B.Arch-III-11.18-1950 Reg. No. | | | | | | | | |

A

B.Arch. Degree III Semester Examination November 2018

AR 1302 BUILDING MATERIALS AND CONSTRUCTION II

(*2014 Scheme*)

Time : 4 Hours

Maximum Marks : 100

(Illustrate the answers with sketches wherever necessary.
Candidates will be supplied with one drawing sheet of approximate A2 size)

PART A

(8 × 5 = 40)

I. Write short notes on:

(a) Standard Penetration Test.

(b) Water cement ratio.

(c) Ingredients used for making concrete.

(d) Well foundation.

(e) Two way slab.

(f) Materials used for making cement.

(g) Functions of foundation.

(h) Five terms used in stairs.

(2 × 10 = 20)

II. What is safe bearing capacity? Explain the methods of improving bearing capacity. (10)

OR

III. What are the properties of fresh and hardened concrete? What are the factors influencing the properties of concrete? (10)

IV. How are foundations classified? Discuss briefly with sketches any two shallow foundations. (10)

OR

V. What are the different types of staircases? Explain the factors involving the design of staircases. (10)

PART B

(2 × 20 = 40)

VI. Draw to scale the plan, elevation and section of an isolated footing. (20)

OR

VII. Draw a section of an RCC lintel and sunshade with reinforcement details above an opening. (20)

VIII. Draw to scale the plan and section of an RCC straight stair of width 1m to reach a height of 2.4 m. Provide a landing after ten risers. (20)

OR

IX. Draw to scale the plan and section of a RCC spiral stair of width to reach a height of 2.1 m. (20)

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B.Arch-III-11.18-1951 Reg. No. | | | | | | | | |

A

B.Arch. Degree III Semester Examination November 2018

AR 1303 HISTORY OF ARCHITECTURE II

(2014 Scheme)

Time: 3 Hours Maximum Marks: 100

(Illustrate all answers with neat sketches)

PART A

(Answer ***ALL*** questions)

(8 × 5 = 40)

I. Write short notes on the following:
   (a) Kailasanatha temple, Kanchipuram.
   (b) Layout of Srirangam.
   (c) Tomb of Sikander Lodi.
   (d) Alai Darwaza.
   (e) Begarha period in Gujarat.
   (f) Deccan provincial style.
   (g) Jodh Bai's palace.
   (h) Jami Masjid, Delhi.

PART B

(4 × 15 = 60)

II. Illustrate with sketches, the architectural characteristics of Madura style quoting Meenakshi temple as an example.

OR

III. Explain with sketches the Indo Aryan architectural features with reference to temples at Orissa.

IV. Explain giving examples and illustrations, the role of Slave Dynasty in establishing Islamic architecture in India.

OR

V. Illustrate with sketches, the architectural characteristics introduced by the Tughlaq dynasty and their contributions.

VI. Give a comparative analysis of architectural composition and characteristics of Atala Masjid, Jaunpur and Jami Masjid, Jaunpur.

OR

VII. Explain the architectural innovations during Malwa province. Also, describe in detail their architectural contribution which is termed as a freak or a folly by historians.

VIII. Explain with sketches the spatial organizations of Agra fort. Describe the contributions of Shah Jahan within the complex.

OR

IX. Explain the architectural characteristics during Akbar's era with examples.

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B.Arch-III-11.18-1952 Reg. No. | | | | | | | | |

C

B.Arch. Degree III Semester Examination November 2018

AR 1304 BUILDING CLIMATOLOGY

(2014 Scheme)

Time: 3 Hours Maximum Marks: 100

(Illustrate answers with sketches wherever necessary)

PART A

(Answer **ALL** questions)

(8 × 5 = 40)

I. Write short notes on the following:

(a) Earth's thermal balance.

(b) Define climate and the need to study it.

(c) What is the effect of vegetation on site climate?

(d) Measurement of air temperature for climatic data.

(e) Body's heat loss process.

(f) What is meant by comfort zone?

(g) Mechanical ventilation for thermal comfort.

(h) Effect of size of openings in indoor air flow pattern.

PART B

(4 × 15 = 60)

II. How does the tilt of earth's axis result in the formation of seasons?

OR

III. Explain briefly the factors that shape the climate, globally.

IV. What information regarding the prevailing wind and driving rain are important to the building designer? How are they measured, recorded and graphically represented?

OR

V. Explain the characteristics of warm humid equatorial climate.

VI. What are the four basic factors affecting human comfort? Briefly explain how the human body adjusts to different climatic environments.

