

--	--	--	--	--	--	--	--

B.Arch. Degree IV Semester Supplementary Examination May 2025**AR 1402 BUILDING MATERIALS AND CONSTRUCTION – III**
(2014 Scheme)

Time: 4 Hours

Maximum Marks: 100

*(Use illustrations wherever necessary illustrations carry due marks)***PART A**(Answer **ALL** questions)

(8 × 5 = 40)

- I. Write short notes on the following.
- (a) Uses of cold rolled light gauge steel sections.
 - (b) Anti-corrosive treatments for steel.
 - (c) Steel roof trusses.
 - (d) Steel handrails for the physically handicapped.
 - (e) Aluminum alloys – properties and applications.
 - (f) Copper and brass in construction.
 - (g) Aluminum windows – types and uses.
 - (h) Aluminum in false ceilings and partitions.

(2 × 10 = 20)

- II. Compare the properties, manufacturing process and applications of cast iron, wrought iron, pig iron and steel.

OR

- III. Explain the different types of connections in steel construction using neat sketches.

- IV. Discuss the properties and uses of aluminum alloys. Include an overview of current developments in non-ferrous metal applications.

OR

- V. Describe the different types of aluminum doors, windows and ventilators used in architectural construction. Include their specific applications and advantages.

PART B

(2 × 20 = 40)

- VI. Draw to scale a steel staircase with handrails and balusters, incorporating design considerations for physically handicapped users. Include plan, elevation and sectional details.

OR

- VII. Draw to scale the detailed plan, elevation and section of a steel openable window, including frame, shutter, hinges and holdfasts. Indicate materials and specifications.

- VIII. Prepare detailed drawings of an aluminum sliding window and an operable aluminum door, showing the frame sections, joinery and relevant dimensions.

OR

- IX. Prepare a detailed drawing of an aluminum partition with integrated fixed glazing and a pivoted door. Include vertical and horizontal sections with frame connections.

--	--	--	--	--	--	--	--

***B.Arch. Degree IV Semester Supplementary Examination
May 2025***

**AR 1403 HISTORY OF ARCHITECTURE III
(2014 Scheme)**

Time: 3 Hours

Maximum Marks: 100

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

(8 × 5 = 40)

- I. Write short notes on the following.
- (a) Evolution of Church form.
 - (b) Key Features of Old St. Peter's Basilica in Rome.
 - (c) Flying buttresses in Gothic cathedrals.
 - (d) Characteristic features of Rococo Architecture.
 - (e) Muqarnas.
 - (f) Key characteristics of Alhambra Complex.
 - (g) Torri.
 - (h) Temple Of Angkor Wat.

PART B

(4 × 15 = 60)

- II. Discuss the spatial planning and construction features of Hagia Sophia, Constantinople.
- OR**
- III. Describe the historical context and characteristics of Romanesque architecture.
- IV. Discuss the characteristics of Renaissance architecture with reference to the Cathedral of St. Peter.
- OR**
- V. Explain the principles of Palladian architecture and analyze how the Rotunda at the University of Virginia exemplifies these principles.
- VI. Explain the architectural characteristics of Moorish Architecture with Great Mosque of Cordova as example.
- OR**
- VII. Explain Mayan Architecture focusing on its cultural significance, key features and construction techniques. How did the architectural style reflect Mayan beliefs, astronomy and social organization?
- VIII. Compare and contrast the architectural styles and functions of the Forbidden City and the Summer Palace in Beijing.
- OR**
- IX. 'Shinto shrines are, more than any other architecture, the crystallization of the Japanese homage to tradition'. Justify the statement.

