

B.Arch-VI-05.17-0650

Reg. No.

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B.Arch. Degree VI Semester Examination May 2017

AR 1602 BUILDING MATERIALS AND CONSTRUCTION - V (2014 Scheme)

Time : 4 Hours

Maximum Marks : 100

(One drawing sheet to be supplied. All answers to be supported with relevant sketches)

PART A

(8 × 5 = 40)

I. Write short notes on the following.

- (a) Properties and uses of tempered glass.
- (b) Advantages and limitations of ferro cement for building construction.
- (c) Prefabrication roofing systems developed by CBRI/SERC.
- (d) Physical properties of thermosetting plastics.
- (e) Materials for false ceiling.
- (f) Construction details for stone cladding on walls.
- (g) Difference between intensity and magnitude of earthquakes.
- (h) Objectives of fire resistant construction.

(2 × 10 = 20)

II. Explain any one innovative technique for cost reduction of walls for buildings developed by building research institutions in India. (10)

OR

III. Describe use of plastics for doors and windows, indicate advantages and disadvantages. (10)

IV. What are the considerations in the selection of materials and fixing details for false ceiling? (10)

OR

V. Describe with sketches, the impact of building shape on earthquake resistance of buildings. (10)

PART B

(2 × 20 = 40)

VI. Draw to a suitable scale, details of fixing perforated acoustic tile false ceiling with concealed metal frame work suspended from steel truss of an auditorium. Sections and reflected ceiling plan may be drawn, showing concealed light fittings. Assume other necessary details, if required for the drawing.

OR

VII. Draw to an appropriate scale detailed plan, section and elevation of wooden wall paneling for walls of a hotel lobby. Assume other necessary details, if required for drawing.

(P.T.O.)

VIII. Draw to a suitable scale, plan and cross section of lintel band RCC beam for a 20 cm thick brick wall. Size of room 420 cm × 360 cm, height of room 300 cm. Roof slab RCC, in an earthquake prone area. Show reinforcement details and label parts. Assume position and size of openings in wall etc.

OR

IX. Draw to suitable scale, plan and sectional elevation of a room of size 360 cm × 300 cm with 20 cm thick brick wall, height of room 300 cm, 10 cm thick RCC roof slab, in an earthquake prone area and show reinforcement details of vertical steel bars in masonry provided for earthquake resistance and label parts. Assume other necessary details like position and size of openings etc.

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B.Arch. Degree VI Semester Examination May 2017**AR 1603 HISTORY OF ARCHITECTURE -V**
(2014 Scheme)

Time : 3 Hours

Maximum Marks : 100

PART A
(Answer *ALL* questions)

(8 × 5 = 40)

I. Write short notes on the following.

- (a) Bauhaus School.
- (b) Louis Sullivan.
- (c) Constructivism and De- Constructivism.
- (d) Geoffrey Bawa.
- (e) Robert Venturi.
- (f) Zaha Hadid.
- (g) Laurie Baker.
- (h) Le-Corbusier's works in India.

PART B

(4 × 15 = 60)

II. Differentiate Modernism and Post Modernism in Architecture. Give examples with sketches.

OR

III. Give the new Architectural thoughts/styles introduced by Chicago School.

IV. Discuss the works and philosophies of Louis Khan.

OR

V. Explain Critical Regionalism and its Philosophy with the help of minimum three built examples.

VI. Discuss the impact of Archigram World Architecture.

OR

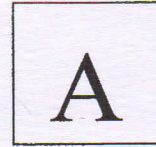
VII. Explain the works of three contemporary Architects around the world with their Philosophies.

VIII. Describe the Character and Style of buildings in Delhi contributed by Edwin Lutyens.

OR

IX. Discuss the contributions of Architect Charles Correa in India and abroad.

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B.Arch. Degree VI Semester Examination May 2017

AR 1604 TOWN PLANNING (2014 Scheme)

Time : 3 Hours

Maximum Marks : 100

PART A (Answer *ALL* questions)

(8 × 5 = 40)

- I. Write short notes on:
- (a) Agora and Acropolis.
 - (b) Hippodamus
 - (c) Garden cities.
 - (d) Ekistics.
 - (e) Zoning regulations.
 - (f) FAR.
 - (g) JNNURM.
 - (h) SEZ.

PART B

(4 × 15 = 60)

- II. Greeks had philosophy and Romans were advanced in technology. Explain how these influenced in planning of cities in ancient Greece and Roman Empire.
- OR**
- III. Explain what is Renaissance? Describe the planning of towns and cities during renaissance period in Europe with examples.
- IV. What are the contributions of Patrick Geddes to Modern Town Planning? Explain his works in India.
- OR**
- V. Explain with a sketch plan, the planning concepts of Chandigarh. Briefly explain the social failures of Chandigarh.
- VI. Describe what is Master Plan and Development Plan. Explain the method of preparation of a Master plan.
- OR**
- VII. Explain what is neighbourhood planning. Describe its social relevance.
- VIII. Describe the salient features of Land Acquisition Act.
- OR**
- IX. What is CRZ? Explain the different zones identified in India to protect coastal areas and the regulations imposed in each zone.