OR

VII. Explain the following comfort scales and their use in climatic design (i) Effective temperature (ii) Corrected Effective temperature. Also explain the use of Bioclimatic chart in building design.

VIII. What are the various structural controls for achieving thermal comfort in a built environment? Explain.

OR

IX. How have climatic considerations influenced the design of a traditional Kerala Nalukettu?

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B.Arch-III-11.18-1953 Reg.No. | | | | | | | | |

B

B.Arch. Degree III Semester Examination November 2018

AR 1305 ARCHITECTURAL GRAPHICS II

(*2014 Scheme*)

Time : 4 Hours Maximum Marks : 100

(*One full size drawing sheet will be supplied. Illustrate all answers with neat sketches.*)

PART A

(Answer *ALL* questions)

$(4 \times 5 = 20)$

I. Write short notes on the following :

(a) What is Leonardo's window? Define the concept of perspective with suitable illustrations.

(b) How will you prepare an image/content for web publication? State main difference between the image preparation process for web and print media.

(c) How visual communications differ from corporate design communication?

(d) What are the attributes of a good design for corporate communication?

PART B

$(2 \times 40 = 80)$

II. Mouse Tec is a company that design and manufacture different products for computer hardware, including mouse. As a new company, it will need promotional material to attract its target customers. Mouse Tec's target customers are people who need new or replacement computer technology. The company also wants to attract families with children and teenagers. Mouse Tec's company warehouse is located at 62 Hope Street, Hawthorn. Its opening hours are Monday to Saturday, 10.00 am to 6.00 pm. You are required to design the artwork for a poster that will assist in advertising Mouse Tec. Your design must:

- Combine type with image to create the title.
- Include computer-related imagery.
- Use form and color.
- Effectively apply the design principle of balance (asymmetric balance)
- Demonstrate the following hierarchy of information – company title – computer imagery – address details and opening hours. Produce your final design presentation with concept in the drawing sheet provided.

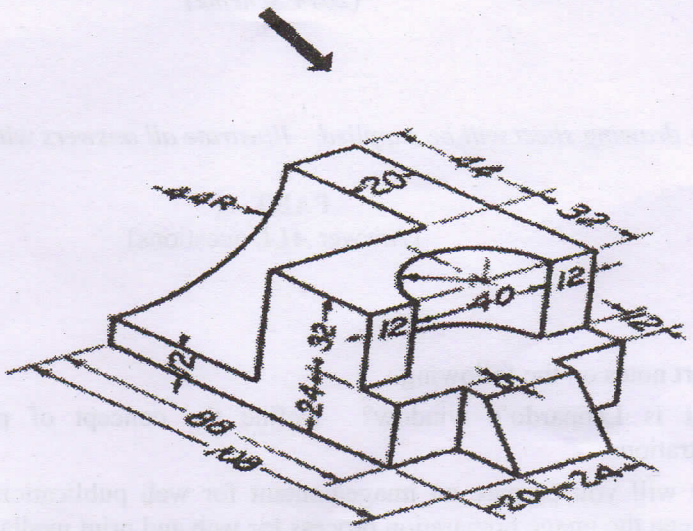
OR

(P.T.O.)

III. (i) What do you mean by sciography?

(ii) Given below is an isometric view of an object. The arrow indicate the direction of light. Your responses must :

- Draw the shadow projection of the set up.
- Use the light source, as indicated by the arrow.
- Include shadows that are cast onto the piece and the ground.



IV. Compose a presentation sheet to demonstrate your sculpture work in front of your client. Work is supposed to exhibit in front of income tax department of India, you may discuss about the material and method of construction in your presentation.

OR

V. Design a poster to promote blood donation. Poster should target the population of young generation in our nation.

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B.Arch-III-11.18-1954 Reg. No. | | | | | | | | |

A

B.Arch. Degree III Semester Examination November 2018

AR 1306 HUMANITIES
(*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) Social changes.

(b) Differentiate groups and association.

(c) Conflict in society.

(d) Criteria for classifying an area as urban.

(e) Positive effects of urbanization.

(f) Cultural influence on society.

(g) Social stratification.

(h) Reasons for urban crime.

PART B

$(4 \times 15 = 60)$

II. Explain how the advancement in telecommunication has affected family as an institution and society at large.

OR

III. Bring out the need for good physical planning in residential areas for building up a social capital in the community.

