B.Arch. Degree IV Semester Regular/Supplementary Examination July 2024

AR 1407 SITE PLANNING AND LANDSCAPE ARCHITECTURE
(2021 Scheme)
(Support your answers with proper illustrations and examples)

Time: 3 Hours   Maximum Marks: 100

PART A
(Answer *ALL* questions)

(8 × 5 = 40)

I.   Write short notes on:

(a) Key characteristics of a Mughal Garden in India.

(b) Impact of Industrialization on Landscape Architecture.

(c) Difference between tangible and intangible elements in landscape design.

(d) Significance of non-visual elements like smell, touch and sound in landscapes.

(e) Importance of Microclimate analysis in site planning.

(f) Key factors to be considered when selecting a site for landscape design.

(g) Basic techniques for planting and transplanting.

(h) Concept of plant selection criteria based on functional aspects.

PART B

(4 × 15 = 60)

II.   Trace the development of Landscape Architecture through history, highlighting the contributions of different civilizations.

OR

III.   Discuss the rise of the Parks Movement in America and its significance in the development of open spaces.

IV.   Enumerate and elaborate on the principles of Landscape Design - Scale, Proportion, Unity, Rhythm, Harmony, Balance and Contrast.

OR

V.   Analyze how Landscape Architects can utilize a combination of elements and principles to create a successful landscape design.

VI.   Discuss various techniques used in Landscape Construction.

OR

VII.   Elaborate on the principles of Site Planning.

VIII.   Elaborate on the different categories of plant materials (trees, shrubs, etc.) and their design applications in landscapes.

OR

IX.   Analyze the specific requirements and challenges of indoor landscaping, including light, air, water and plant selection.

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AR 1406 BUILDING SERVICES -I WATER SUPPLY AND SANITATION

(2021 Scheme)

Time: 3 Hours   Maximum Marks: 100

PART A
(Answer *ALL* questions)

(8 × 5 = 40)

I.   Write short notes on the following:
   (a)   Explain with sketches, elements of water supply systems in a town.
   (b)   Types of water and its properties.
   (c)   Septic tank.
   (d)   Infiltration.
   (e)   Types of sewers based on their shape.
   (f)   Factors affecting the design of sewer pipes.
   (g)   Water supply Indian standards.
   (h)   Fire protection.

PART B

(4 × 15 = 60)

II.   Briefly explain the sources of water available, selection criteria and standards of purity.
                                          OR
III.   Briefly describe the process of filtration of water from the source and standards of potable water.

IV.   Explain various systems of sewage disposal from buildings.
                                          OR
V.   Determine the dimensions of a septic tank for a population of 200 people whose water demand is 120 l/h/d. Also design a soak pit for the tank if the percolation rate is 1250 $l/m^3/day$.

VI.   Explain the process of laying the sewer system.
                                          OR
VII.   Briefly explain sewer system, quantity calculations factors affecting design of sewer.

VIII.   Enumerate Indian Standards for fire protection.
                                          OR
IX.   Factors to be considered while designing house drainage system.

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AR 1404 THEORY OF STRUCTURES III – STRUCTURAL ANALYSIS
(2021 Scheme)

Time: 3 Hours

Maximum Marks: 100

PART A
(Answer ALL questions)

(8 × 5 = 40)

I. (a) What are the concept of general loading and vertical loading?
    (b) Write down the steps used in consistent deformation method.
    (c) Explain and derive slope deflection equation.
    (d) Differentiate between determinate and indeterminate structures.
    (e) What are the advantages of arches over beams?
    (f) Write a note on cable suspended bridges.
    (g) Explain the properties of flexibility matrix.
   (h) Compare force method and displacement method of analysis.

PART B

(4 × 15 = 60)

II.   Analyse the given beam using Three-moment theorem and draw SFD and BMD.
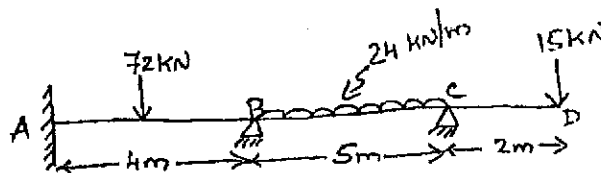
OR

III.   A cantilever beam of span 4 m is supported at free end to the level of fixed end. It carries a concentrated load of 40 kN at the centre of the span. Calculate the reaction at the prop and draw SFD and BMD.

