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B.Arch. Degree IV Semester Regular Examination April 2023**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:
- Materials for roof coverings commonly used in Kerala.
 - Light roofing materials.
 - North light truss.
 - Methods of structural steel connections.
 - Composition and properties of steel.
 - Collapsible door with sketches.
 - Aluminium profiles for false ceiling.
 - Timber partitions.

PART B

(4 × 10 = 40)

- II. Describe with sketches any two types of roofing tiles with fixing details.
OR
- III. Describe:
- Pitched roof.
 - Lean to couple roof.
 - Scissor roof.
- IV. Explain various types of steel roof trusses with sketches.
OR
- V. Explain queen post truss and its joinery details with neat sketches.
- VI. Describe the features of steel doors and its design criteria. List the various parts of steel doors and types available in the market.
OR
- VII. What are the considerations in the selection of types and materials for doors? Indicate various types of operation of doors.
- VIII. List the advantages and disadvantages of partition walling. Show details of fixing partition walls to RCC structural members with neat sketches.
OR
- IX. Explain the different types of partitions used in building construction and their applications.

(P.T.O.)

PART C

(1 × 20 = 20)

- X. Draw to a suitable scale a King post truss roof with fixing details for a span of 3 m and label the different parts. Draw detailed drawings of the various joints of the same.

OR

- XI. Draw to a suitable scale, plan, elevation and section of a steel window for masonry opening size 150 cm x 140 cm to be fixed to concrete block masonry. Use standard steel product profiles. Brief description and full dimensions of parts have to be given in the drawing. Assume necessary details required for drawing.

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B.Arch. Degree IV Semester Regular Examination April 2023**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 the following:
- Important elements of Islamic Architecture.
 - Evolution of building types in Islamic Architecture.
 - Muqaranas.
 - Horseshoe Arch.
 - Architectural style during Slave dynasty.
 - Provincial style of Gujarath.
 - Mughal Garden.
 - Princely state of Vijayanagara.

PART B

(4 × 15 = 60)

- II. Brief on History of Islamic Architecture with the principle and elements used across countries.
- OR**
- III. Explain in detail the vernacular Islamic Architecture followed with help of important building and monuments.
- IV. Describe in detail the characteristics and planning principles of Moorish Architecture.
- OR**
- V. Explain in detail on Great Mosque of Cordova.
- VI. Brief on history and development of Khilji and Tuglaq dynasty with suitable example of a building on each period.
- OR**
- VII. Detail on the buildings, architectural elements and features of Provincial style of Bengal.
- VIII. Enumerate and explain the architectural developments happened during the reign of Mughal Emperor Akbar.
- OR**
- IX. Explain on secular architecture of the princely state of Madurai.

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

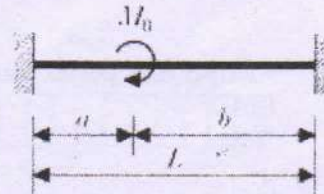
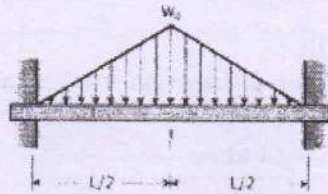
Time: 3 Hours

Maximum Marks: 100

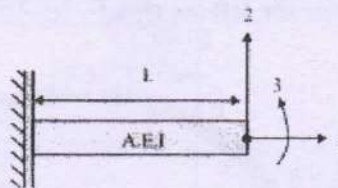
PART A (Answer ALL questions)

(8 × 5 = 40)

- I. (a) Explain the force method of structural analysis in brief.
 (b) Write the procedure involved in consistent deformation method.
 (c) Find the fixed end moments of the following beams.



