B.Arch –V–11.17–1709 Reg. No. | | | | | | | | |

A

B.Arch. Degree V Semester Examination November 2017

AR 1502 BUILDING MATERIALS AND CONSTRUCTION IV

(2014 Scheme)

Time : 4 Hours Maximum Marks : 100

PART A

(8 × 5 = 40)

I. Write short notes on the following.

(a) Emulsion paints.
(b) Defects in painting.
(c) Vinyl flooring.
(d) Polyurethane finish.
(e) Wall plate.
(f) Poly Carbonate sheets.
(g) Dumb waiters.
(h) Types of elevators.

(2 × 10 = 20)

II. Discuss the process of painting a newly plastered surface. (10)

OR

III. Discuss the different types of artificial floor finishes available and its application. (10)

IV. Explain the method of fixing roofing tile. Sketch the hip and valley details of the same. (10)

OR

V. Discuss the planning considerations in determining the number, size and arrangement of elevators. Discuss the use of horizontal moving walkways. (10)

PART B

(2 × 20 = 40)

VI. Draw and Label (20)

Draw to a suitable scale a King post truss roof with fixing details for a span of 3m and name the different parts. Draw the detailed drawing of the ridge joint of the same.

OR

VII. Draw and Label (20)

Draw to a suitable scale a steel tubular truss roof with fixing details for a span of 3 m and name the different parts. Draw the detailed drawing of the joints of the same.

VIII. Draw and Label (20)

Draw to a suitable scale the detailed drawing of a passenger elevator. Assume necessary data required for the drawing.

OR

IX. Draw and Label (20)

Draw to a suitable scale the detailed drawing of a 30 degree escalator. Assume necessary data required for the drawing.

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B.Arch –V–11.17–1710 Reg. No. | | | | | | | | |

B

B.Arch. Degree V Semester Examination November 2017

AR 1503 HISTORY OF ARCHITECTURE IV

(*2014 Scheme*)

Time : 3 Hours Maximum Marks : 100

PART A

(Answer ***ALL*** questions)

(8 × 5 = 40)

I. (a) Describe the architectural characteristics of Catholic houses in Goa during Portuguese colonial era.

(b) Bring out the important characteristics of Bom Jesus Cathedral Old Goa.

(c) Briefly describe the architectural characteristics of Rashtrapathi Bhawan, Delhi.

(d) Briefly explain the characteristics of indo Saracenic Architecture.

(e) Explain briefly how Art Noveau style differs from art and craft movement.

(f) Explain the design philosophy of Louis Sullivan.

(g) Briefly explain the architecture style and geometric forms used by Antonio Gaudi in his buildings.

(h) Describe the distinctive features of post Renaissance Architecture.

PART B

(4 × 15 = 60)

II. Differentiate the planning and architectural characteristics of Hindu and Catholic settlement of Fountainhas in detail with sketches, during the Portuguese colonial era.

OR

III. Describe with sketches how Portuguese influenced the religious architecture in Goa using examples.

IV. Describe using sketches the urban planning of Edwin Lutyens's Delhi.

OR

V. Explain the impact of British Colonial Architecture in Bombay, Calcutta and Madras.

VI. Describe the material, social and cultural impact of Industrial revolution in the field of Architecture.

OR

VII. Who designed Crystal Palace? How does the technological advancement during industrial revolution impact the design of crystal palace?

VIII. Explain with sketches the Architecture and Engineering of Eiffel Tower, Paris.

OR

IX. Discuss the influence of Art Noveau style in the works of Victor Horta using examples.

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B.Arch-V-11.17-1711 Reg. No. | | | | | | | | |

A

B.Arch. Degree V Semester Examination November 2017

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) Populations and communities.

(b) Ecosystems.

(c) Carrying capacity.

(d) Ecophenes and ecotypes.

(e) Measures of productivity in ecosystems.

(f) Ten percent law of energy transfer.

(g) Biogeochemical cycles.

(h) Marine ecosystems.

PART B

(4 × 15 = 60)

II. Describe the levels of ecological organization. Elaborate on the concept of the biome.

OR

III. Describe the different components of the environment. What are the major environmental roles fulfilled by each component?

IV. Describe the measures of population growth, with diagrams. What is the role of carrying capacity in this context?

OR

V. Describe the different population selection strategies. Explain the role of ecological succession in this context, supported by an example.

VI. Explain food chains and food webs. Link energy transfer through these pathways with the laws of thermodynamics.

OR

VII. What are the different types of ecological pyramids? How do they represent the term 'ecological efficiency'?

VIII. What is the role of biogeochemical cycles in the environments? How are they affected by feedback mechanisms? Explain citing the example of one sedimentary cycle.

OR

IX. Explain the nitrogen cycle with the help of a diagram. How have man's activities in various ecosystems affected this cycle?

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B.Arch-V-11.17-1712 Reg. No. | | | | | | | | |

A

B.Arch. Degree V Semester Examination November 2017

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) Distinguish between 3 phase system and single phase system.
(b) How are the voltages classified?
(c) Explain the working principle of transformer.
(d) Define IBMS system.
(e) Explain the difference between AC and DC system.
(f) What are the factors to be considered for the design of illumination system in an auditorium?
(g) State and explain Lambert's Cosine law.
(h) Explain the need of earthing in electrical installation.

