B.Arch-VI-(R/S)-04-22-2015 Reg. No. | | | | | | | | |

A

B.Arch. Degree VI Semester Regular/Supplementary Examination April 2022

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:

(a) CBRI.

(b) Ferro cement and its applications.

(c) Any two types of glass applications in detail.

(d) Structural plastics.

(e) Lighting fixtures in false ceiling.

(f) Wooden wall paneling.

(g) Shear wall.

(h) Diagonal framing.

(2 × 10 = 20)

II. Explain any three innovative construction systems developed by CBRI in detail.

OR

III. Structural glazing and its application in building industry.

IV. Discuss about wall paneling and various materials used in detail with neat sketches.

OR

V. Explain the architectural details of earthquake resistant buildings.

PART B

(2 × 20 = 40)

VI. An air conditioned studio space of size 5 × 4 meter use gypsum boards for false ceiling with steel section and joinery details. Prepare an appropriate drawing in suitable scale to explain the details.

OR

VII. Draw and label the details of wooden wall paneling with joinery details to a suitable scale and label them.

VIII. Draw in appropriate scale: Reinforcement and bending details in RC Band.

OR

IX. Draw in detail and label: Vertical steel bars in brick masonry.

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B.Arch-VI-(R/S)-04-22-2016 Reg. No. | | | | | | | | |

A

B.Arch. Degree VI Semester Regular/Supplementary Examination April 2022

AR 1603 HISTORY OF ARCHITECTURE V

(*2014 Scheme*)

Time: 3 Hours Maximum Marks: 100

(*Use illustration wherever required. Illustrations carry due marks.*)

PART A

(Answer **ALL** questions)

(8 × 5 = 40)

I. Write short notes on the following:

(a) Chicago School of Architecture.

(b) Villa Savoy.

(c) De stijl.

(d) Kenzo Tange.

(e) Archigram.

(f) Norman Foster.

(g) Philip Johnson's works in India.

(h) Works of Charles Correa.

PART B

(4 × 15 = 60)

II. Explain the philosophy and works of the two master architects Louis Sullivan and Frank Lloyd Wright.

OR

III. Explain the influence of Bauhaus School in the evolution of modern architecture.

IV. Explain various art movements in 20th century and their influence in modern architecture with examples.

OR

V. Explain Louis Khan's contribution in India.

VI. Discuss the works and philosophy of the following architects:

(i) Peter Eisenman (ii) Renzo Piano (iii) Daniel Libeskind.

OR

VII. Explain deconstructivism in architecture. Illustrate two projects of the architect Zaha Hadid.

VIII. Identify the contextual response in the works of Indian modern architects like B.V. Doshi, Joseph Allen Stein and Raj Rewal.

OR

IX. Explain in detail about the works of Edwin Lutyens in India.

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B.Arch-VI-(R/S)-04-22-2017 Reg. No. | | | | | | | | |

B

B.Arch. Degree VI Semester Regular/Supplementary Examination April 2022

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:
(a) Timgad
(b) Planning of Palmanova town
(c) Radburn planning
(d) Urban environmental issues
(e) Stages of Masterplan preparation
(f) Floor area ratio
(g) Major functions of ULB
(h) Land Acquisition Act

PART B

(4 × 15 = 60)

II. Explain town planning in ancient Mesopotamia and Greece.

OR

III. Discuss the Characteristics of medieval towns with examples.

IV. Discuss Contribution of Le Corbusier in town planning along with planning of Chandigarh.

OR

V. Describe about urbanization and its impacts on Indian cities.

VI. Describe Regional Planning, objectives and its components in detail.

OR

VII. Explain about Area planning and Town planning schemes.

VIII. Discuss about development authorities and its functions.

OR

IX. Discuss JNNURM and AMRUT, two major urban development programmes by government of India.

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B.Arch-VI-(R/S)-04.22-2018 Reg. No. | | | | | | | | | |

B

B.Arch. Degree VI Semester Regular/Supplementary Examination April 2022

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) What are the principles of heat transfer?

(b) What is a thermal insulator? List a few desirable properties of thermal insulator.

(c) List the similarities and differences between a heat pump and a refrigerator.

(d) Sketch a simple vapour absorption system.

(e) What are the factors affecting human comforts?

(f) Mention the methods used to control noise in air-conditioning systems.

(g) Write short note on fire rating and assessment transfer.

(h) Describe the classification of fires.