--	--	--	--	--	--	--	--

B.Arch. Degree IV Semester Supplementary Examination May 2025**AR 1404 LANDSCAPE ARCHITECTURE
(2014 Scheme)**

Time: 4 Hours

Maximum Marks: 100

*(One drawing sheet to be supplied. All answers should be provided with relevant sketches.)***PART A**(Answer **ALL** questions)

(8 × 5 = 40)

- I. Write short notes on the following.
- (a) Landscape Design and Building Design.
 - (b) Characteristics of Renaissance Gardens.
 - (c) Manmade elements in Landscape Design.
 - (d) Role of Smell and Sound in Landscape Experience.
 - (e) Microclimate and its impact on Site Planning.
 - (f) Types and functions of Rock Gardens.
 - (g) Transplanting of trees.
 - (h) Role of Potting and Re-potting in Indoor Landscaping.

PART B

(4 × 15 = 60)

- II. Trace the development of landscape architecture from Persian to Mughal landscape movement in India.
- OR**
- III. Discuss how industrialization influenced the evolution of parks and landscape movements in America.
- IV. Elaborate on the principles of landscape design with examples, focusing on Unity, Rhythm and Contrast.
- OR**
- V. Explain how colour, form and texture influence perception in landscape architecture.
- VI. With neat sketches, explain how topography and hydrology, affect functional site planning.
- OR**
- VII. Using relevant sketches explain the landscape construction techniques for ramps, decks and pergolas.
- VIII. Discuss functional and microclimatic aspects of plant selection in landscape architecture.
- OR**
- IX. Describe the role of hydroponics and bonsai in contemporary landscaping, with examples.

--	--	--	--	--	--	--	--

B.Arch. Degree IV Semester Supplementary Examination May 2025**AR1406 ESTIMATION AND SPECIFICATION***(2014 Scheme)*

Time: 3 Hours

Maximum Marks: 100

PART A
(Answer *ALL* questions)

(8 × 5 = 40)

- I. (a) Define specification. What are its objectives in the context of construction projects?
- (b) Write short notes on the specifications for coarse aggregates and cement used in construction.
- (c) State the essential components of specification for flooring work.
- (d) Write the general specification for stone masonry (Random Rubble).
- (e) Briefly explain any two methods of estimating used in construction projects.
- (f) Explain the plinth area method of estimation with an example.
- (g) Define rate analysis. List any four components considered in rate analysis of an item.
- (h) Which are the different types of estimates? Explain.

PART B

(4 × 15 = 60)

- II. Prepare a sample detailed specification for 1st class brickwork in cement mortar. Highlight key elements that make a specification effective.

OR

- III. Describe in detail the principles of specification writing. Compare the formats used by BIS, PWD and CPWD.

- IV. Explain in detail the specification for finishing works such as:

- (i) Plastering.
- (ii) Painting.
- (iii) Whitewashing.

