B.Arch-V(S)-11-23-3096 Reg. No. | | | | | | | | |

A

B.Arch. Degree V Semester Supplementary Examination November 2023

AR 1502 BUILDING MATERIALS AND CONSTRUCTION - IV

(*2014 Scheme*)

Time: 4 Hours Maximum Marks: 100

PART A

(Answer ***ALL*** questions)

(8 × 5 = 40)

I. Write short notes on the following:

(a) Cement paints vs Plastic emulsions.

(b) Varnish and lacquers.

(c) Finishes in cement plastering.

(d) Any two natural floor finishes.

(e) Space frames.

(f) Types of roofing tiles.

(g) Horizontal moving walkways.

(h) Capsule elevators.

(2 × 10 = 20)

II. Discuss in detail: Any three special purpose paints.

OR

III. Discuss in detail: Any three types of artificial floor finish.

IV. Describe with sketches: Any two types of light roofing materials and fixing details.

OR

V. Elaborate: Planning considerations of elevators for a high rise residential building.

PART B

(2 × 20 = 40)

VI. Draw and label: King post steel truss of span 8 m with fixing details to a suitable scale. Assume necessary details required for drawing.

OR

VII. Draw and label: Steel tubular truss with gutter and fixing details to a suitable scale. Assume necessary details required for drawing.

VIII. Draw the plan, section and details of a hospital elevator system to a suitable scale.

OR

IX. Draw the plan, section and details of a 30 degree escalator for a commercial building.

***

B.Arch-V(S)-11-23-3097 Reg. No. | | | | | | | | |

C

B.Arch. Degree V Semester Supplementary Examination November 2023

AR 1503 HISTORY OF ARCHITECTURE - IV
(*2014 Scheme*)

Time: 3 Hours Maximum Marks: 100

PART A
(Answer ***ALL*** questions)

(8 × 5 = 40)

I. Write short notes with sketches on:

(a) Impact of Portuguese Architecture in India.

(b) Catholic houses in Goa.

(c) Victoria Terminus.

(d) Edwin Lutyens and his works.

(e) Consequence of Industrial Revolution in the field of architecture.

(f) Characteristics features of buildings during Post Renaissance Architecture in Europe.

(g) Frank Loyd Wright and his works.

(h) Organic Architecture.

PART B

(4 × 15 = 60)

II. Explain with sketches the Styles and trends brought by Portuguese colonial architecture in India.

OR

III. Describe about the architectural characteristics and planning aspects of Fountains during the Portuguese colonial rule with neat sketches.

IV. Explain with neat sketches the contributions of Edwin Lutyens for the planning and design of New Delhi.

OR

V. Describe about Indo Saracenic style and colonial architecture in Bombay, Calcutta and Madras with examples.

VI. Elaborate with examples, architecture during post renaissance in Europe.

OR

VII. Explain the impact of Crystal Palace during Industrial revolution. Also elaborate on the influence of modern building materials like steel, glass, etc. during industrial revolution.

VIII. Elaborate on the advancement in Engineering during Art Nouveau and Arts and Crafts Movement.

OR

IX. Explain the architectural contributions of Louis Sullivan in Chicago with examples.

***

B.Arch-V(S)-11-23-3098 Reg. No. | | | | | | | | | |

B

B.Arch. Degree V Semester Supplementary Examination November 2023

AR 1504 ECOLOGY AND ENVIRONMENTAL STUDIES

(*2014 Scheme*)

Time: 3 Hours Maximum Marks: 100

PART A

(Answer ***ALL*** questions)

(8 × 5 = 40)

I. Write short notes on the following:

(a) Ecosystems.

(b) Climate change.

(c) Feedback and control mechanism.

(d) Wetland ecosystem.

(e) Carrying capacity.

(f) Habitat and Niches.

(g) Population Dispersion.

(h) Nutrient Cycle.

PART B

(4 × 15 = 60)

II. What is Environmental science? Explain the relevance of studying Environmental science quoting some examples.

OR

III. What is Ecology? Quoting examples, explain different types of natural environments in the state of Kerala, and its associated ecosystem.

IV. Explain the relevance of the study of different concepts related to population and its impacts on environment.

OR

V. Explain how Population fluctuations affect the Urban Environment and its impact on Climate Change and Economics.

VI. What is energy flow through Ecosystem? Explain in detail.

OR

VII. Explain Gross Primary Productivity (GPP) and Net Primary Productivity (NPP). How are these concepts related to the 10% law of energy transfer?

