November 2020

B.Arch-V-11.20-1329 Reg. No. | | | | | | | | |

A

B.Arch. Degree V Semester Examination November 2020

AR 1502 BUILDING MATERIALS AND CONSTRUCTION IV

(2014 Scheme)

Time: 4 Hours Maximum Marks: 100

PART A

(8 × 5 = 40)

I. Write short answers on:

(a) Enamels and distempers.

(b) Properties of good paints.

(c) Cement finishes.

(d) Different types of marbles.

(e) Light roofing materials.

(f) Types of roofing tiles.

(g) Safety components in elevators.

(h) Horizontal belt conveyors.

(2 × 10 = 20)

II. What are the major defects in painting? Explain. (10)

OR

III. Discuss in detail any three types of special purpose paints. (10)

IV. Enumerate various light weight roofing materials available in market. (10)

OR

V. What are the design considerations for an elevator in a commercial building? (10)

PART B

(2 × 20 = 40)

VI. Draw to suitable scale a King post truss roof with fixing details for a span of 7 m and name the different parts. Draw the detailed drawing of any two joints. (20)

OR

VII. Draw to a suitable scale of steel tubular truss roof with fixing details for an effective span of 4.5 m and name the different parts. Draw the detailed drawing of any two connections. (20)

VIII. Draw the plan, section and details of an elevator system for a hospital building. (20)

OR

IX. Draw the plan, section and details of an elevator system for a commercial building. (20)

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A

B.Arch. Degree V Semester Examination November 2020

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 on the following:

(a) Catholic houses in Goa during Portuguese colonial era.

(b) Fountainahs.

(c) Indo-saracenic style of architecture.

(d) Describe the architectural characteristics of Victoria Terminus, Mumbai.

(e) Travellers club building and its architecture.

(f) Use of Glass in buildings during the Post Renaissance period.

(g) Eiffel Tower.

(h) Organic Architecture.

PART B

(4 × 15 = 60)

II. Explain the architectural characters, styles and trends brought by Portuguese to India.

OR

III. Compare the planning architectural characteristics of Hindu and Catholic settlement of Fountainhas in details with sketches during the Portuguese era.

IV. Describe the Architectural, design and planning principles used for building the capital city of New Delhi by Edwin Lutyens.

OR

V. Describe in detail the impact of Indo-Saracenic style on the British Architecture in Delhi, Calcutta and Chennai. Explain with the help of sketches.

VI. Explain the architectural scenarios of Europe during Post Renaissance.

OR

VII. Explain about the newly introduced building materials used and its impact on buildings during the Post Renaissance period in Europe.

VIII. Explain Art Nouveau and Art and Craft Movement. Also compare its Styles and Trends brought in Architecture along with examples.

OR

IX. Explain the works of Antonio Gaudi, Louis Sullivan and Frank Lloyd Wright with Sketches.

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C

B.Arch. Degree V Semester Examination November 2020

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) Scope of environmental science

(b) Biome

(c) Population dynamics and Population fluctuations

(d) R and K cycle

(e) Grazing and detritus food chain

(f) Ecological pyramids

(g) Gaseous cycles

(h) Desert ecosystem

PART B

(4 × 15 = 60)

II. Define Ecology. Explain in detail and its relation to Ecosystem.

OR

III. Describe the different components of the environment and various roles fulfilled by each component.

IV. Explain the concept of Carrying capacity. Describe the measures of Population growth with diagrams.

OR

V. Explain Population Regulation. What factors determine how populations grow and disperse?

VI. Explain the energy flow in an Ecosystem.

OR

VII. What are the path ways of Energy transfer? Explain grazing and detritus food chains, supported by examples.

VIII. Explain the Sulphur cycle with the help of a diagram. How the human activities in ecosystems had affected the Sulphur cycle?

OR

IX. Explain and illustrate any one Gaseous cycle in nature. Give a brief example of positive and negative feedback loop affecting the cycle.

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C

B.Arch. Degree V Semester Examination November 2020

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) What is meant by Direct Current? Where is its application?

(b) Write notes on EPSS (Emergency Power Supply Systems).