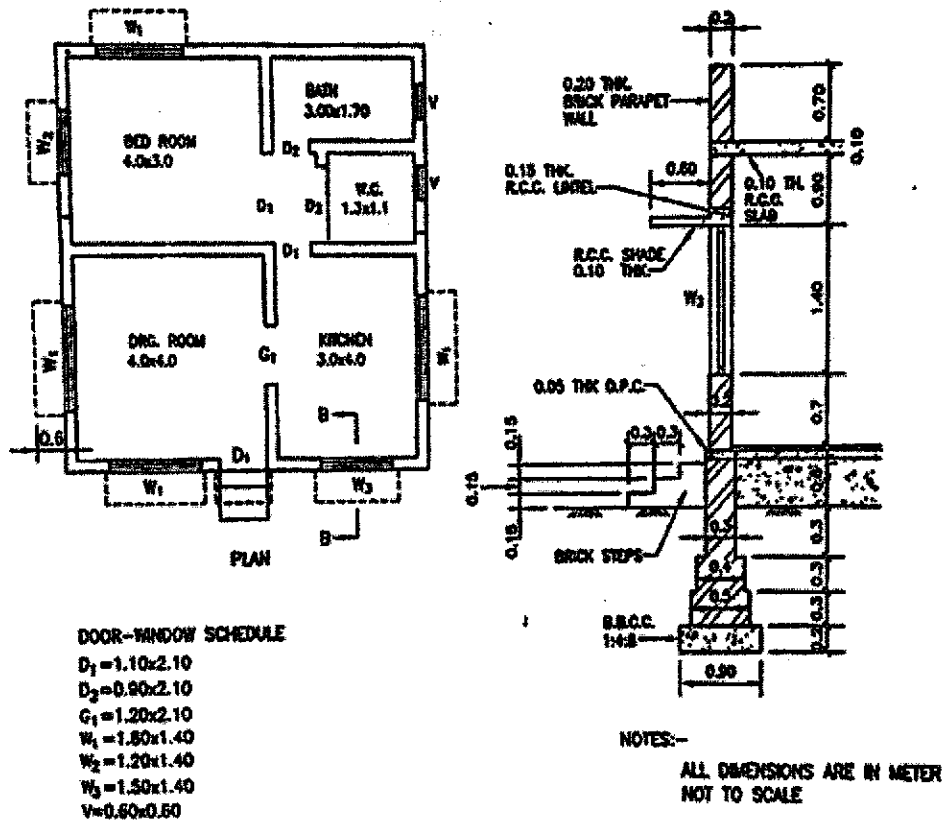
OR

- V. Discuss the specifications involved in dismantling and demolition work. What precautions and procedures must be followed?

(P.T.O.)

B.Arch-IV(S)-05-25-4171

VI. Calculate the quantities for the following items.



- (i) Earthwork in excavation.
- (ii) PCC (1:4:8) for foundation bed.
- (iii) Brickwork in foundation and basement.
- (iv) Brickwork in superstructure.
- (v) 12 mm cement plastering on walls (both sides).
- (vi) Cement concrete flooring (1:2:4), 100 mm thick.

OR

VII. Prepare a detailed estimate for a small building with tiled roof (a single-room rural house). Include major items like foundation, brickwork, roofing, and plastering.

VIII. Prepare a detailed rate analysis for 1 m³ of plain cement concrete (1:2:4) including materials, labour, tools, overheads and contractor's profit.

OR

IX. Discuss the role of computer software in building estimation. Name any three software tools and their key features.

--	--	--	--	--	--	--	--

B.Arch. Degree IV Semester Supplementary Examination May 2025**AR 1407 BUILDING SERVICES - I (WATER SUPPLY AND SANITATION)**
(2014 Scheme)

Time: 3 Hours

Maximum Marks: 100

PART A
(Answer *ALL* questions)

(8 × 5 = 40)

- I. Write short notes on:
- (a) Qualities of potable water.
 - (b) One-pipe and two-pipe plumbing systems.
 - (c) Sewage disposal systems.
 - (d) Stormwater infiltration and runoff.
 - (e) Self-purification of sewage.
 - (f) Soak pit and its function.
 - (g) Any two sanitary appliances used in residences.
 - (h) Design considerations in the drainage scheme of a kitchen on a residential building.

PART B

(4 × 15 = 60)

- II. Elaborate with sketches – domestic water piping systems, which include hot and cold-water distribution.
- OR**
- III. Explain the standards of purity and water treatment methods followed for a city.
- IV. Explain the different factors affecting the design of sewers. Sketch at least three types of sewer pipe joints.
- OR**
- V. Design a septic tank for a public building with a maximum capacity of 150 people.
- VI. Write notes on
- (i) Manholes
 - (ii) Culverts
 - (iii) Gutters
 - (iv) Catch basins
 - (v) Inspection chambers.
- OR**
- VII. Discuss the self-purification of sewage. How is sewage disposed of in an isolated building?
- VIII. Discuss and illustrate the planning considerations for bathrooms on a high-rise building.
- OR**
- IX. Explain with sketches on fire protection systems of buildings.