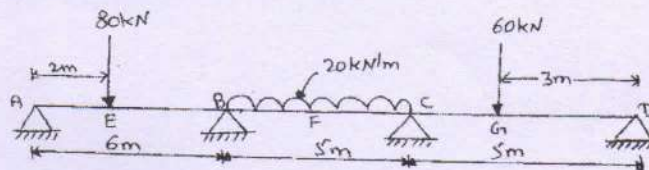
- (d) Briefly explain the following:
 (i) Distribution factor
 (ii) Carry over factor
 (e) Briefly explain Eddy's theorem.
 (f) List the salient features of a suspension bridge.
 (g) Compare static and kinematic indeterminacies with suitable examples.
 (h) Derive the stiffness influence coefficients for the given beam element.



PART B

(4 × 15 = 60)

- II. Analyze the continuous beam using Clayperon's 3 moment theorem and draw the BMD and SFD.

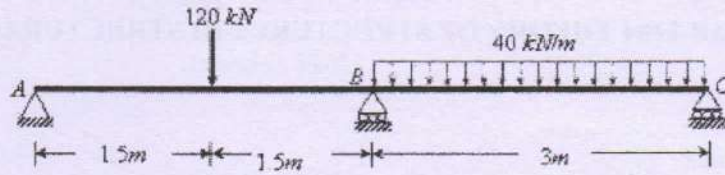


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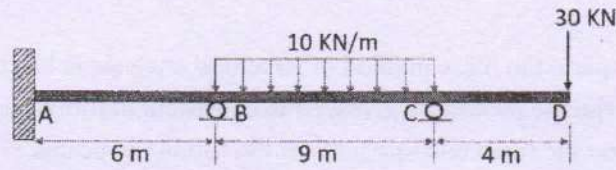
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- III. Calculate the end reactions of the fixed beam using method of consistent deformation. Also draw the BMD and SFD.

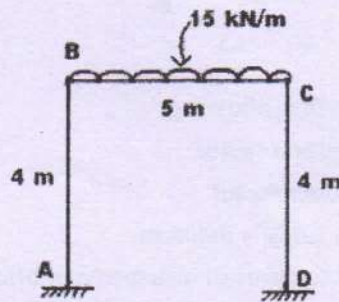


- IV. Analyze the given beam by slope deflection method and draw BMD and SFD.

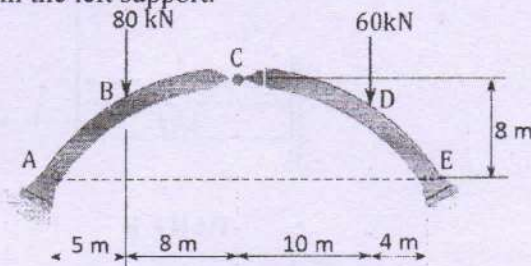


OR

- V. Analyze the portal frame by moment distribution method and draw the BMD.



- VI. Analyze the 3 hinged parabolic arch and calculate normal thrust and radial shear at 5m from the left support.

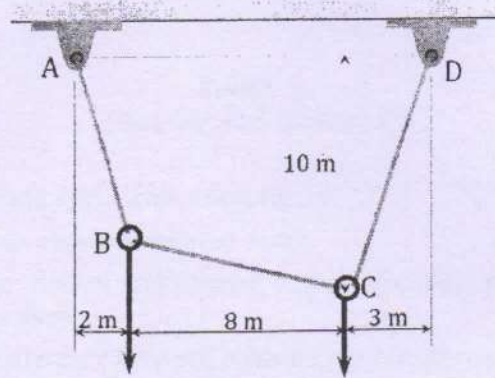


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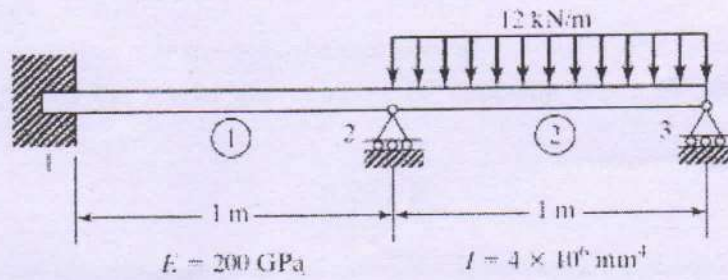
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- VII. For the given cable calculate:
- (i) Resultant reactions and their inclinations at A and D
 - (ii) Sag at point B
 - (iii) Total length of the cable