(c) Give the classification of voltages.

(d) What are circuit breakers? Explain their functions in protecting the house wiring.

(e) Write short notes on SFU (Switch Fuse Unit).

(f) What are the different types of lighting arrangements (with diagrams)?

(g) Explain the need for earthing in electrical installations.

(h) Write notes on pipe earthing.

PART B

(4 × 15 = 60)

II. With neat sketches explain three phase system. How do you calculate power of an unbalanced load in three phase system?

OR

III. Each phase of a delta connected load has a resistance of 25 Ω, an inductance of 0.15 H and a capacitance of 120 μF. The load is connected across a 400 V, 50 Hz, three phase supply. Determine the line current, active power, reactive power and apparent power.

IV. Explain the working of MCCB with neat sketch.

OR

V. Draw the layout of a typical substation and explain each equipment.

VI. Explain the design considerations of a good lighting scheme.

OR

VII. What are the factors to be considered in the design of illumination schemes in?

VIII. What is the necessity of earthing? Explain plate earthing with neat sketch as per Indian standards.

OR

IX. Write the importance of lightning protection in buildings. Also explain the different lightning protection schemes in buildings with relevant diagrams.

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A

B.Arch. Degree V Semester Examination November 2020

AR 1506 ARCHITECTURAL DETAILING

(2014 Scheme)

Time : 4 Hours Maximum Marks : 100

(i) Drawing sheet will be supplied
(ii) Assume further data, if found necessary
(iii) Include illustrative sketches and examples wherever necessary
(iv) Credit will be given for following standard architectural drafting and detailing conventions

PART A

(Answer *ALL* questions)

(8 × 5 = 40)

Write short notes on the following:

I. (a) Why symbols used in working drawing? Sketch symbol for any two building material for walls.

(b) Why cross referencing is important in working drawing?

(c) Checklist for (i) Flooring layout drawing (ii) Setting out drawing.

(d) Mention any ten points on how CAD outperforms manual drafting techniques.

(e) How important is a line in working drawing? Sketch any two lines commonly used.

(f) Framing Plan.

(g) Sketch out section of a wall 3 m height, 20 cm thickness resting on a foundation and basement 60 cm × 60 cm and 45 cm × 45 cm respectively.

(h) Details of rainwater harvesting system & capacity calculation as per KMBR.

PART B

(3 × 20 = 60)

II. Draw foundation drawing with foundation sections to scale of 1:50 for the building given in Figure 1. (Foundation and basement – Random rubble)

OR

III. Draw detailed wall section to scale of 1:50 of an exterior wall of a single storeyed residence, cutting through window. Assume roof type.

Foundation and basement	-	Random rubble
Outer wall	-	20 cm thick brick work in cement mortar
Roof slab	-	RCC 1:1.5:3, 12 cm thick
Plastering	-	Cement mortar 1:4
Window, Door	-	Wooden

Show DPC, sill concrete, joinery detail between roof slab and brick wall and parapet. Show blown up sections details wherever necessary.

IV. Draw interior elevation for Bedroom of plan in Figure 1 with the details of cupboards on any wall (Assume furniture).

OR

V. Draw detailed flooring layout to scale of 1:50 for the building given in Figure 1. Create the flooring finish schedule for it. (Assume level differences)

VI. Prepare suitable scheme for drainage flow (sewage, waste water and rain water harvesting) at site level for the given site in Figure 1 (Scale 1:50).

OR

VII. Draw the electrical layout plan showing required fixtures for the given plan in Figure 1 (Scale 1:50) .

(P.T.O.)

