is meant by Foundation ? Explain in brief, any four functions of a Foundation. [02+02+04=08]
- (C) Enlist any four basic materials used in the Construction Industry. [$1\frac{1}{2}$ x4=02]

OR

- Q.4)** (A) Write a brief note on 'Recycling of Materials' in Construction Industry. [06]
- (B) Explain the fundamental requirements of a Masonry. Min. four requirements are expected. [04]
- (C) Compare the following : (Min. 3 pts. expected)
- (1) Superstructure and Substructure
 - (2) Shallow Foundation and Deep Foundation [03x02=06]

- Q.5)** (A) Explain with a neat common sketch following terms, as applicable in levelling :
- (1) Backsight (B.S.)
 - (2) Foresight (F.S.)
 - (3) Intermediate Sight (I.S.)
 - (4) Height of Instrument [02+02x04=10]
- (B) The following is the page of levelling field-book. Fill up the missing readings and complete the page. Apply usual check : [08]

Sr. No	B.S.	I.S.	F.S.	Collimation RL (M)	R.L. (M)	Remarks
1.	1.650			X	500.00	BM
2.		3.740			497.910	
3.		X			498.820	
4.	3.640		X	X	498.380	C.P. I
5.		0.380			X	
6.	1.640		X	502.700	501.060	C.P. II
7.		2.840			499.860	
8.	X		3.480	502.900	499.220	C.P. III
9.			X			Last pt.

OR

- Q.6)** (A) Define Contour. Enlist any 3 uses of Contour Maps. [01+03=04]
- (B) Explain with a neat sketch, following terms as applicable in levelling.
- (1) Level Surface
- (2) Horizontal Line
- (3) Plumb Line or Vertical Line [01+03=04]
- (C) Draw a neat sketch of a digital planimeter. Label all the parts. [02+02=04]
- (D) The following readings were taken on a continuously sloping ground, with a 4m levelling staff. The first reading was taken on an arbitrary B.M. of R.L. 150 m. Fill the entries in the page of the level field-book using Rise and Fall Method and find R.Ls. of all the points. Apply usual checks. 1.650, 2.100, 3.905, 0.780. 1.500. [06]

SECTION - II

- Q.7)** (A) Briefly explain Biotic and Abiotic factors of the Environment. [04]
- (B) Define Ecology. Enlist any 4 ecosystems found in the nature. [02+02=04]
- (C) Write short notes on : [04x02=08]
- (1) Carbon Cycle
- (2) Electronic Waste

OR

- Q.8)** (A) Explain the term E.I.A. Explain the Matrix Method of carrying out E.I.A. [02+04=06]
- (B) Explain with neat sketch "Grassland Ecosystem". [02+04+06]
- (C) Explain the necessity of Conserving Natural Resources. [04]

Q.9) (A) Enlist any 4 principles of Building Planning. Explain with a neat sketch 'Aspect'. [02+01+03=06]

(B) A plot owner proposed G + 1 storeyed construction with 175 m² built-up area on each floor. The plot size is 16m x 21m. Find the ground coverage and F.S.I. proposed, if all side margins are 2m. If the F.S.I. allowed in the area is 1.0, state with reasons whether the plan will be sanctioned or not. [06]

(C) What is meant by Integrated Built Environment ? Explain in brief. [04]

OR

Q.10) (A) Write a detailed note on 'Green Buildings'. [06]

(B) Explain the term F.A.R. (Floor Area Ratio). What is its necessity ? [04]

(C) Determine the carpet area per floor of a two storeyed building from the following data.

(1) Plot area = 800m²

(2) F.S.I. allowed = 1.0

(3) Ratio of Carpet Area/Builtup area = 0.8

Assume equal builtup area per floor. [06]

Q.11) (A) Enlist any 4 non-conventional energy sources. Explain any one in detail. [06]

(B) Explain in detail 'Extraction of Conventional Energy Sources leads to Environmental Pollution'. [06]

(C) Explain with a neat sketch : Green House Effect. [02+04=06]

OR

Q.12) (A) Write a detailed note on "Noise Pollution". [06]

(B) Compare Conventional and Non-conventional Energy Sources. Minimum 6 points of comparison are expected. [06]

(C) Write a note on "Need of Harnessing Energy". [06]