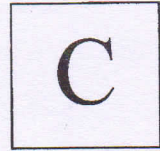


April 2019

B.Arch-VI-04.19-0751

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B.Arch. Degree VI Semester Examination April 2019

AR 1602 BUILDING MATERIALS AND CONSTRUCTION V
(2014 Scheme)

Time: 4 Hours

Maximum Marks: 100

PART A

(8 × 5 = 40)

- I. Write short notes on the following:
- SERC and its research methods
 - Casting of Ferro cement
 - Curtain wall glazing and its application
 - Polymerization and condensation of plastic
 - Name two types of acoustical boards and its application
 - Asbestos sheet and its property
 - Shear wall
 - Use of vertical steel bars in brick masonry

(2 × 10 = 20)

- II. Innovations in construction by CBRI and SERC.

OR

- III. Discuss in detail the use of plastic as a building material. Enumerate its properties and application.

- IV. Application of glass curtains and its developments.

OR

- V. Explain shear wall and diagonal framing and its application in earthquake resistant structures.

PART B

(Draw and Label)

(2 × 20 = 40)

- VI. A digital shop in your locality need to do the wall paneling. Materials available in the local market can be used. Assume necessary details required for drawing.

OR

- VII. A home theatre has to be set in a residence. What type of acoustical material will you use for false ceiling? Prepare appropriate drawing to explain the false ceiling details.

- VIII. Prepare an appropriate drawing to explain bending details in R.C band in a seismic area.

OR

- IX. In an earthquake prone area, how collapse can be prevented using shear wall and diagonal framing.

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B.Arch. Degree VI Semester Examination April 2019

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:
- Bauhaus School
 - Louis Sullivan
 - Expressionism
 - Critical regionalism
 - Richard Rogers
 - Rem Koolhaas
 - Le Corbusier in India
 - Raj Rewal

PART B

(4 × 15 = 60)

- II. Explain the works of two Modernist Architects with building examples and their philosophy of Architecture.
- OR**
- III. Explain briefly on Chicago School of Architecture. Describe its influence in American Architecture.
- IV. Compare the works and philosophies of Kenzo Tange and Kisho Kurokawa of Japan.
- OR**
- V. What is Post Modernism in Architecture? Give examples of two Post-modern Architects and their works.
- VI. Describe the works of Geoffrey Bava in Sri Lanka. Explain his Architectural concepts and philosophy.
- OR**
- VII. Explain De-constructivism in Architecture. Illustrate two projects of Ar.Zaha Hadid in this style.
- VIII. Describe the contributions of Edwin Lutyens in the design of the capital New Delhi.
- OR**
- IX. Explain the works and the philosophy of Lauri Baker.

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B.Arch. Degree VI Semester Examination April 2019**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 the following:
- Town Planning in Ancient Mesopotamia
 - Agora and Acropolis
 - Radiant City
 - Ekistics
 - Regional Planning
 - FAR
 - SEZ
 - JNNURM

PART B

(4 × 15 = 60)

- II. Explain the characteristics of City Planning during the Renaissance Period.
OR
- III. Describe the salient features of City Planning in Classical Rome and its Colonies.
- IV. Explain the contributions of Ebenezer Howard to Town Planning.
OR
- V. Describe the different land uses in urban areas. Explain what is Urban Spatial Structure.
- VI. What is Neighbourhood Planning? How is it important in Land use Planning?
OR
- VII. What is Master Plan? Explain its process of preparation.
- VIII. Explain the role and functions of Urban Local bodies in India with examples.
OR
- IX. Describe the purpose of Coastal Regulation Zone Act (CRZ). Explain the difficulties to implement CRZ in the case of Kerala.

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B.Arch. Degree VI Semester Examination April 2019

AR 1605 BUILDING SERVICES III-(FIRE PROTECTION AND HVAC) (2014 Scheme)

Time : 3 Hours

Maximum Marks : 100

PART A (Answer *ALL* questions)

(8 × 5 = 40)

- I. (a) Explain conduction mode of heat transfer.
 (b) What is economic thickness of insulation?
 (c) Differentiate between heat pump and refrigerator.
 (d) Sketch a centrifugal compressor and mark the main parts.
 (e) Describe a psychometric chart.
 (f) What is the need of duct system? Mention the challenges in duct design.
 (g) What are the important points to be observed for fire protection?
 (h) What are the steps to be taken after the occurrence of fire?