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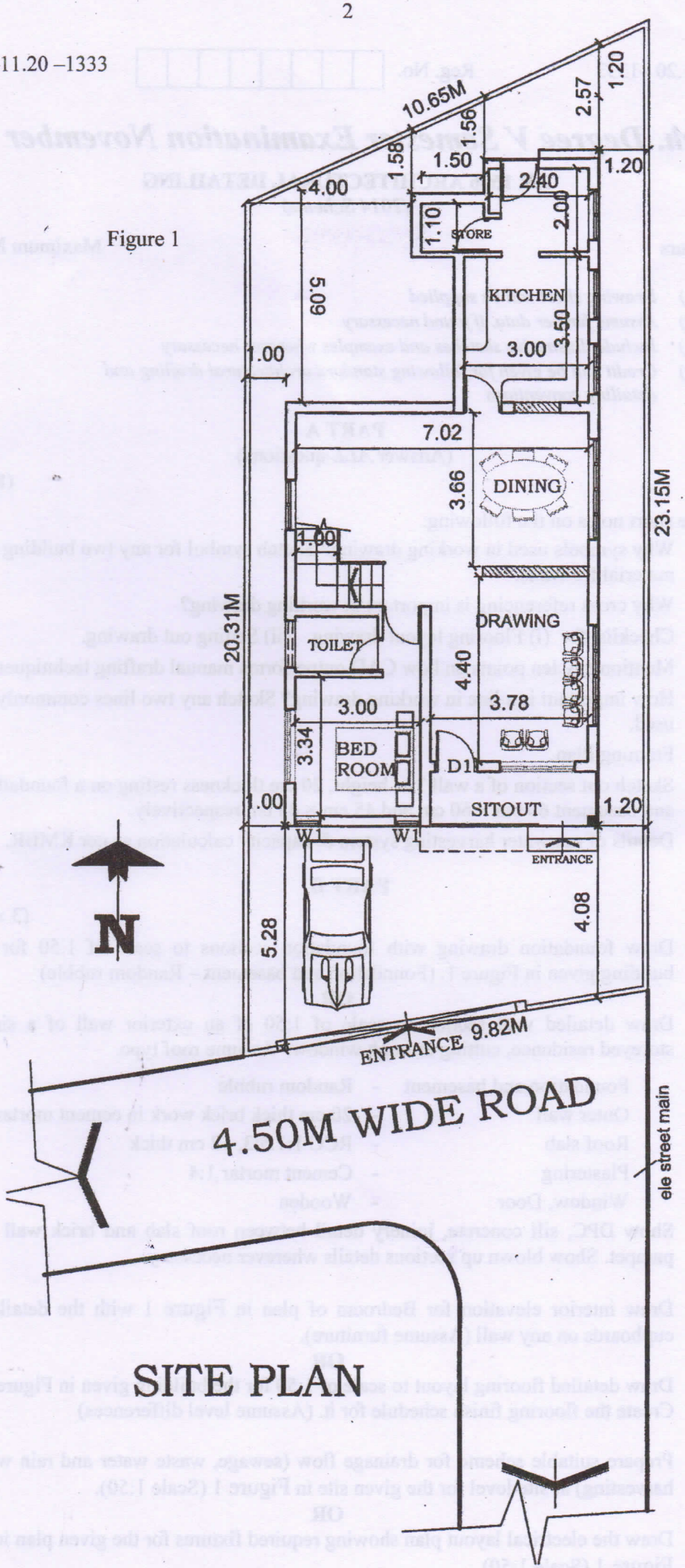
Figure 1



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A

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

(b) What is the difference between two hinged and three hinged arches?

(c) A symmetric three hinged parabolic arch of span 20 m and central rise of 4 m carries a point load of 25 kN on the left part of the arch, at a distance 5 m from crown hinge. Find the horizontal thrust at the support.

(d) A cable of span 80 m (horizontal) has its ends at height 7 m and 12 m above the lowest point of the cable. It carries a UDL of 10 kN/m over the horizontal span. Determine the support reactions and maximum tension in the cable.

(e) What is the effect of temperature stress on structures?

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

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

(h) List the steps involved in stiffness matrix method of analysis.