VIII. What is Nutrient cycle? Explain the impact of man on Nutrient cycles in an Ecosystem.

OR

IX. What are the major ecosystems of the world? Explain about the wetland, freshwater and marine ecosystems.

***

B.Arch-V(S)-11.23.3099 Reg. No. | | | | | | | | |

C

B.Arch. Degree V Semester Supplementary Examination November 2023

AR 1505 BUILDING SERVICES II - ELECTRICAL DESIGN AND ILLUMINATION
(*2014 Scheme*)

Time: 3 Hours Maximum Marks: 100

(Illustrate sketches wherever necessary)

PART A
(Answer ***ALL*** questions)

(8 × 5 = 40)

I. Write short notes on the following:
- (a) Alternate Power supply system.
- (b) Power factor.
- (c) Classification of voltages.
- (d) RCCB.
- (e) Electrical Flux.
- (f) Luminous Intensity.
- (g) Earthing.
- (h) Lightning Arresters.

PART B

(4 × 15 = 60)

II. What is three phase system? Explain Relation between Phase current and line current in DELTA connection.

OR

III. In a STAR connection line voltage is 410 V, line current is 22.8A and Power factor is 0.9. Calculate the power taken by the load.

IV. Explain Substation. Draw Electrical single line diagram for Substation.

OR

V. Explain the Idea about a Transformer. Draw the Electrical representative diagram for transformer.

VI. Elaborate details of IBMS system.

OR

VII. What are the principles of lighting in buildings? Explain in detail about illumination in an auditorium.

VIII. What are the electrical safety regulations in commercial and high rise buildings?

OR

IX. What is earthing? Explain different types of earthing. What are the considerations for lighting protection in buildings?

***

B.Arch-V(S)-11-23-3100 Reg. No. | | | | | | | | | |

C

B.Arch. Degree V Semester Supplementary Examination November 2023

AR 1506 ARCHITECTURAL DETAILING

(2014 Scheme)

Time: 4 Hours Maximum Marks: 100

PART A

(Answer *ALL* questions)

(8 × 5 = 40)

I. Write short notes on the following:

(a) Details to be included in electrical drawing.

(b) Relevance of station points.

(c) Importance of center line drawing.

(d) Need for interior elevations.

(e) Symbols in drawing.

(f) Importance of sections in working drawing.

(g) Door and window schedules.

(h) Merits and demerits of manual and CAD detailing.

PART B

(3 × 20 = 60)

II. Draw detailed section to scale of 1:50 through stairs showing the rise and tread in section for the building given in figure 1.

(i) Wall 24cm thick brick work with cement mortar

(ii) Roof slab – RCC 1:1.5:3, 12 cm thick

(iii) Doglegged RCC stairs

(iv) Plastering with cement mortar 1:4

(v) Carpentry and joinery with wood

OR

III. Draw the foundation plan and typical foundation section with center line super imposed on it for the building given in figure 1.

IV. Prepare the electrical layout plan with legend table with height of the fixture from finished floor level (F.F.L), earthing pit, meter box and distribution box for the building given in figure 1.

OR

V. Prepare the plumbing layout plan of grey water, black water, inlet water connection from overhead tank and storm water drain inside the site to rain water harvesting pit for the building given in figure 1.

VI. Prepare a plan , section and elevation of a 3 panel window frame and panel with total length 150 cm and height 150 cm.

OR

VII. Prepare a plan, section and elevation of a kitchen door and its frame with length 90 cm and height 24 cm.

(P.T.O.)