PART B

(4 × 15 = 60)

II. Prove that line current = $\sqrt{3}$ times of phase current in a delta connected 3 phase system.

OR

III. A 3 phase star connected system with 230 V between each phase and neutral has resistances of 4Ω, 5Ω and 6Ω respectively in the three phases. Calculate:
(i) Current flowing in each phase.
(ii) Total power absorbed.

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

OR

V. Explain the working of MCB and ELCB with neat sketch.

VI. Write short notes on:
(i) Luminous flux.
(ii) Illumination.
(iii) Candle power.
(iv) Maintenance factor.
(v) Utilization factor.

OR

VII. (a) What are the general rules for mounting luminaries?
(b) Explain different types of luminaries.

VIII. Illustrate pipe earthing with neat sketch.

OR

IX. Distinguish between surge arrester and surge diverter.

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A

B.Arch. Degree V Semester Examination November 2017

AR 1506 ARCHITECTURAL DETAILING

(2014 Scheme)

Time : 4 Hours Maximum Marks : 100

PART A

(i) *Part A – Answer all eight questions and Part B – Answer three questions (Select one from each set).*
(ii) *Drawing sheet will be supplied.*
(iii) *Assume further data, if found necessary.*
(iv) *Include illustrative sketches and examples wherever necessary.*
(v) *Credit will be given for following standard architectural drafting and detailing conventions.*

I. Write short answers : $(8 \times 5 = 40)$

(a) Details to be shown in the floor plan.
(b) Relevance of centre line drawing.
(c) Role of working drawings in construction.
(d) Draw lintel and sunshade details for a residential window (1:10).
(e) Cross referencing.
(f) Reflected ceiling plan.
(g) Schedule of finishes.
(h) Use of lines and line expressions in working drawing.

PART B

$(3 \times 20 = 60)$

II. Prepare site planning and landscape details as working scheme (Scale : 1:50) for the given site plan. (20)

OR

III. Draw detailed section through staircase for a $G + 1$ residential building (Scale : 1:50). Refer the given drawing for GF and prepare scheme for FF based on the same) (20)

IV. Prepare schedule of door window ventilator for the given plan (Scale : 1:10). Draw detailed working drawing for kitchen door (plan section and elevation). (20)

OR

V. Draw detailed fixing details for the following :
(a) Staircase steps – balustrade with handrail. (8)
(b) Wooden door to frame. (4)
(c) False ceiling with light fixture. (4)
(d) Curtain rod to wall. (4)

VI. Prepare scheme for drainage flow (sewage, waste water and rain water harvesting) at site level for the given site (Scale : 1:50). (20)

OR

VII. Draw electrical plan showing fixtures for the given plan. (Scale : 1:50). (20)

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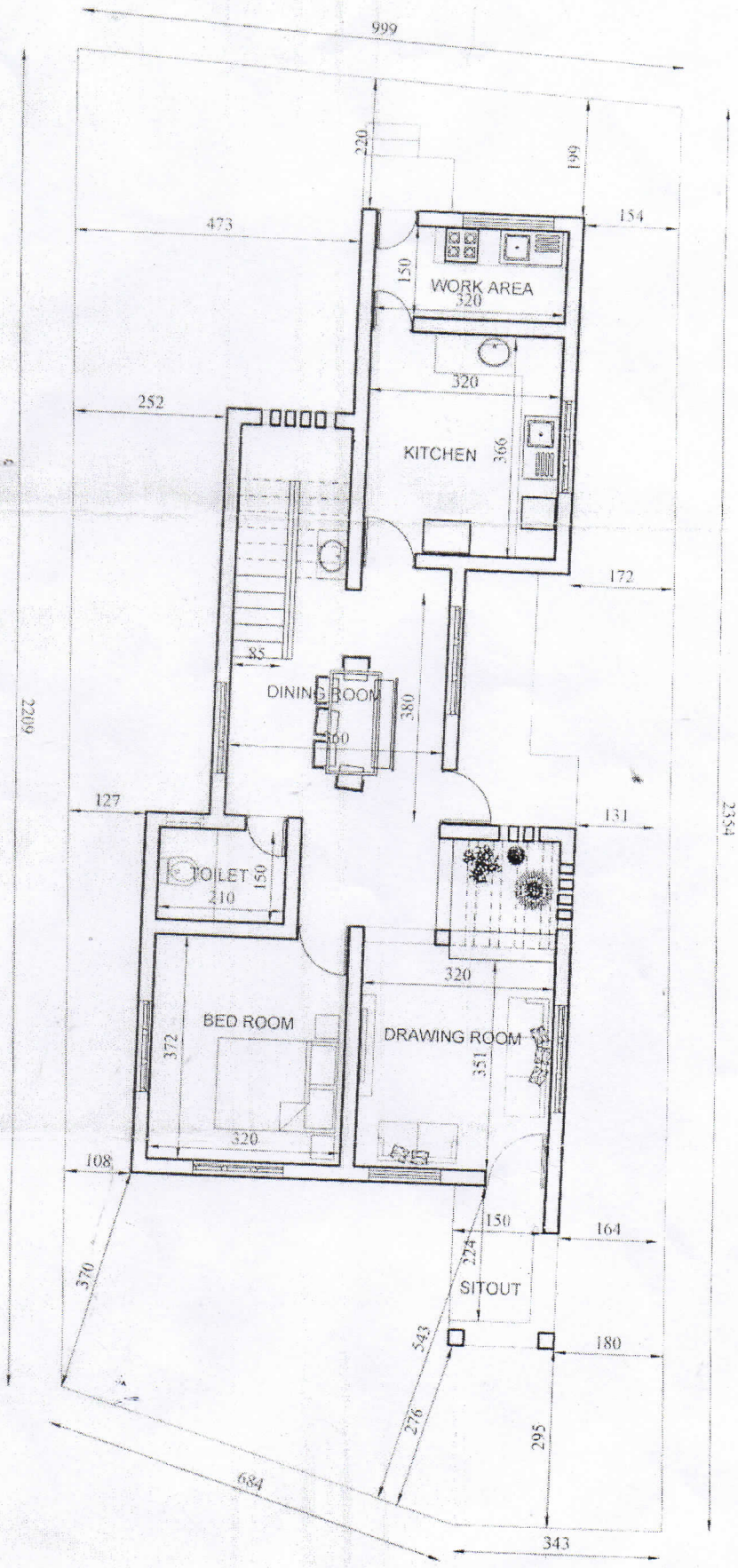
999
220
199
473
154
150
WORK AREA
320
320
252
KITCHEN
366
172
85
DINING ROOM
380
360
2209
127
131
2354
TOILET
150
210
320
BED ROOM
372
DRAWING ROOM
351
320
108
150
164
224
SITOUT
370
543
180
276
295
684
343