B.Arch. Degree IV Semester Supplementary Examination May 2025

AR 1408 STRUCTURAL ANALYSIS II (2014 Scheme)

Time: 3 Hours

Maximum Marks: 100

PART A (Answer ALL questions)

(8 × 5 = 40)

- I. (a) Write short note on unit load method.
- (b) Explain statically indeterminate beams.
- (c) State and explain Clapeyrons theorem of three moments.
- (d) State and prove slope deflection method.
- (e) Explain moment distribution method and state the steps involved in it.
- (f) State the difference in Kani's and moment distribution method.
- (g) Write short note on sway and non sway analysis of frames.
- (h) Explain stiffness matrix.

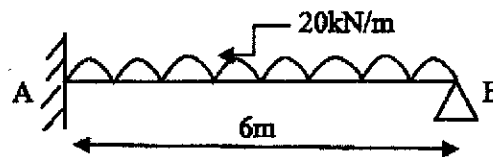
PART B

(4 × 15 = 60)

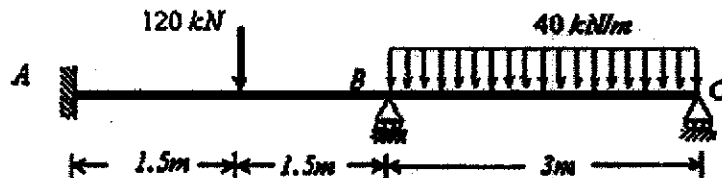
- II. A cantilever beam of span 4 m is supported at free end to the level of fixed end. It carries a concentrated load of 40 kN at the centre of the span. Calculate the reaction at the prop and draw the shear force and bending moment diagram.

OR

- III. Analyze the propped cantilever using consistent deformation method.

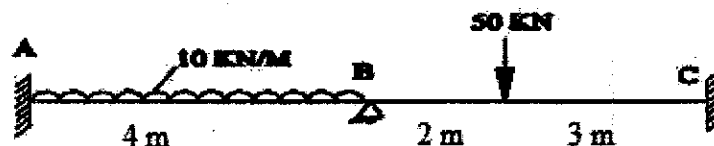


- IV. Analyze the continuous beam shown in figure by the three moment equation. Draw the shear force and bending moment diagram.



OR

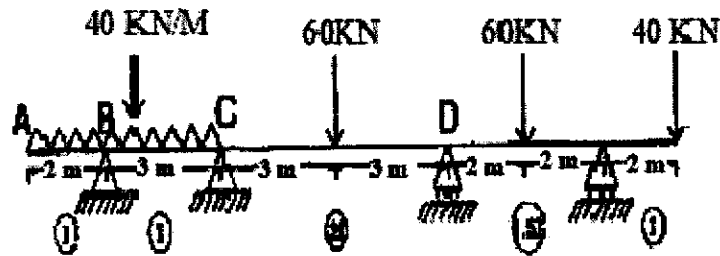
- V. Draw the SFD and BMD for the continuous beam shown in the figure. Take $E = 2 \times 10^5 \text{ N/mm}^2$, $I = 3 \times 10^6 \text{ mm}^4$. The support B sinks by 30 mm. Using slope deflection method.



(P.T.O.)

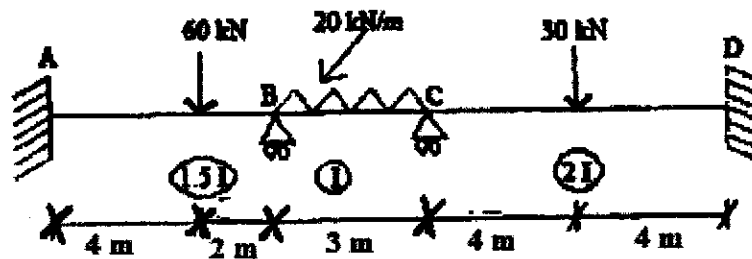
B.Arch-IV(S)-05-25-4173

- VI. Analyze the continuous beam shown in figure and determine the moment at all supports.