IV.   Analyse the continuous beam shown in figure using slope deflection method and find the final moments.
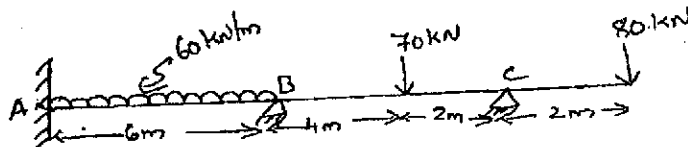
OR

V.   Analyse the frame using moment distribution method.
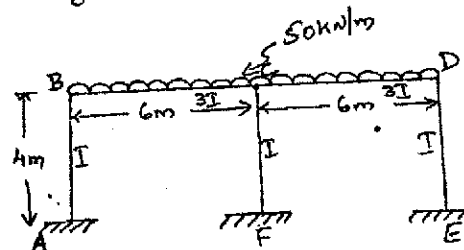
VI. A Three- hinged parabolic arch has a span of 20 m and a rise of 5 m. It carries a UDL of 20 kN/m over the left half of the span and a point load of 120 kN at 5 m from right end. Find Bending moment, Normal Thrust and Radial Shear at a section 4 m from the left end.

OR

VII. A cord supported at its ends 40 m apart carries loads of 20 kN,10 kN and 12 kN at a distance 10 m,20 m and 30 m from the left end. If the point on the cord where the 10 kN load is supported is 13 m below the level of the end supports, Determine:
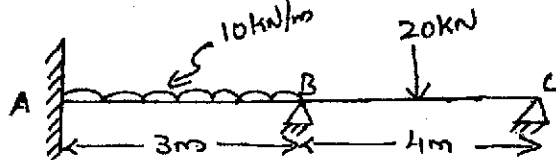
(i) The reactions at the supports
(ii) Tension in the different parts of the cord
(iii) Total length of the cord.

VIII. Analyse the beam using flexibility matrix.
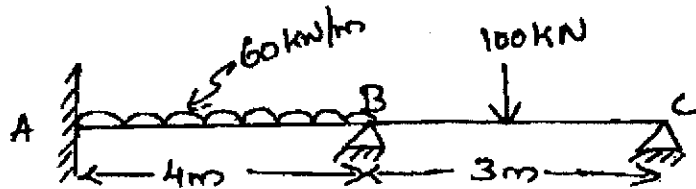
OR

IX. Analyse the beam shown in figure using stiffness matrix.

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AR 1403 HISTORY OF ARCHITECTURE IV – ISLAMIC ARCHITECTURE
(2021 Scheme)

Time: 3 Hours

Maximum Marks: 100

PART A
(Answer *ALL* questions)

(8 × 5 = 40)

I. Write short notes on:
- (a) Minaret
- (b) Decoration in Islamic architecture
- (c) Horse shoe Arch
- (d) Riads Gardens
- (e) Muqarnas
- (f) Provincial style of Malwa
- (g) Humayun's Tomb
- (h) Vijayanagara Style

PART B

(4 × 15 = 60)

II. Explain in detail how Islamic Architecture Influenced on Evolution of Building types in terms of forms and function.

OR

III. Illustrate the development of Islamic Architecture from AD 610 with the help of a building example explaining the principles of Islam.

IV. Explain in detail about Alhambra Complex with the help of sketches.

OR

V.   Explain in detail elements and planning principles of Moorish Architecture with the help of sketches.

VI. Illustrate development of Mughal Style of Architecture under the Ruler Akbar with the help of building example.

OR

VII. Explain the provincial style of Gujarat (AD 1300-AD 1572) with the help of a building example.

VIII. Illustrate the development of Mughal style under the ruler Akbar and importance of Mughal gardens in Architecture.

OR

IX. Explain in detail the cross cultural influences with secular Architecture of Madurai.

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AR 1402 BUILDING MATERIALS AND CONSTRUCTION IV
(2021 Scheme)

Time: 4 Hours   Maximum Marks: 100

PART A
(Answer *ALL* questions)

(8 × 5 = 40)

I.   Write short notes on the following

(a)   Classification of Roofs.

(b)   Interlocking tiles.

(c)   North light truss system.

(d)   Tie member.

(e)   Panelled door

(f)   Purpose of curtain wall.

(g)   Clay block partitions.

(h)   Common materials for false ceiling.

PART B

(4 × 10 = 40)

II.   Explain madras terrace roof system for different spans.

OR

III.   Discuss in detail of pitched roof covering with examples.

IV.   Explain the various types of steel roof trusses with respect to its span.

OR

V.   What is a King post truss? Sketch the different parts and label.

VI.   Enlist and explain the types of paneled doors and their mechanism with sketches.

OR

VII.   Brief about the details of Rolling shutter and Collapsible gate.

VIII.   Discuss the types of partition walls in detail.

OR

IX.   Sketch the different types of aluminium doors showing salient features.

PART C

(1 × 20 = 20)

X.   Draw to suitable scale, the details of a wooden Queen post truss roof to span a room of 6 m × 12 m. Mark the necessary parts and draw any two-joinery details.

OR

XI.   Design and detail a steel window for a classroom, width of the window is 1 m, height of the window is 1.5 m.

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