

B.E.- Civil Engineering Sem IV  
**CE-406 - Building Material & Construction**

P. Pages : 2

Time : Three Hours



**GUG/S/18/3871**

Max. Marks : 80

- Notes :
1. All questions carry equal marks. and compulsory.
  2. Answer **all** questions.
  3. Due credit will be given to neatness and adequate dimensions.
  4. Assume suitable data wherever necessary.
  5. Illustrate your answers wherever necessary with the help of neat sketches.
  6. Use of slide rule, Logarithmic tables, Steam tables, Mollier's chart, Drawing instruments, Thermodynamic tables for moist air, Psychrometric charts and Refrigeration charts is permitted.

1. a) Explain with the help of sketches, various type of shallow foundation. 8
- b) What are the causes of failure of foundation? What remedial measures would you adopt? 8

**OR**

2. a) Explain with the help of sketches, the following. 6
- i) Trapezoidal footing.
  - ii) strap footing.
- b) A brick wall is 20 cm thick and 3 m high above plinth level. The difference between plinth level and ground level is 0.6 m. The wall carries a super imposed load of 60 kN per meter run. Design the strip footing for the following data. 10
- i) Unit weight of soil  $16.5 \text{ kN/m}^3$ .
  - ii) Angle of repose of soil  $24^\circ$ .
  - iii) Unit weight of masonry  $20 \text{ kN/m}^3$ .
  - iv) Modulus of rupture for the concrete  $350 \text{ kN/m}^2$ .
  - v) Safe bearing capacity of soil  $90 \text{ kN/m}^2$ . sketch the foundation section.

3. a) Compare brick masonry with stone masonry. 5
- b) Show with the help of sketches various types of closer bricks. 5
- c) What do you understand by brick nogging? Explain the method of construction, with a neat sketch. 6

**OR**

4. a) Classify various types of stone masonry. Draw typical sketches to illustrate the same. 8
- b) Explain with sketches, various type of joints used in stone masonry. 8

5. a) Explain with the help of sketches, the method of "brick flooring". 8
- b) Explain with reasons what type of floor finishing will be required for. 8
- i) Ware house.
  - ii) Grain store.
  - iii) Barancing hall.
  - iv) Factory hall.

**OR**

6. a) Draw a neat sketch of Jack arch floor of bricks. Explain its method of construction. 8
- b) Write a note on. 8
- i) Lean to roof.
  - ii) Mansard roof truss.
7. a) What are the ideal requirements of a good & fair case. 8
- b) Draw plan and sections of typical dug. legged stair of R.C.C. 8

**OR**

8. a) Draw a neat sketch of a timber door with shutter and label various parts of it. 7
- b) Write notes on the following. 9
- i) Bay Window.
  - ii) Clearstory window.
  - iii) Sky light.
9. a) What do you understand by "Under- pinning"? When do you require it. 6
- b) Explain pointing and its importance over plastering. 5
- c) Write a note on various defects in plastering. 5

**OR**

10. a) Write a note on. 4
- i) White washing.
  - ii) Distempering.
- b) Explain various methods of damp proofing. 6
- c) Describe in brief various types of shores. 6

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