IV. Citing an example from Kerala, explain how customs, tradition and life style affect settlement pattern.

OR

V. Is an urban resident more anthropocentric than a rural man? Discuss.

VI. Briefly explain disaster and its classification. Outline the role of NDRF in disaster management.

OR

VII. Explain the measures that can be taken at individual, community and government level in ensuring safety and security of urban residents.

VIII. Discuss how housing shortage in any one sector affects the society at large and briefly outline its influence on the immediate environment.

OR

IX. Discuss the effect of slums in urban environment.

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B.Arch –III–11.18–1955 Reg. No. | | | | | | | | |

C

B.Arch. Degree III Semester Examination November 2018

AR 1308 STRUCTURAL ANALYSIS I

(2014 Scheme)

Time : 3 Hours Maximum Marks : 100

PART A

(Answer *ALL* questions)

(8 × 5 = 40)

I. (a) What is pure bending and explain the theory of pure bending.

(b) Define and explain the terms modular ratio, flitched beam and equivalent sections.

(c) Prove that in circular sections, shear stress is maximum at the centre of the circle and is equal to 4/3 times the average shear stress.

(d) What are the assumptions in theory of pure tension?

(e) Derive the differential equation for deflection.

(f) State and prove Mohr theorem.

(g) What is a column and how they are classified?

(h) Derive the Rankine's formula for crippling load.

PART B

(4 × 15 = 60)

II. A timber beam is freely supported on supports 6 m apart. It carries a uniformly distributed load of 12 kN/m run and a point load of 9 kN at 3.5 m from the rigid support. Design a suitable section of the beam making depth twice the width, if the stress in timber is not to exceed 8 N/mm^2.

OR

III. A flitched beam consists of a wooden joist 150 mm wide and 300 mm deep strengthened by a steel plate 12 mm thick and 300 mm deep on either side of the joist. If the maximum stress in the wooden joist is 70 N/mm^2, find the corresponding maximum stress attained in steel. Find also the moment of resistance of the composite beam. Take E for steel = 2×10^5 N/mm^2 and for wood = 1×10^4 N/mm^2.

IV. A beam of I section is having overall depth as 500 mm and overall width as 190 mm. The thickness of flange is 25 mm where as the thickness of the web is 15 mm. If the section carries a shear force of 40 kN, calculate the maximum shear stress. Also sketch the shear stress distribution across the section.

OR

V. Two shafts of the same material and of same length are subjected to the same torque, if the first shaft is of a solid circular section and the second shaft is of hollow circular section, whose internal diameter is 2/3 of the outer diameter and the maximum shear stress developed in each shaft is the same, compare the weights of the shafts.

(P.T.O.)

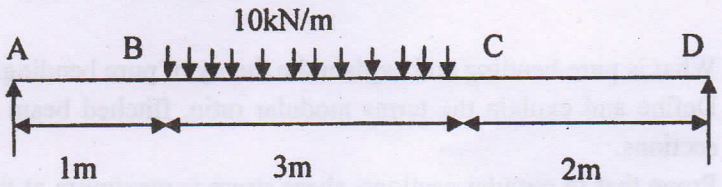
VI. A simply supported beam of length 4 m carries a point load of 3 kN at a distance of 1 m from end. If $E=2\times10^5$ N/mm^2 and $I = 225 \times 10^6$ mm^4 for the beam, then using conjugate beam method determine:

(i) slope at each end and under each load.

(ii) deflection under each load and at the centre.

OR

VII. A beam AD is 6 m long and has a moment of inertia of 450×10^6 mm^4 and $E = 200$ kN/mm^2. It is supported at A and D and carries a u.d.l of 10 kN/m from B to C as shown in figure. Calculate (i) Slope at A (ii) Deflection at mid span (iii) Maximum deflection.



VIII. (a) Write an expression for crippling load when both the ends of the column are fixed.

(b) A hollow mild steel tube 6 m long, 4 cm internal diameter and 5 mm thick is used as a strut with both ends hinged. Find the crippling load and sage load taking factor of safety as 3. Take $E = 2 \times 10^5$ N/mm^2.

OR

IX. Find the Euler's crushing load for a hollow cylindrical cast iron column 15 cm external diameter and 25 mm thick if it is 6 m long and it is hinged at both ends. Take $E = 8 \times 10^4$ N/mm^2. Compare the load with the crushing load as given by the Rankine's formula, taking $f_c = 550$ N/mm^2 and $\alpha = 1/1600$. For what length of the column would these two formula give the same crushing load?

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