B.Arch-III-11.19-1293 Reg.No. | | | | | | | | |

B

B.Arch. Degree III Semester Examination November 2019

AR 1302 BUILDING MATERIALS AND CONSTRUCTION II

(2014 Scheme)

Time : 4 Hours Maximum Marks : 100

PART A

$(8 \times 5 = 40)$

I. Write short notes on the following:

(a) Standard penetration test
(b) Classification of soil
(c) Test for cement-mortar
(d) Properties of concrete
(e) One-way slab
(f) RCC lintels
(g) Well foundation
(h) Curved Stairs

$(2 \times 10 = 20)$

II. What is bearing capacity of soil? Explain how SBC can be arrived at. (10)

OR

III. Discuss on the composition and properties of cement. (10)

IV. Explain with sketches, various types of deep foundations used in constructions. (10)

OR

V. Explain with sketches any three types of RCC staircases. (10)

PART B

$(2 \times 20 = 40)$

VI. Draw to an appropriate scale, the plan and section of a raft foundation with reinforcement details for a framed structure having a column grid of 4 m × 4 m. Assume necessary details required. (20)

OR

VII. Draw to an appropriate scale, the plan and section of a pile foundation with single bulb for an RCC column. Assume necessary details required. (20)

VIII. Draw to scale (1:50) the detailed plan and section of a bifurcated staircase for a double storied residential building. The floor to floor height is 3 m, width of stair 1.2 m. Assume necessary details required. (20)

OR

IX. Draw to scale (1:50) the detailed plan and section of a dog legged staircase for a triple storied residential building. The floor to floor height is 3 m, width of stair 1 m. Assume necessary details required. (20)

***

B.Arch –III–11.19–1294 Reg. No. | | | | | | | | |

C

B.Arch. Degree III Semester Examination November 2019

AR 1303 HISTORY OF ARCHITECTURE II

(2014 Scheme)

Time : 3 Hours Maximum Marks : 100

PART A

(Answer *ALL* questions)

(8 × 5 = 40)

I. Write short notes on the following:
- (a) Gopurams in Dravidian Architecture
- (b) Sun Temple, Konark
- (c) Draw the plan and explain the features of Mosque.
- (d) Expalin the Squinch System.
- (e) Adina Masjid
- (f) Explain the characteristics of architecture in Malwa Buildings.
- (g) Moti Masjid,Delhi Fort
- (h) Jami Masjid, Delhi

PART B

(4 × 15 = 60)

II. Illustrate with sketches, the architectural character of Orissan Temples quoting Lingaraja Temple at Bhuvaneshwar as example.

OR

III. Explain the architectural characteristics of Chola style quoting Brihadeeshwara Temple as example.

IV. Explain in detail the Imperial styles in Delhi and its types and illustrate with neat sketches the Tomb of Ghiyas-ud din Tughlaq.

OR

V. Sketch and write about all the important buildings in the Qutub Complex.

VI. What are the Salient features of Jaunpur style? Sketch the plan and view of the Atala Masjid, Jaunpur.

OR

VII. Discuss with sketches, the salient features of the Golgumbaz at Bijapur and explain how it is exemplary of the provincial style.

VIII. The Fateh pur Sikri is a major traditional Islamic city with important planning principles. Discuss.

OR

IX. Outline compare and contrast Humayun's tomb with Taj Mahal.

***

B.Arch-III-11.19-1295 Reg. No. | | | | | | | | |

A

B.Arch. Degree III Semester Examination November 2019

AR 1304 BUILDING CLIMATOLOGY

(*2014 Scheme*)

Time: 3 Hours Maximum Marks: 100

PART A

(Answer **ALL** questions)

(8 × 5 = 40)

I. (a) Differentiate climate and weather, role of the tilt in earth's axis.

(b) Explain solar window and factors determining the solar window.

(c) Briefly explain urban heat island and its causes.

(d) State five elements of climate and its quantification systems.

(e) State the elements determining thermal comfort.

(f) What do you mean by comfort zone and what is adaptive thermal comfort?

(g) Briefly establish the relationship between construction material and thermal comfort.

(h) State some methods of passive ventilation techniques.

PART B

(4 × 15 = 60)

II. Differentiate climate and season,explain major climatic regions and major seasons.

OR

III. What are the causes of global wind patterns? Explain the major wind patterns/systems and belts.

IV. Explain sun-path diagram ,elements , analysis and its applications.

OR

V. Elaborate the climate of Kerala and establish the role of monsoon.

VI. What are the major four indices that scale comfort and issues in scaling comfort. Explain how human thermal comfort be achieved in an architectural perspective.

OR

VII. Define the terms DBT ,WBT,ET and CET and how they are related. If DBT and WBT of a room is provided, explain how to find the ET and CET of that room.

