

Total No. of Questions : 12]

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F. E. Examination - 2009

BASIC CIVIL AND ENVIRONMENTAL ENGINEERING

(June 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 100

Instructions :

- (1) Answer Q. 1 or 2, Q. No. 3 or 4, Q. No. 5 or 6 from section I. Answer Q. No. 7 or 8, Q. No. 9 or 10, Q. No. 11 or 12 from section II.
- (2) Answers to the **two sections** should be written in **separate answer-books**.
- (3) Figures to the right indicate full marks.
- (4) Neat diagrams must be drawn wherever necessary.
- (5) Use of electronic pocket calculator is allowed.
- (6) Assume suitable data if necessary.
- (7) Use of cell phone is prohibited in the examination hall.

SECTION - I

- Q.1) (A) Enlist and explain the infrastructural facilities that are to be provided in a locality for its development. [05]
- (B) Explain two applications of : [06]
- (1) Remote Sensing
 - (2) Fluid Mechanics
 - (3) Quantity Surveying
- (C) Explain the role of Civil Engineer in Transportation Engineering in the 21st Century. [05]

OR

- Q.2) (A) Explain necessity and application of Project Management. [05]
- (B) Explain the role of Civil Engineer in various construction activities. [05]

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- (C) Explain two applications of : [06]
(1) Earthquake Engineering
(2) Structural Engineering
(3) Town Planning
- Q.3)** (A) Discuss the characteristics of Smart Materials. [05]
(B) Differentiate between : [06]
(1) Load Bearing Structure and Framed Structure
(2) Live Load and Dead Load
(3) Uniform Settlement and Differential Settlement
(C) Write a short note on : Recycling of construction and demolition materials and its market. [05]
- OR**
- Q.4)** (A) Explain the general precautions to be observed in cement concrete construction. [05]
(B) Differentiate between : [06]
(1) Shallow Foundation and Deep Foundation
(2) Brick Masonry and Stone Masonry
(3) Prestressed concrete and R.C.C.
(C) Write a short note on : Automation in construction industry- Necessity and applications. [05]
- Q.5)** (A) Explain the types and applications of Lasers in construction. [04]
(B) Differentiate between : [06]
(1) Collimation Plane Method and Rise and Fall Method
(2) Contour Interval and Horizontal Equivalent
(C) Explain in brief the uses of contour maps. [04]
(D) What are the steps to require for measurement of distance by Electronic distance measuring instrument (EDM) ? [04]

OR

- Q.6)** (A) Write a short note on : Digital mapping and its applications. [04]
(B) The following consecutive readings were taken on continuously sloping ground at a common interval of 20 meter.
0.375, 1.250, 2.25, 2.75, 0.750, 2.375
The reduced level of the first point was 100.00m. Find the R'L's of the points by Rise and Fall Method. [06]
(C) List out any four surveying software and give salient features of any one. [04]
(D) What are the advantages and limitations of Global Positioning System (GPS) ? [04]

SECTION - II

- Q.7)** (A) State the main objectives of Environmental Impact Assessment. [04]
(B) List out any four type's ecosystem and give salient features of Pond ecosystem. [06]
(C) Explain the Engineer's role in achieving sustainable development. [06]

OR

- Q.8)** (A) Write short notes : [06]
(1) Oxygen Cycle
(2) Disposal of Electronic Wastes
(B) How the human behaviour and the technological advancement create impact on environment ? [06]
(C) State the main objectives of Solid Waste Management. [04]
- Q.9)** (A) What is Prospect ? Draw sketches to show how prospect can be achieved. [06]
(B) Differentiate between : [06]
(1) Building Line and Control Line
(2) Principles of Planning and Building Bye-Laws
(3) Aspect and Orientation
(C) What is Green Building ? What are the advantages of Green Building ? [04]

OR

- Q.10** (A) What is meant by 'Building By-Laws' ? Write down the specific bye-laws for – [06]
- (1) Open Space Requirement
 - (2) Height of Building
 - (3) F.A.R.
- (B) Determine the F.S.I. allowed for G+1 storeyed building from the following data : [04]
- (1) Carpet area per floor = 350m^2
 - (2) Ratio of carpet area to built up area = 0.82
 - (3) Plot area = 900m^2
- (C) List out various eco-friendly materials used in construction and what are the properties of eco-friendly material ? [06]
- Q.11** (A) State the advantages and disadvantages of Non-conventional Source of Energy. [05]
- (B) Enlist the various types of Water Pollutants and describe briefly, the causes and its ill effects (any three). [05]
- (C) What are the Methods of Noise Control ? [04]
- (D) Differentiate between Solar Energy and Wind Energy. [04]
- OR**
- Q.12** (A) What is mean by Land Pollution ? State the method used for controlling land pollution. [05]
- (B) Explain the various techniques used to control air pollution. [05]
- (C) What is Green House Effect ? State any four ill effect of it. [04]
- (D) Write a short note on : Geothermal Energy [04]