2012 – 2013

B.ARCHITECTURE AUTUMN (VII SEMESTER) EXAMINATION
INTERIOR DESIGN

(AR – 401)

Credits: 04

Maximum Marks : 60

Duration : Three Hours

Note: Answer only FOUR questions in all.
Question No. 4 and 5 are compulsory.

1. Discuss the elements and principles of Interior Design. [10]

2. What is colour scheme? Discuss different colour schemes quoting suitable examples. [10]

3. Discuss the role of light in enhancing the Interior Design scheme. [10]

4. Write short notes on any FOUR of the following and support with sketches. [20]
   (a) Flooring materials and patterns.
   (b) Openings in Interior Design.
   (c) Different walling systems.
   (d) Co-ordination of Building services.
   (e) Ceiling designs.

5. Propose layout for a coffee shop (5×8)m in Jaipur. Submit the following: [20]
   (a) Plan showing flowing pattern and furniture layout.
   (b) Sectional elevation of wall (any 01)
   (c) Views to support and explain design.
   (d) Specification of materials.
2012 – 2013
B.Architecture Autumn (VII Semester) Examination
Construction and Materials – V
(AR – 403)
Credits: 06
Duration: Four Hours

Maximum Marks: 40

Note: Draft all sketches on suitable scale. Assume any missing data.

1. Draw section of North Light tubular truss for span of 30 m. [10]

OR

1'. Draw section of multistoried steel framed structure showing various components.

2. Draft any TWO of the following: [10]
   (a) False Ceiling
   (b) Curtain Wall
   (c) Tubular Truss

3. Write short notes on any TWO: [10]
   (a) Fire protection of steel structures.
   (b) Earthquake resistant forms.
   (c) The 3 methods of making steel connections.

4. Building elevation and massing play an important role in making the building earthquake resistant. Discuss at least 5 such patterns and also state their relative vulnerability on 10 point scale. [10]
Q.1. Define the following terms: (any five) 

a) Parent city 
b) Ribbon development 
c) Zoning 
d) Necropolis 
e) Planning 
f) Conurbation 

Q.2. Write in detail about the development of Indus valley civilization, its socio-cultural character and town planning scheme. Specify the significance of Indus valley civilization for a modern day Architect and Town Planner. 

Q.3 a) Discuss the problems that arose in the European cities as a fallout of the industrial revolution and the factors responsible for them. 
b) How did industrial revolution impact the modern day town planning? 

OR 

Q.3 a) What is Geddesian Triad? Explain in detail. 
b) Examine the garden city concept against the high-rise high-density concept. 

Q.4. What are the various land uses specified in a Master Plan? Explain in detail each one of them. 

Q.5. (a) Write about the hierarchy of roads used in an urban area. 
(b) Design a road with 30m ROW and explain the design with the help of a plan and section.
Design Problem:

A famous builder of NCR region active in Greater NOIDA has a vast piece of land on the western side of Taj-Express way (running N-S). He desires to build his residence in a portion of above land as per his socio-economic status and influence along with his main office (Design and Administrative) there. As you are the main consultant for his firm, you are also given this responsibility. Design and draw presentation drawing for the same as per local standards with the help of following:

(i) List of requirements with spatial dimensions. (06)
(ii) Site plan depicting suitable size of area required (for this complex) and associated facilities. (12)
(iii) Plan/plans of the building (08)
(iv) Desirable Elevations. (04)
(v) Crucial sections. (04)

Besides providing above drawing; you are also supposed to face a viva by external examiner to explain your design and justify it through concepts and logic. (06)
Q1. Design a three span continuous beam of a typical interior idealized plane frame of a building. The frames are spaced 5.5m apart and in the typical floor 140mm thick continuous slab is cast monolithically with beams. The thickness of floor finish is 40mm. The beam has three equal spans of length 6.1m. The floor is to support imposed load of 5 kN/m² at the service state. The unit weight of the finishing material is 20 kN/m³. The materials to be used are M-20 grade concrete mix and HYSD steel of grade Fe-415 for moderate exposure conditions. Use bending moment and shear force coefficients for the continuous beam given in IS-456.

Q1’(a). Determine the design moments at support and in the mid span region, before and after redistribution of moments of 30%, for a beam AB of span L, carrying a uniformly distributed load, when (i) it is fixed at both ends A and B; (ii) it is fixed at end A and simply supported at B. Draw the bending moment diagrams in each case, and show the points of conitra flexures and points of maximum bending moments.

Q1’(b). A special reinforced concrete moment resisting frame building with infill panels is situated in Delhi. Height of the building is 12m. The building is resting on medium soil. The base dimensions of building at plinth level is 24m. Determine the design horizontal seismic coefficient and vertical seismic coefficient for a damping of 5%.

Q1’(c) What are the advantages of Redistribution of Moments?

Q2. Design an R.C.C circular water tank resting on the ground with a flexible base and a spherical dome for storing 500,000 liters of water. The depth of storage is to be 4.0 m. Freeboard = 200 mm. Adopt M-20 grade concrete and Fe-415 HYSD bars. Sketch the details of reinforcements in the dome and tank walls.

Q2’. A rectangular R.C.C water tank with an open top is required to store 80,000 liters of water. The inside dimensions of the tank may be taken as 6m x 4m. The tank rests on walls on all the four sides. Design the side walls of the tank using M-20 grade concrete and Fe-415 HYSD bars.
Q3. Design a slab culvert for span of 4.5m and clear carriage way width of 10m between kerbs suitable for a single vehicle of IRC class AA tracked vehicle. Use M-20 grade concrete and Fe-415 HYS bars.

Q4(a). Discuss the following:

(i) Merits and demerits of prestressed concrete.

(ii) Pre-tensioning and post-tensioning system with neat sketch.

Q4(b). A beam of 150mm x 300mm is prestressed by a force of 250 kN by steel cables located at an eccentricity of 60mm as shown in Fig.1. Determine the loss of prestress due to creep of concrete for the following data:

\[ \sigma_{ck} = 45 \text{ N/mm}^2; \text{ cables} = 6 \text{ Nos.} - 7\text{mm } \Phi; \text{ creep coefficient} = 2; E_s = 200 \text{ kN/mm}^2 \text{ and } E_c = 30190 \text{ N/mm}^2. \]

Q5. Design the staircase slab as shown in Fig.2. The stairs are simply supported on beams provided at the first riser and at the edge of the upper landing. Assume a finish load of 0.8 kN/m² and a live load of 5.0 kN/m². Use M-20 grade concrete and Fe-415 steel bars. Assume mild exposure conditions.

OR

Q5. Design the toe slab of a cantilever retaining wall to retain an earth embankment 4m high above ground level. The density of earth is 18 kN/m³ and its angle of repose is 30°. The embankment is horizontal at top. The safe bearing capacity of the soil may be taken as 200 kN/m² and the coefficient of friction between soil and concrete is 0.5. Adopt M-20 grade concrete and Fe-415 HYS bars.

(Fig. Enclosed)