

B.Tech. Civil (Construction Management)
BTCLEVI

Term-End Examination
June, 2013

ET-521(A) : PLANNING AND CONSTRUCTION
OF BUILDINGS

Time : 3 hours

Maximum Marks : 70

*Note : Attempt **any five** questions. All questions carry equal marks. Use of calculator is allowed. The answer shall be in your own language.*

1. A plot of land admeasures $10\text{m} \times 25\text{m}$. The front road is 7.5m wide facing East . The side road is 9.5m wide facing south. Service lane is on the front, measuring 4.2m . Prepare a suitable plan of a residential building whose details are given below : 14

Requirements

- (a) three bedrooms including one for guest (minimum size should be 10.8m^2)
- (b) Three toilets (minimum size should be 2.8m^2)
- (c) One drawing -cum-dining room
- (d) a kitchen (min. size should be 4.5m^2)
- (e) utility space
- (f) little storage space
- (g) staircase

Restrictions :

As per local municipality/Authority bye-law. Following restrictions are mandatory:

- (i) Total covered area cannot exceed 60% of the plot area.
- (ii) A set-back of 4.92m on the front
- (iii) A set-back of 3.05m on the rear

Assume all standard dimensions. Workout the plot area by following the standard building rules prescribed by the relevant Authority.

- 2. (a) Explain the construction of a wind-Rose diagram for a particular site. 7
- (b) State the guidelines as recommended by NBC for Rural housing to select a plot for a three storeyed residential building having three flats of 160 sq.m in each floor, Determine the minimum size of plot required. 7
- 3. (a) What are the FAR for residential building with different types of construction ? Explain in detail. 7
- (b) List out broad functional elements of a school building. Explain principal components. 7

4. (a) List different types of construction of a wall with mud. What is the number of mud blocks of $30\text{cm} \times 15\text{cm} \times 10\text{cm}$ size required for a two-roomed house ? What is the compressive strength of such blocks ? 7
- (b) What are the materials used in the application of water proofing layer on the thatched roofs ? What are the proportions of combination mortar used for plastering the interior and exterior surface ? 7
5. (a) What are the causes for settlement of foundations ? What are the various methods to lower sub-soil water level for the purpose of excavation of foundations ? 7
- (b) Explain in detail the reinforced brickwork. Discuss the class designation of bricks and cement: sand ratio of cement mortar suitable for reinforced brickwork. 7
6. (a) What are the common types of building stone and in what situations are they used ? What is bond stone and what are its purposes? Explain with proper sketches. 7
- (b) What are the various accoustic materials generally used and how are they painted ? 7

7. Write short notes on the following : **4x3½=14**
- (a) Air Conditioner duct insulation
 - (b) Roofing materials
 - (c) Construction of plywood partitions
 - (d) Orientation of Buildings
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