PART B

(3 × 20 = 60)

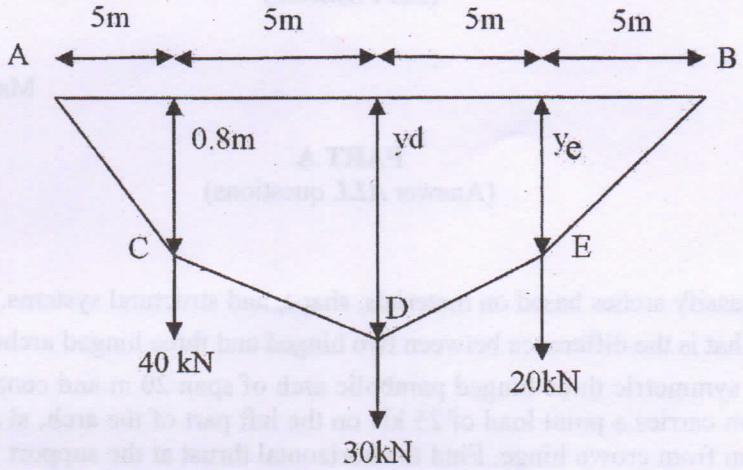
II. A three hinged parabolic arch has a span of 30 m and a rise of 6 m. It carries a uniformly distributed load of 10 kN/m over the left half of the span and a point load of 150 kN at 7.5 m from the right end. Find the bending moment, normal thrust and radial shear at a section 10 m from the left end.

OR

III. A three hinged circular arch hinged at the springing and crown points has a span of 40 m and a central rise of 8 m. It carries a UDL of 20 kN/m over the left half of the span together with a concentrated load of 100 kN at the right quarter span point. Find the reactions at the supports, normal thrust and radial shear at a point 10 m from the left hand support.

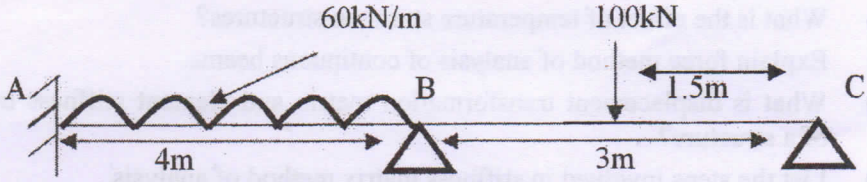
(P.T.O.)

IV. A light cable is supported at two points 20 m apart which are at the same level. The cable supports three concentrated loads as shown in figure. The deflection at first point yc is found to be 0.8 m. Determine the tension in the different segments and total length of the cable.

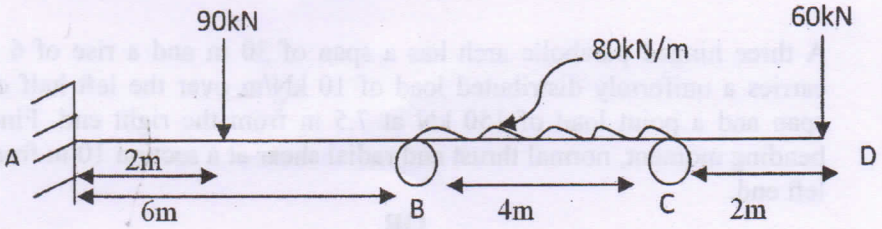


OR

V. Analyse the beam shown in figure by flexibility matrix method. Draw the bending moment diagram also. EI is constant.

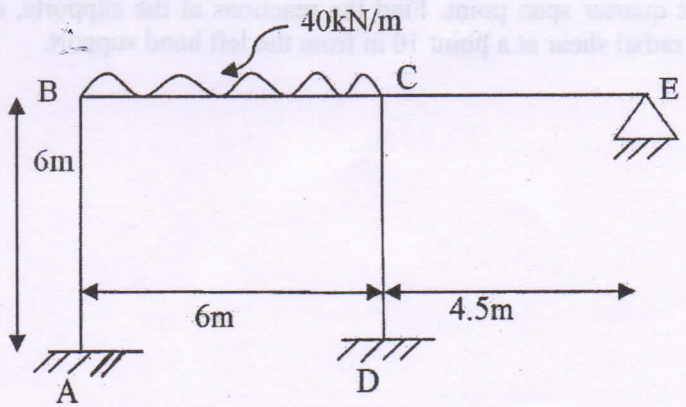


VI. Analyse the continuous beam shown in figure using displacement method of analysis.



OR

VII. Using stiffness matrix method, analyse the frame shown in fig:. Take EI constant throughout.



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