PART B

(4 × 15 = 60)

II. A furnace wall consists of 200 mm layer of refractory bricks, 0.6 mm layer of steel plate and a 100 mm layer of insulating bricks, on the furnace side maximum temperature is 1150°C and minimum temperature is 40°C on the outer side of the wall. The heat loss from the wall is 400 w/m^2. There is a thin layer of air between the refractory brick and steel plate. Thermal conductivity for the three layers are 1.5, 45 and 0.138 w/m°C respectively. What is the temperature of the outer surface of the plate? (15)

OR

III. Explain the concept of critical radius of insulation. Bring out the practical applications. (15)

IV. (a) Describe a reversed Carnot cycle and derive expression for COP. (5)

(b) Explain the working of a simple vapour compression system with PH and TS diagram. (10)

OR

V. (a) List the desirable properties of refrigerants. (7)

(b) Explain the harmful effects of CFC refrigerants and describe eco friendly refrigerants. (8)

VI. Describe summer air conditioning and winter air conditioning schematically and represent it in a psychrometric chart. (15)

OR

VII. (a) Explain the split system of air conditioning. (7)

(b) Describe any two air distribution systems with neat sketches. (8)

VIII. Describe various fire extinguishing techniques. (15)

OR

IX. (a) List the different types of fire sprinklers and compare their advantages and disadvantages. (7)

(b) List the different types of detectors used for fire safety of building and explain the working of any one. (8)

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B.Arch-VI-(R/S)-04-22-2019 Reg. No. | | | | | | | | |

B

B.Arch. Degree VI Semester Regular/Supplementary Examination April 2022

AR 1606 STRUCTURAL DESIGN

(2014 Scheme)

Time: 3 Hours Maximum Marks: 100

PART A

(Answer **ALL** questions)

$(8 \times 5 = 40)$

I. (a) Write short note on control of deflection.

(b) Write the assumptions of Limit state of collapse in flexure.

(c) Describe T-beams and L-beams with provisions for finding their effective width of flange.

(d) Mention the differences between one-way slab and two-way slab.

(e) Enumerate the design procedure for two – way slab.

(f) Explain the concept of unsupported length of a compression member.

(g) Enumerate the differences between short and long column.

(h) Write two conditions that governs the shear strength of footings.

PART B

$(4 \times 15 = 60)$

II. Design and detail a singly reinforced concrete beam of rectangular section subjected to a uniformly distributed live load of 12 kN/m over the entire span. Clear span is 5 m. The beam is supported on masonry wall, 230 mm thick on both sides. Use M25 grade concrete and Fe 415 grade steel.

OR

III. A rectangular beam of span 7 m between centre to centre of supports has a cross-section 250 mm × 550 mm. The beam has to support a uniformly distributed dead load (excluding self-weight) of 15 kN/m and a live load of 20 kN/m. Using M20 grade concrete and Fe 415 HYSD bars, design the reinforcements in the beam and check the beam for the limit state of deflection.

IV. A T-beam slab floor of reinforced concrete has a slab 150 mm thick spanning between the beams which are spaced 3 m apart. The beams have a clear span of 10 m and the end bearings are 450 mm thick walls. The live load on the floor is 4 kN/m^2. Adopting M20 grade concrete and Fe 415 HYSD bars, design one of the intermediate T-beams and sketch the details of reinforcements in the beam.

OR

V. Design and detail a simply supported slab for a room of interior dimension 8 m × 3.5 m, subjected to an imposed load of 8 kN/m^2. Thickness of supporting wall is 300 mm. Use M20 concrete and Fe 415 steel. Assume moderate exposure conditions.

(P.T.O.)

VI. Design and detail a simply supported slab for a room of interior dimension 5 m × 4 m, subjected to an imposed load of 8 kN/m^2. Corners of the slab are restrained against lift up. Use M20 concrete and Fe 415 steel. Assume moderate exposure conditions. Perform all necessary checks except sheer check.

OR

VII. A rectangular reinforced concrete column of cross-sectional dimensions 300 mm × 600 mm is to be designed to support an ultimate axial load of 2000 kN. The column has an unsupported length of 3 m and braced against side sway. Design the suitable reinforcements in the column using M20 grade concrete and Fe 415 HYSD bars.

VIII. Design the reinforcement in a short column 400 mm × 400 mm at the corner of a multi-storeyed building to support an axial factored load of 1500 KN, together with biaxial moments of 40 kN-m at top and 20 kN-m at bottom acting in perpendicular planes. Adopt M20 grade concrete and Fe 415 HYSD bars.

OR

IX. Design a reinforced concrete footing for a rectangular column footing of section 300 mm × 500 mm supporting an axial factored load of 2000 kN. The safe bearing capacity of the soil at site is 185 kN/m^2. Adopt M20 grade concrete and Fe 415 HYSD bars.

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