VIII. State and explain elements used for passive ventilation and thermal comfort in tropical housing.

OR

IX. Explain how the planning, construction and material selection varies with change in climatic region,state examples.

***

B.Arch –III–11.19–1296 Reg. No. | | | | | | | | |

B

B.Arch. Degree III Semester Examination November 2019

AR 1305 ARCHITECTURAL GRAPHICS II

(2014 Scheme)

(Single AI drawing sheet to be supplied)

Time : 4 Hours Maximum Marks : 100

PART A

(Answer *ALL* questions)

(4 × 5 = 20)

I. Write short notes on the following:

(a) Explain the concept of perspective.

(b) Corporate Design.

(c) Differentiate between Adobe Illustrator and Photoshop.

(d) Describe the influence of Print and web media.

PART B

(2 × 40 = 80)

II. Sketch and illustrate one point perspective of a very busy railway platform.

OR

III. Make one point perspective composition of an interior space of a living room from the top angle view.

IV. Design a multi coloured poster for the theme 'STOP VIOLENCE' and give details of the significant characteristics incorporated in the design.

OR

V. Design a logo for 'KERALA STATE AGRICULTURAL DEPARTMENT'. Describe the concept of your design.

***

B.Arch –III–11.19–1297 Reg. No. | | | | | | | | |

A

B.Arch. Degree III Semester Examination November 2019

AR 1306 HUMANITIES
(2014 Scheme)

Time : 3 Hours Maximum Marks : 100

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

(8 × 5 = 40)

I. Write short notes on the following:
   (a) Society
   (b) Primary and secondary groups
   (c) Unity and diversity in India
   (d) Culture and habitats in Indian villages
   (e) Caste system in India
   (f) Modernization
   (g) Cultural anthropology
   (h) Housing

PART B

(4 × 15 = 60)

II. Describe the concepts of family and institutions in sociology. How could you relate this concepts in architecture?

OR

III. Explain the relevance of study of sociology for architects.

IV. Describe the settlement pattern of Kerala. How is it different from other parts of the country?

OR

V. Explain social change and social stratification. Explain how social stratification influence the spatial structure.

VI. Differentiate urbanism and urbanization. Describe the current trends of urbanization in developing countries.

OR

VII. Elaborate the factors that affect the safety and security in the cities.

VIII. Describe the relationship of social and spatial structure.

OR

IX. What is a slum? Explain the social problems of slums in Indian cities.

***

B.Arch –III–11.19–1298 Reg. No. | | | | | | | | |

A

B.Arch. Degree III Semester Examination November 2019

AR 1308 STRUCTURAL ANALYSIS I

(2014 Scheme)

Time : 3 Hours Maximum Marks : 100

PART A

(Answer *ALL* questions)

(8 × 5 = 40)

I. (a) Derive the expression for Rankine's formula.
(b) What are the limitations of Euler's formula?
(c) Write a short note on conjugate beam method.
(d) Write a short note on moment area method.
(e) Assumption in theory of simple bending.
(f) Write short note on Shear stresses in beams.
(g) Differentiate between slope deflection method and moment area method.
(h) Write down the equations and application of torsion.

PART B

(4 × 15 = 60)

II. A rectangular beam 300 mm deep and 500 mm wide is simply supported over a span of 10 m. What uniformly distributed load the beam may carry if the boundary stress is not to exceed 150 N/mm.

OR

III. A timber beam of rectangular section of length 6 m is simply supported. The beam carries UDL of 15 kN/m run over the entire span and a point load of 12 kN at 4 m from left support. If the depth is two times the width and the stress in the beam not to exceed 9 N/mm^2, find the suitable dimension of the section.

IV. Determine the diameter of sold shaft which will transmit 440 KW at 280 RPM. The angle of twist must not be exceeding 1.2^0/m, and the maximum torsional shear is to be limited to 60 N/mm^2.

OR

V. A cantilever beam of span 1 m has rectangular cross section of size 300 mm × 600 mm .Determine the concentrated load placed at the free end which produce shear stress of intensity 1.4 N/mm^2. Hence compute the maximum bending stress in the cross section at the fixed end of cantilever.

VI. Determine the crippling load for a T section of dimension12 cm ×12 cm × 4 cm and of length of 10 m when it is used as a strut with (i) both ends are hinged (ii) both ends are fixed. Take $E = 2.5 \times 10^5$ N/mm^2.

OR

VII. A hollow cylinder cast iron column of 6 m long with both ends fixed. Determine the minimum diameter of the column if it carries a safe load of 300 kN with a factor of safety of 5. Take the internal diameter as 0.8 times the external diameter. Take $\sigma_c = 550$ N/mm^2 and $\mathbf{a} = 1/1600$ in Rankine's formula.

VIII. A beam of length 6 m simply supported at its ends carries a point load of 60 kN and 80 kN at a distance 2 m and 4 m from the left support. Find the slope and deflection under the loads $E = 2 \times 10^5$ N/mm^2, $I = 85 \times 10^6 mm^4$.

OR

IX. A beam of length 7 m simply supported at its ends carries a UDL of 5 kN/m over the left part of the beam and carrying a point load of 80 kN acting 2 m from the right end. Find the slope and deflection under the point load.

***