PART B

(4 × 15 = 60)

- II. The total thickness of a furnace wall which is made up of inner layer of fire brick, covered with a layer of insulation is 34 cm. Thermal conductivities of fire brick and the insulation are 0.85 and 0.17 W/mK respectively. The furnace temperature is 1350°C and temperature of surrounding is 25°C. Calculate the thickness of fire brick and that of insulation for minimum heat loss through wall. Assume maximum temperature of insulating material should not exceed 1200°C. Calculate heat loss per unit area. (15)
- OR**
- III. (a) What is a thermal insulator? List the important functions of thermal insulators. (7)
 (b) Describe any two thermal insulators. (8)
- IV. Describe a simple vapour compression refrigeration system with Ph and TS diagram. (15)
- OR**
- V. (a) Differentiate between condenser and cooling tower. (5)
 (b) List the classification of cooling towers. Describe any one cooling tower with neat sketch. (10)
- VI. Describe a winter air conditioning system. (15)
- OR**
- VII. List out the different air conditioning systems and explain a central air conditioned system. (15)
- VIII. (a) What are the characteristics of fire resisting material? (5)
 (b) Describe automatic sprinkler system. (10)
- OR**
- IX. Explain the main acts and regulation which affect the design of industrial premises as regards to fire protection. (15)

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B.Arch. Degree VI Semester Examination April 2019

AR 1606 STRUCTURAL DESIGN (2014 Scheme)

(Permitted to use IS-456 and SP-16 chart. Assume the suitable data wherever necessary)

Time : 3 Hours

Maximum Marks : 100

PART A

(Answer **ALL** questions)

(8 × 5 = 40)

- I. (a) What is limit state? List the different limit states and explain.
- (b) Explain the stress strain relationship of concrete with a neat sketch.
- (c) What are the situations which demand doubly reinforced section? Derive the expression for ultimate moment of resistance of a doubly reinforced section.
- (d) Differentiate between one way slab and two way slab.
- (e) Explain the steps to be followed while designing a T beam.
- (f) Explain the reinforcement requirements of a column.
- (g) State the purpose of rebars stirrups and anchorage length in concrete design.
- (h) Explain the shear considerations applied to the design of footings.

PART B

(4 × 15 = 60)

- II. Design a rectangular beam of effective span 5 m. The superimposed load is 80 kN/m and the size of the beam is limited to 20 x 50 cm overall. Use M 25 mix and Fe-415 grade steel. Also check for shear stress and deflection.

OR

- III. Design a simply supported rectangular beam supported on two walls of 230 mm thickness with 6 m clear span, superimposed load 60 kN/m. Check for shear and deflection. Use M 20 and Fe-415 grade steel.

- IV. A T beam floor consist of 12 cm thick RC slab with 23 cm wide beams. The beams are spaced at 3 m c/c and the effective span is 6 m. If the superimposed load is 3 kN/m², design intermediate beams using M 20 and Fe-415 grade steel.

OR

- V. Design a simply supported roof slab for a room 8 m × 3.5 m clear, if the superimposed load is 2.5 kN/m². Use M25 and Fe-415 grade steel.

- VI. Design a two way slab simply supported on all the four edges for a room 6 m × 4 m clear in size. The superimposed working load is 4 kN/m² with corners held down. Use M 20 mix and Fe-415 grade steel.

OR

- VII. Design a short column, square in section, to carry an axial load of 200 kN using Fe-415 grade steel and M 20 mix, braced against side sway in both directions.

- VIII. Design a slender braced circular column under uniaxial bending having size 40 cm subjected to a factored load of 1200 kN and a factored moment of 75 kNm at top and 50 kNm at bottom. Effective length is 6 m. Use M 20 mix and Fe-415 grade steel.

OR

- IX. Design a square spread footing to carry a column load of 1500 kN from a 400 × 400 mm column. The bearing capacity of soil is 200 kN/m². Use M 20 grade concrete and Fe-415 grade steel.