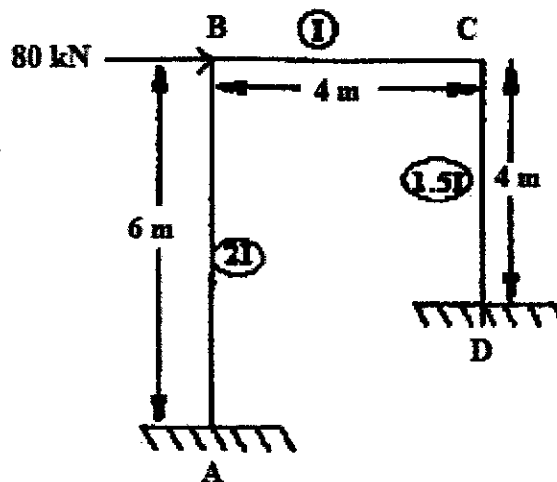


OR

- VII. Determine the support moments and draw the BMD for the continuous beam shown in figure.

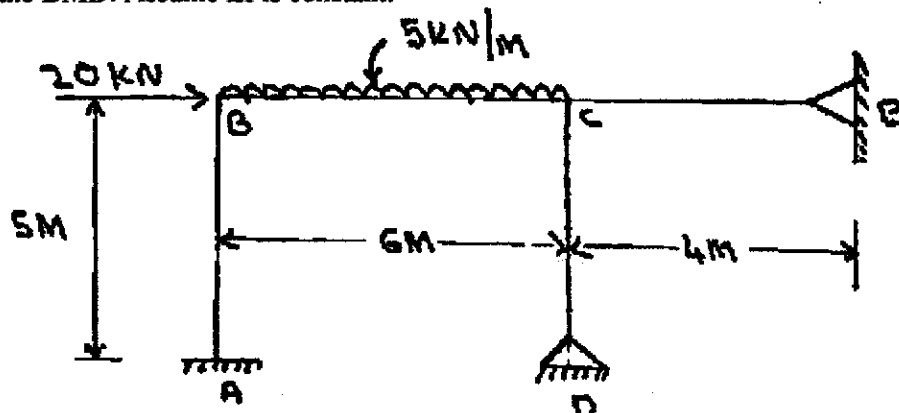


- VIII. Analyze the rigid frame shown in figure and draw the bending moment diagram.



OR

- IX. Analysis the frame shown in figure by moment distribution method and draw the BMD. Assume EI is constant.



--	--	--	--	--	--	--	--

B.Arch. Degree IV Semester Supplementary Examination May 2025**AR 1405 ARCHITECTURAL ACOUSTICS
(2014 Scheme)**

Time: 3 Hours

Maximum Marks: 100

**PART A
(Answer ALL questions)**

(8 × 5 = 40)

- I. Write short notes on the following
- (a) Audible range of sound.
 - (b) Properties of sound.
 - (c) Sound absorption coefficient.
 - (d) Reverberation time.
 - (e) Transmission loss.
 - (f) Air borne sound.
 - (g) Variable absorbers.
 - (h) Noise criteria curves.

PART B

(4 × 15 = 60)

- II. Explain sound propagation. What are the factors affecting sound propagation?
- OR**
- III. Sketch the hearing mechanism of human ear. Explain how sound is perceived.
- IV. Explain reflection, diffusion and diffraction of sound. How do these affect acoustical quality?
- OR**
- V. What is Structural borne sound? How can they be controlled?
- VI. Shape of a room is one of the important factors affecting the acoustical properties of an auditorium. Justify the statement.
- OR**
- VII. What are the sources of noise in an open air auditorium? Explain how the noise can be controlled.
- VIII. Explain the various sound absorbers used for accoustical treatment of walls.
- OR**
- IX. Discuss membrane absorbers and panel absorbers. How are they mounted?