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C

B.Arch. Degree V Semester Examination November 2017

AR 1507 STRUCTURAL ANALYSIS III

(2014 Scheme)

Time: 3 Hours Maximum Marks: 100

PART A

(Answer *ALL* questions)

(8 × 5 = 40)

I. (a) Explain the advantages of an arch over a beam.

(b) A symmetric three hinged parabolic arch of span 20 m and central rise of 5 m carries a uniformly distributed load of intensity 5 kN/m over whole span. Find the horizontal thrust at the support.

(c) Compare the static indeterminacies of two hinged and three hinged arches.

(d) Do the suspension cables resist bending moment? Justify.

(e) Sketch the deformed shape of a suspension cable (supports at the same level) under the following cases of loading: (i) Point loads W_1 and W_2 $(W_1 > W_2)$ at the quarter span points (ii) uniformly distributed load over the whole span.

(f) Discuss the effect of support settlement in statically determinate and statically indeterminate beams.

(g) Explain displacement method of analysis of a frame with sway.

(h) Briefly explain direct stiffness method of analysis.

PART B

(3 × 20 = 60)

II. A parabolic arch hinged at the supports and at the crown has a span of 20 m and central rise of 4 m. It carries a concentrated load of 60 kN at 5 m from the right support and a uniformly distributed load of 25 kN/m over the left half of the span. Determine the support reactions. Also find the bending moment, normal thrust and radial shear at 5 m from the left support.

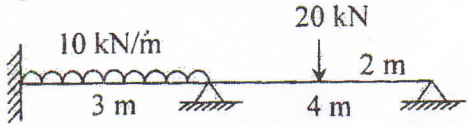
OR

III. A circular segmental arch of span 30 m and central rise of 6 m is hinged at the springing and the crown. It carries a point load of 100 kN at 7.5 m from the left support. Find reaction at the supports, reaction at the crown and bending moment at 5 m from the left support.

IV. A cable of span 80 m (horizontal) 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

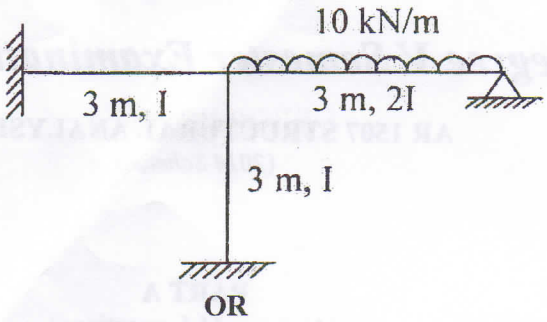
V. Analyse the beam shown in figure by force method of analysis. Draw the bending moment diagram also.



EI is constant

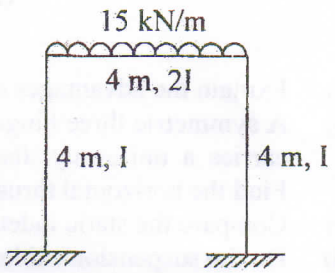
(P.T.O.)

VI. Analyse the frame shown in figure by displacement method of analysis and draw the bending moment diagram.



OR

VII. Using displacement method of analysis, analyse the frame shown in figure and draw the bending moment diagram. Also find the axial force in columns.



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