B.Arch –V–11.19 –1287 Reg. No. | | | | | | | | |

B

B.Arch. Degree V Semester Examination November 2019

AR 1502 BUILDING MATERIALS AND CONSTRUCTION IV

(2014 Scheme)

Time : 4 Hours Maximum Marks : 100

PART A

(8 × 5 = 40)

I. Writes short notes on:

(a) Application of paint in new wood surface.
(b) Varnish and Lacquers.
(c) Space frames.
(d) Shingles.
(e) Design consideration for physically handicapped in elevators.
(f) Conveyor belt system.
(g) Natural floor finish
(h) Plastering

(2 × 10 = 20)

II. Discuss any three types of special purpose paints, its application and available form in market.

OR

III. Discuss in detail any three types of artificial floor finishes.

IV. Discuss any two light roofing materials available in the market. Explain their fixing details with sketches.

OR

V. Discuss the planning considerations in determining the size and arrangement of elevator in a commercial building corridor with neat sketches. Analyze the different safety systems provided in elevator.

PART B

(2 × 20 = 40)

VI. Draw and label to a suitable scale Aluminum roof covering and gutter details with details of fixing and joinery.

OR

VII. Draw to a suitable scale a King post truss roof with fixing details for a span of 9 m and name the different parts. Draw the detailed drawing of any two joints.

VIII. Draw to a suitable scale the plan, section and details of an elevator system for 5 passengers in a residential building.

OR

IX. Draw to a suitable scale, plan, section and elevation of 30 degree escalator in a commercial building connecting 2 floors. Assume floor to floor height of 4.5 m.

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A

B.Arch. Degree V Semester Examination November 2019

AR 1503 HISTORY OF ARCHITECTURE IV

(*2014 Scheme*)

Time : 3 Hours Maximum Marks : 100

PART A

(Answer *ALL* questions)

$(8 \times 5 = 40)$

I. Write short notes on the following:

(a) Characteristics of Fountainahs

(b) Characteristics of Bom Jesus Cathedral, Old Goa

(c) Rashtrapathi Bhavan, New Delhi

(d) Characteristics of Indo-Saracenic Architecture

(e) Impact of Industrial Revolution in Architecture

(f) Features of post Renaissance Architecture in Europe

(g) Eiffel Tower

(h) Antonio Gaudi

PART B

$(4 \times 15 = 60)$

II. Explain the influence of Portuguese on the religious architecture of Goa, with one example.

OR

III. Planning and Architectural characteristics of settlements era of Fountainahs during the Portuguese colonial era. Explain with neat sketches.

IV. Explain the British Colonial Architecture in India, with examples.

OR

V. Explain the Architecture of Edwin Lutyens which lead to the formation of New Delhi.

VI. Explain with examples the influences of Industrial Revolution in Architecture.

OR

VII. Technological advancement during industrial revolution impact in the design of crystal palace. Justify.

VIII. Explain the Architecture of Antonio Gaudi with examples.

OR

IX. Explain the Architecture of Louis Sullivan with examples.

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C

B.Arch. Degree V Semester Examination November 2019

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:

(a) Community and its relationship to an ecosystem
(b) Patterns of population distribution
(c) Man and nutrient cycles
(d) Patterns of productivity
(e) Components of the environment
(f) Habitats and their selection
(g) Ecological pyramids
(h) Aquatic ecosystems

PART B

(4 × 15 = 60)

II. Detail the ecological organization in an Indian biosphere reserve, focusing on the various components of a forest ecosystem.

OR

III. What role do environmental studies play in the architecture and construction industry? Explain, with examples, how architectural activities affect communities and ecosystems?

IV. Explain population regulation and carrying capacity. What factors determine how populations grow and disperse?

OR

V. Detail and diagram r- and k- selection, with specific examples of populations that exhibit each selection pattern.

VI. Trace the links of primary and secondary production with energy flow through ecosystems. How does primary and secondary production affect ecological efficiency?

OR

VII. Explain the mechanisms of grazing and detritus chains, supported by examples. How do these mechanisms support the food web?

VIII. Detail and diagram the carbon and sulphur cycles, explaining the sinks and sources of both nutrients.

OR

IX. Describe the various ecosystems of the world, linked to their relative productivity.

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C

B.Arch. Degree V Semester Examination November 2019

AR 1505 BUILDING SERVICES II - ELECTRICAL DESIGN AND ILLUMINATION

(*2014 Scheme*)

Time: 3 Hours Maximum Marks: 100

PART A

(Answer ***ALL*** questions)

(8 × 5 = 40)

I. (a) Draw the layout of a panel board.

(b) Write a note on stand-by power supply system.

