

Total No. of Questions: 6

Total No. of Printed Pages:3

Enrollment No.....



Faculty of Engineering
End Sem (Odd) Examination Dec-2017
CE3CO04 Building Planning and Drawing

Programme: B.Tech.

Branch/Specialisation: CE

Duration: 3 Hrs.

Maximum Marks: 60

Note: 1. All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

2. Use the drawing sheet provided only for attempting the second part of Q.5

- Q.1
- i. Which of the following terms is not related to doors? 1
(a) Bottom rail (b) Brace (c) Balustrade (d) Rebate
 - ii. Which of the following floor types is sometimes also known as Terrazzo flooring? 1
(a) Granite floor (b) Mud floor (c) Tiled floor (d) Mosaic floor
 - iii. Banks would be classified under which of the following categories as per the NBC? 1
(a) Commercial buildings (b) Institutional buildings
(c) Business buildings (d) Mercantile buildings
 - iv. What should be the minimum size of a bedroom as per the NBC? 1
(a) 9m² (b) 12m² (c) 16m² (d) 20m²
 - v. In a building, for providing all-round thermal comfort and air quality, _____ utilities must be used: 1
(a) Ventilation (b) AC (c) HVAC (d) MVAC
 - vi. Lux, the unit of illumination is simply: 1
(a) lumen/m² (b) candela/cm²
(c) watts/cm² (d) watts/m²
 - vii. Which code of practice is followed for architectural and building drawing in India? 1
(a) IS: 465 (b) IS: 808 (c) IS: 962 (d) IS: 774
 - viii. Non-uniform scaling is also called 1
(a) Isometric scaling (b) Isotropic scaling
(c) Anisometric scaling (d) Anisotropic scaling

P.T.O.

[2]

- ix. The Model Town and Country Planning Law was formulated in the year: **1**
(a) 1950 (b) 1960 (c) 1965 (d) 1989
- x. Which of the following is not a principle of town planning: **1**
(a) Spot development (b) Road system
(c) Zoning (d) Green belt
- Q.2 i. Enlist four different types of stairs **2**
ii. Enlist six different types of roofs. **3**
iii. What are foundations? Sketch and explain briefly 4 different types of foundations. **5**
- OR iv. Sketch the King Post Truss and Queen Post truss neatly along with proper labelling. **5**
- Q.3 i. Enlist the various principles of architectural composition. **3**
ii. How are buildings classified according to the NBC? Explain each type with proper examples. **7**
- OR iii. For a square plot of size 400m^2 , the owner allowed an equal setback of 2m on two opposite sides. Within the building lines thus formed, if he constructed a two-storey house (G+1) - with the upper storey having equal area as the ground floor - what is the resultant F.A.R.? Assume wall area as 15% of the built-up area. **7**
- Q.4 i. What do you mean by internal and external drainage systems? Enlist their components. **4**
ii. Sketch and explain the following in brief: **6**
(a) Different types of taps
(b) Different types of traps
- OR iii. Explain the term ventilation? What are its purposes? Explain its types? **6**
- Q.5 i. Explain sun diagram very briefly with a representative sketch. **2**

[3]

- ii. Draw the perspective drawing of a rectangular block of size $5\text{x}3\text{x}2\text{cm}$ lying on the ground plane on one of its longest faces. A vertical edge is in the picture plane and the longer face containing that edge makes an angle of 30° with the picture plane. The observer is standing 6cm away from the picture plane and 1 cm to the right of the nearest edge, and his height is 5cm. **8**
- OR iii. Design and draw a residential building (in accordance with the principles of planning) for a square plot of size 625 m^2 , such that: **8**
(a) A setback of 5m is provided on the South side, and no setback is provided elsewhere.
(b) Drawing room $\approx 80\text{m}^2$
(c) Living area $\approx 100\text{m}^2$
(d) Kitchen $\approx 50\text{m}^2$
(e) 2 Bedrooms $\approx 120\text{m}^2$
(f) Study $\approx 80\text{ m}^2$
(g) Attached washrooms/corridors/walls $\approx 70\text{m}^2$
- Q.6 i. Explain the following terms: **4**
(a) Master plan
(b) Planning standards
- ii. Explain the various urban growth models in detail. **6**
- OR iii. Explain: **6**
(a) Development Control
(b) Sustainable Development Goals

CE3CO04 Building Planning and Drawing

Marking Scheme

- Q.1 i. (c) Balustrade 1
 ii. (d) Mosaic floor 1
 iii. (c) Business buildings 1
 iv. (b) 12m² 1
 v. (c) HVAC 1
 vi. (a) lumen/m² 1
 vii. (c) IS: 962 1
 viii. (d) Anisotropic scaling 1
 ix. (b) 1960 1
 x. (a) Spot development 1

- Q.2 i. ½ mark for each type (max 2 marks) 2
 ii. ½ mark for each type (max 3 marks) 3
 iii. Foundation definition – (1 mark).
 ½ mark for each type name (2 marks),
 ½ mark for each type sketch (2 marks) 5
 OR iv. King Post Truss sketch – (2 marks). 5
 King Post truss labelling – (½ mark).
 Queen Post Truss sketch – (2 marks).
 Queen Post truss labelling – (½ mark).

- Q.3 i. ½ mark for each principle. (max 3 marks) 3
 ii. 1 mark for each type with examples (max 7 marks) 7
 Deduct 2 marks max in case of no examples.

- OR iii. 7

4. iii) solution: Sq. plot = 400 m²; side length = $\sqrt{400} = 20\text{m}$

\Rightarrow Built-up area = $16 \times 20 = 320\text{m}^2$ → 1 mark
 \Rightarrow Floor area = Built-up area - Wall area
 $= 320 - (0.15)320$
 $= 320 - 48 = 272\text{m}^2$ → 2 marks
 \therefore There are two floors with same floor area
 \Rightarrow Total floor area = $2 \times 272 = 544\text{m}^2$ → 1 mark
 $\text{FAR} = \frac{\text{Total floor area including all floors}}{\text{Plot area}}$ → 1 mark
 $= \frac{544}{400} = 1.36$ → 1 mark

- Correct side length and setback - (1 mark)
 Built-up area calculation – (1 mark)
 Floor area calculation – (2 marks)
 Total floor area calculation – (1 mark)
 FAR Formula – (1 mark)
 Correct answer – (1 mark)

- Q.4 i. Internal drainage system definition – (1 mark); 4
 components – (1 mark)
 External drainage system definition – (1 mark);
 components – (1 mark)
 ii. (a) ½ mark each for tap type name (max 1½ marks); 6
 ½ mark each for tap type sketch (max 1½ marks)
 (b) ½ mark each for trap type name (max 1½ marks);
 ½ mark each for trap type sketch (max 1½ marks)

- OR iii. Ventilation definition – (1 mark) 6
 Purposes – (3 marks)
 Types – (2 marks)

- Q.5 i. Sun diagram Definition – (1 mark) 2
 Sketch – (1 mark)
 ii. Correct initial drawing in plan and section – (3 marks) 8
 Correct VPs and projections – (2 marks)
 Correct final perspective – (3 marks)

- OR iii. Correct scale – (1 marks) 8
 Correct aspect orientations, privacy considerations, etc– (4 marks)
 Correct room sizes – (3 marks)

- Q.6 i. (a) Master plan note – (2 mark) 4
 (b) Planning standards note – (2 marks)
 ii. 2 marks each for a growth model type – (6 marks max) 6
 OR iii. (a) Note on Development Control – (3 marks) 6
 (b) Note on Sustainable Development Goals – (3 marks)