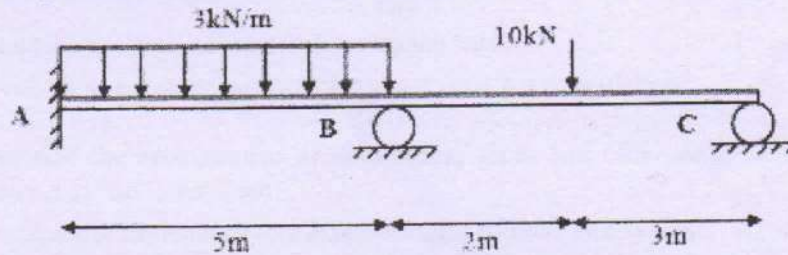


- VIII. Develop stiffness matrix for the given beam.



OR

- IX. Develop flexibility matrix for the given beam.



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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. (a) Define hydrologic cycle with a neat figure.
 (b) List the methods of purification of water.
 (c) Enumerate the factors considered before deciding the locations of a distribution reservoir.
 (d) Point out the difference between pressure release valve and check valve.
 (e) Define Antisiphonage pipes.
 (f) Give a brief description on any three joints used in a sewer system with figures.
 (g) Define gullies with the help of a neat sketch.
 (h) Enumerate the merits and demerits of disposing waste by incineration method.

PART B

(4 × 15 = 60)

- II. Explain the significance of the following from the point of view of water quality criteria: (15)
 (i) Turbidity (ii) Chlorides (iii) Nitrates (iv) Sulphates (v) Iron.
OR
- III. (a) Describe in detail about a sedimentation tank. (6)
 (b) Write short notes on various chemicals used for coagulation. (9)
- IV. (a) Describe the arrangement of distribution pipes and other accessories in a water distribution system. (9)
 (b) Discuss the advantages and disadvantages of dead end system. (6)
OR
- V. What are the various systems adopted to supply water to high rise buildings? (15)
- VI. (a) Discuss the different types of traps implemented in a sanitary plumbing system based on their use with neat sketches. (10)
 (b) Differentiate between one pipe and two pipe system. (5)
OR
- VII. Draw a plan of a sewerage system of bathrooms and lavatory blocks in a two-storied residential building. (15)
- VIII. (a) Explain the difference between the dilution process, if the waste water effluents are disposed in stream water and sea water. (5)
 (b) Explain the methods, problems and limitations of land disposal of sewage. (10)
OR
- IX. Enumerate the various methods which can be used for the disposal of municipal solid waste and explain the two most widely adopted methods in India. (15)

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B.Arch. Degree IV Semester Regular Examination April 2023**AR 1407 SITE PLANNING AND LANDSCAPE ARCHITECTURE**
(2021 Scheme)

Time: 3 Hours

Maximum Marks: 100

PART A
(Answer *ALL* questions)

(8 × 5 = 40)

- I. Write short notes on:
- Significance of time in Landscape design.
 - Characteristic features of French gardens.
 - Manmade elements.
 - Scale and Proportion in Landscape Design.
 - Microclimate.
 - Principles of Grading.
 - Classification of Shrubs.
 - List down the criteria for plant selection.

PART B

(4 × 15 = 60)

- II. Describe the three major forms of Roman gardens with examples.
- OR**
- III. With the help of sketches, describe the features of Mughal gardens borrowed from the Persian gardens.
- IV. Explain the importance of water in landscape design with neat sketches.
- OR**
- V. Sketch and explain, with examples, aesthetic principles in the landscape, such as balance, proportion and harmony.
- VI. Describe Site analysis and components to be considered in detail while doing Site inventory and analysis.
- OR**
- VII. Elaborate on the construction details of terrace gardens and terrace pools.
- VIII. What are the different classifications of plants according to their form, colour and texture?
- OR**
- IX. Explain the functions and behaviour of indoor plants with suitable examples.