(c) Write a note on MCB.

(d) What is balanced and unbalanced loads in three phase system?

(e) Explain the difference between AC and DC systems.

(f) Briefly explain the classification of Voltages.

(g) What is a Substation and explain its components?

(h) Define IBMS system.

PART B

(4 × 15 = 60)

II. Prove the relation between line voltage and phase voltage in star connected system.

OR

III. A delta connected three phase load consists of three identical impedances. When the load is connected to a three phase, 400 V supply, the line current is 18 A and power factor is 0.8 lagging. Calculate the total power taken by the load.

IV. What are the general aspects of design of electrical-domestic installations?

OR

V. With neat sketch, explain the working of the ELCB.

VI. Explain the principles of lighting in buildings and also briefly explain the types of luminaries and fittings.

OR

VII. Design the illumination scheme in a Hall with a seating capacity of 150 with estimation.

VIII. What is the necessity of earthing? With neat sketch explain (i) pipe earthing (ii) plate earthing.

OR

IX. Explain the safety regulations in domestic commercial and high rise buildings.

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B

B.Arch. Degree V Semester Examination November 2019

AR 1506 ARCHITECTURAL DETAILING

(*2014 Scheme*)

(*Drawing sheets will be supplied. Assume further Data, if found necessary. Illustrations in answers carry due mark Importance will be given to quality of drafting, material specification, correctness of drawings and for conformity with standard design and drafting principles.*)

Time: 4 Hours Maximum Marks: 100

PART A

(Answer ***ALL*** questions)

(8 × 5 = 40)

I. (a) Sketch and explain various types of symbols used in Plan, elevation and section detailing.

(b) Write a note on Check list of wall section.

(c) What is Reflected Ceiling Plan drawing? And what all are ideally indicated on a RCP?

(d) Sketch and explain various types of Material indication in construction document.

(e) Explain the role of specification in Construction documents. Explain different approaches in specification writing.

(f) Write a note on the checklist to be followed while completing staircase detailing and drawings.

(g) Explain the pros and cons of CAD detailing over manual detailing.

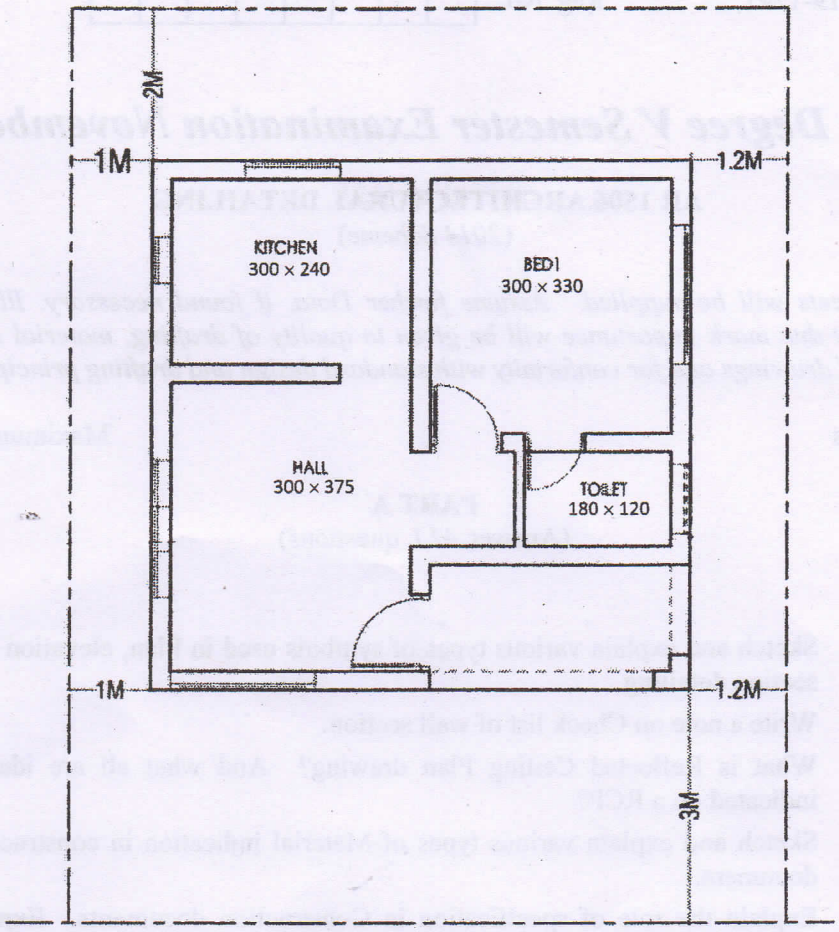
(h) Explain the sequence of work phases traditionally required in every architectural project from initiation to completion. Where is the Architectural detailing fit in the process?