B.Arch-V(S)-11-23-3100

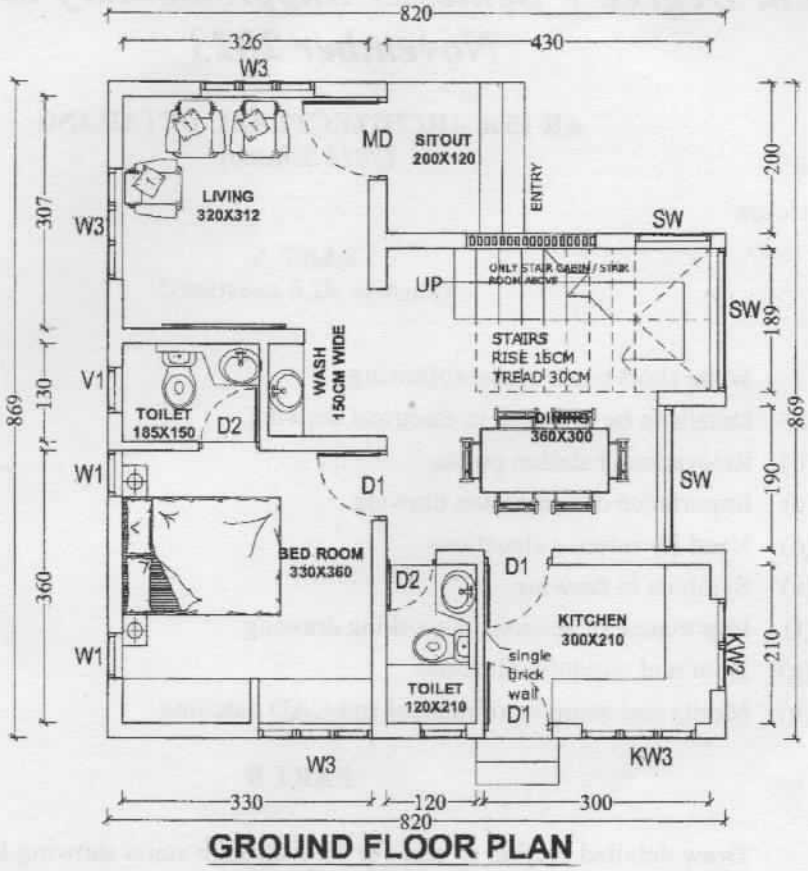


Figure 1

***

B.Arch-V(S)-11-23-3101 Reg. No. | | | | | | | | |

B

B.Arch. Degree V Semester Supplementary Examination November 2023

AR 1507 STRUCTURAL ANALYSIS - III

(2014 Scheme)

Time: 3 Hours Maximum Marks: 100

PART A

(Answer *ALL* questions)

(8 × 5 = 40)

I. (a) A symmetric three hinged parabolic arch of span 20 m and central rise of 5 m carries a uniformly distributed load of intensity 5 kN/m over whole span. Find the horizontal thrust at the support.

(b) Classify arches based on materials, shape, and structural systems.

(c) A symmetrical three hinged semi-circular arch carries a point load of 100 kN at the crown hinge. The radius of the arch is 4m. Find the horizontal reaction at the supports.

(d) Do the suspension cables resist bending moment? Justify.

(e) Write a short note on effect of settlement and temperature stress on structures.

(f) Sketch the deformed shape of a suspension cable (supports at the same level) under the following cases of loading:

(i) Point load W1 and W2 (W1 > W2) at the quarter span points

(ii) Uniformly distributed load over the whole span.

(g) What is displacement transformation matrix and element stiffness matrix of a structure?

(h) Derive stiffness matrix for beam element.

PART B

(3 × 20 = 60)

II. A three hinged circular arch has a span of 20 m between hinged supports at the same level and rise of 4 m to its centre where there is a hinge. It carries a udl of 30 kN/m over the left half of the span. Calculate the bending moment at the left quarter span and maximum bending moment on right half of the span.

OR

III. A symmetrical three hinged circular arch has a span of 16 m and a rise to the central hinge of 4 m. It carries a vertical load of 16 kN at 4 m from left hand end. Find:

(i) Magnitude of thrust at the springing

(ii) Reaction at support

(iii) Bending moment at 6m from left hand hinge

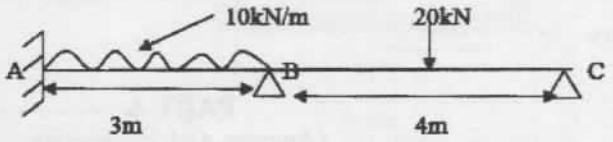
(iv) Maximum positive and negative bending moment.

(P.T.O.)

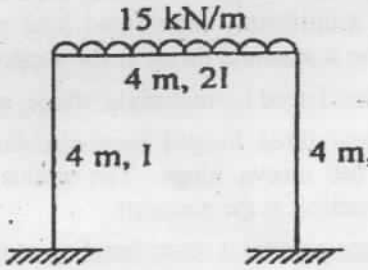
IV. A cable of span 80 m (horizontal) has its ends at heights 7 m and 12 m above the lowest point of the cable. It carries a uniformly distributed load of 10 kN/m over the horizontal span. Determine the support reaction and maximum tension in the cable.

OR

V. Analyse the beam shown in figure by force method of analysis. Draw the bending moment diagram also. EI is constant.

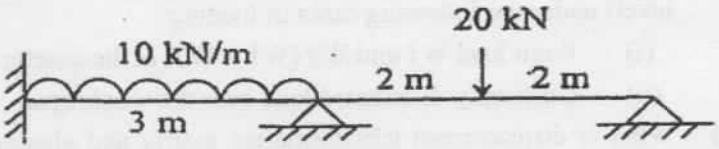


VI. Using displacement method of analysis, analyse the frame shown in figure and draw the bending moment diagram.



OR

VII. Analyse the continuous beam shown in figure using displacement method of analysis.



***