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B.Arch. Degree VI Semester Examination May 2017

AR 1605 BUILDING SERVICES III – FIRE PROTECTION & HVAC (2014 Scheme)

Time : 3 Hours

Maximum Marks : 100

PART A (Answer ALL questions)

(8 × 5 = 40)

- I. Write short answers on the following.
- (a) Explain the concept thermal conductivity.
 - (b) Illustrate the term coefficient of heat transfer.
 - (c) Distinguish between comfort air conditions and industrial air conditions.
 - (d) Describe any four properties of refrigerant.
 - (e) What is the importance of duct in air condition systems?
 - (f) How to reduce air conditioner noise?
 - (g) What is the purpose of automatic sprinklers?
 - (h) What are the various types of fires?

PART B

(4 × 15 = 60)

- II. (a) Explain Fourier's law of heat conduction. (5)
 (b) An exterior wall of a house may be approximated by a 0.1 m layer of common brick ($k = 0.7 \text{ W/M}^\circ\text{C}$) followed by a 0.04 m layer of gypsum plaster ($k = 0.48 \text{ W/M}^\circ\text{C}$.) What thickness of loosely packed rock wool insulation ($k = 0.065 \text{ W/M}^\circ\text{C}$) should be added to reduce the heat loss or (gain) through the wall by 80 percent? (10)
- OR**
- III. Elucidate the concept overall heat transfer coefficient. (15)
- IV. Explain reversed Carnot cycle with neat sketches. (15)
- OR**
- V. (a) Discuss about various parts of refrigeration systems. (5)
 (b) Explain vapour compression refrigeration systems. (10)
- VI. (a) What are the factors affecting human comfort? (5)
 (b) Explain about various psychometric properties. (10)
- OR**
- VII. Differentiate central plant air-condition and room air-condition system. (15)
- VIII. Discuss the various considerations regarding fire protection in buildings. (15)
- OR**
- IX. Explain the procedure in the design of fire lift and fire ducts. (15)

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B.Arch. Degree VI Semester Examination May 2017

AR 1606 STRUCTURAL DESIGN (2014 Scheme)

Time: 3 Hours

Maximum Marks: 100

*(Permitted to use IS-456 and SP-16 chart)
(Assume the suitable data where ever necessary)*

PART A (Answer ALL questions)

(8 × 5 = 40)

- I. (a) Explain what doubly reinforced beam is. Under what circumstance is it used?
 (b) Explain the function of longitudinal and transverse steel in R.C column.
 (c) Explain working stress method and compare with limit state method.
 (d) Explain one way slab and two way slab, under what circumstance is it used?
 (e) Explain anchorage bond, development bond and flexural bond.
 (f) Write down the design steps to be followed for calculating the thickness of a square footing.
 (g) State the IS code provision for minimum and maximum area of steel, diameter and number of bars in case of a column.
 (h) Define the terms characteristic load and partial factor of safety.

PART B

(4 × 15 = 60)

- II. Design a reinforced concrete beam of rectangular section using the following data:
 Effective span = 9m
 Working load = 35kN/m
 Overall depth restricted to 700mm. Using M20 concrete and Fe-415 HYSD bars. Assume the width of the beam as 300mm.

OR

- III. A reinforced concrete rectangular beam is to be provided over a clear opening of 5.5m. Bearing length on each end = 150mm. The beam is to be singly reinforced having the ratio of width to effective depth = 0.5. The loads on the beams are L.L = 6kN/m and superimposed D.L = 12kN/m.
- IV. A hall has clear dimensions in plan 5m × 20m. Design a T beam floor for the hall using 4 beams, each placed along the short span with their axes spaced 4m c/c. On the top of the floor, there is a concrete tile flooring of thickness 50mm. L.L on the floor = 2kN/m². Length of bearing at each end of the beam = 200mm. Adopt concrete grade M 20 and steel grade Fe-415.

OR

- V. Design an R.C.C slab for room having inside dimension 3.5m × 7m. The thickness of the supporting wall is 300mm. The L.L on the slab may taken as 5kN/m². Assume floor finish load and the slab to be S.S at the ends. Use M20 and Fe-415 steel.

(P.T.O.)

VI. Design an R.C slab for a room measuring $6\text{m} \times 7\text{m}$ size. The slab is S.S on all the 4 edges, with corner held down and carries a super imposed load $2700\text{N}/\text{M}^2$, inclusive of floor finish etc. Use M20 mix and Fe-415. Follow IS code method.

OR

VII. Design an axially loaded column $500\text{mm} \times 600\text{mm}$ for a service load of 2500kN with unsupported length of 3m and braced against side sway in both direction. Use M20 concrete and Fe-415 grade steel.

VIII. Design a short circular column of diameter 400mm to support a factored axial load of 900kN , together with factored moment of 100kN.m . Adopt M-25 grade concrete and Fe-415 grade reinforcement.

OR

IX. A reinforced concrete column $400\text{mm} \times 400\text{mm}$ supports an axial load of 1500kN . The safe bearing capacity of the soil at site is $200\text{kN}/\text{m}^2$. Adopting M-20 grade concrete Fe-415 grade steel, design a suitable footing for the column.