PART B

(3 × 20 = 60)

II. The ground floor plan of residential unit is given in figure 1. The soil condition of the site is relatively hard. Prepare the central line drawing with all required dimensions for earth excavation (*Scale* 1:50). Assume necessary details required for the drawing.

(P.T.O.)



(*Figure* 1)

OR

III. Draw a typical section for the building given in figure 1. (*Scale* 1:50)

(i) Foundation and basement with Random rubble.

(ii) 24 cm brick wall (including plastering) in cement mortar.

(iii) 12 cm thick R.C.C roof slab, 15 cm thick lintel beam and 15 cm thick plinth beam. Assume necessary details required for the drawing.

IV. Draw the interior working drawing details for the kitchen (figure 1), with detailed furniture layout and elevations. (*Scale* 1:20)

OR

V. Draw the interior working drawing details for the Bed 1 (figure 1), with detailed furniture layout and elevations. (*Scale* 1:20)

VI. Prepare the electrical layout plan for figure 1. Legend should be shown in tabular form to indicate the height of various fixtures from finished floor level. (*Scale* 1:50)

OR

VII. Prepare a neatly drafted detailed plumbing layout plan for the building (figure 1). Sizes of connection line and its slope, Inspection chamber, gully traps, septic tank, soak pits should be shown in the layout. (*Scale 1:50*)

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B

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AR 1507 STRUCTURAL ANALYSIS III

(*2014 Scheme*)

Time: 3 Hours Maximum Marks: 100

PART A

(Answer *ALL* questions)

(8 × 5 = 40)

I. (a) Distinguish between two hinged and three hinged arches.

(b) Explain types of arches based on materials and structural system.

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

(d) Derive the necessary equation for the length of a cable hanging from supports at same level.

(e) Write a short note on cable suspended bridge.

(f) Explain the force method of analysis of continuous beams.

(g) Compare force method and displacement method of analysis.

(h) Briefly explain direct stiffness method of analysis.

PART B

(3 × 20 = 60)

II. A three-hinged parabolic arch has a span of 20 m and a rise of 5 m. It carries a uniformly distributed load of 20 kN/m over the left half of the span and a point load of 120 kN at 5 m from the right end. Find the bending moment, normal thrust and radial shear at a section 4 m from the left end.

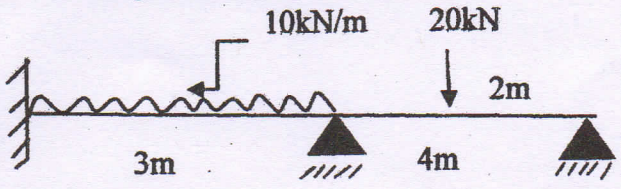
OR

III. A three hinged circular arch has a span of 20 m and a rise of 4 m. It carries a uniformly distributed load 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.

IV. A cable of span 80 m horizontally 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 reactions and maximum tension in the cable.

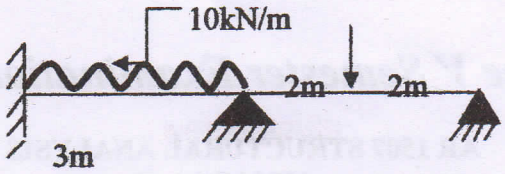
OR

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



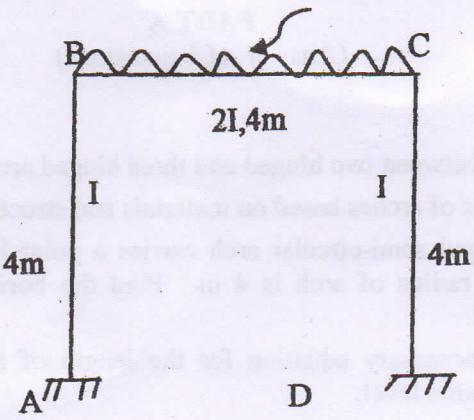
(P.T.O.)

VI. Analyze the continuous beam shown in figure using displacement method of analysis.



OR

VII. Analyze the frame shown in figure using displacement method and draw the bending moment diagram. Also find the axial force in column.



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