B.Arch-II(R/S)-04.23-2375 Reg.No. | | | | | | | | |

C

B.Arch. Degree II Semester Regular/Supplementary Examination
April 2023

AR 1202 BUILDING MATERIALS AND CONSTRUCTION II

(*2021 Scheme*)

Time : 4 Hours Maximum Marks : 100

Instruction – *Illustrations on answer carry the mark credit will be given for following standard.*

PART A

(Answer ***ALL*** questions)

(8 × 5 = 40)

I. Write short notes on the following:

(a) Joineries in wood.

(b) Defects in timber.

(c) Different types of hinges.

(d) Mullions and transoms.

(e) Load consideration in lintel.

(f) Functions of arches.

(g) Foundation design consideration.

(h) What are the essentials of a good foundation?

PART B

(4 × 10 = 40)

II. Explain the need for seasoning of timber. What are the methods of seasoning of timber?

OR

III. Mention the qualities of a good timber. Discuss different types of manufactured wood.

IV. Explain with sketches different types of windows? Explain merits and demerits of metal windows over wooden windows.

OR

V. Discuss the provisions of door and window in a structure with respect to location, purpose and size .Explain with sketches parts of a door and a window.

VI. Explain the methods adopted for timbering of foundation trenches.

OR

VII. What are the causes of failure of foundations? What measures are to be taken to prevent such failures?

VIII. What are the various types of lintels and discuss their relative uses?

OR

IX. Explain centering of arches with sketches.

PART C

(1× 20 = 20)

X. Draw to a scale of 1:20; plan, elevation and section of a double leaf fully paneled door for an opening of 120 cm × 210 cm with important joinery details. Label its parts with dimensions. Show fixing in detail.

XI. Draw to a scale of 1:10, a three centered elliptical arch of span 1.5 m and rise of 0.5 m constructed of brick masonry with 30 cm thick.

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B

B.Arch. Degree II Semester Regular/Supplementary Examination April 2023

AR 1203 HISTORY OF ARCHITECTURE II-EUROPE-CLASSICAL TO RENAISSANCE

(*2021 Scheme*)

Time: 3 Hours Maximum Marks: 100

(*Illustrate your answers with sketches. Illustrations carry due marks.*)

PART A

(Answer **ALL** questions)

(8 × 5 = 40)

I. Write short notes on:

(a) Orders in architecture.

(b) Colloseum.

(c) Alternative Church Forms of early Christian architecture.

(d) Fragmentation of Roman Empire.

(e) Pisa Cathedral.

(f) Characteristics features of gothic architecture.

(g) Contributions of Andria Palladio.

(h) Characteristic features of Renaissance architecture.

PART B

(4 × 15 = 60)

II. Explain in detail the history, evolution and architectural characteristics of Ancient Greek architecture with relevant examples.

OR

III. Explain the history, evolution and architectural characteristics of Ancient Rome with relevant examples.

IV. Explain the salient features of early Christian architecture taking Old St. Peters Rome as example.

OR

V. Describe Byzantine Architecture and elaborate any one of the examples.

VI. Explain with sketches, the salient features of Romanesque architecture. Elaborate the answer with examples.

OR

VII. Compare and contrast English and French Gothic style of architecture.

VIII. What is Renaissance Architecture? Trace its evolution and characteristics with examples.

OR

IX. Briefly explain the architecture of:

(a) Florence Cathedral

(b) Villa Rotonda.

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A

B.Arch. Degree II Semester Regular/Supplementary Examination April 2023

AR 1204 THEORY OF STRUCTURES I – INTRODUCTION TO STRUCTURES

(*2021 Scheme*)

Time: 3 Hours Maximum Marks: 100

PART A

(Answer *ALL* questions)

(8 × 5 = 40)

I. Write short notes on the following:

(a) Prove that a body will not be in equilibrium when it is subjected to two forces which are equal and opposite but are parallel.

(b) Explain the difference between coefficient of friction and angle of friction.

(c) Derive an expression for the centre of gravity of a plane area using method of moments.

(d) Define the terms:
  (i) moment of inertia
  (ii) radius of gyration.

(e) State Hooke's Law and Principle of superposition.

(f) Point out the difference between ultimate stress and breaking stress. Mention which value is higher and why?

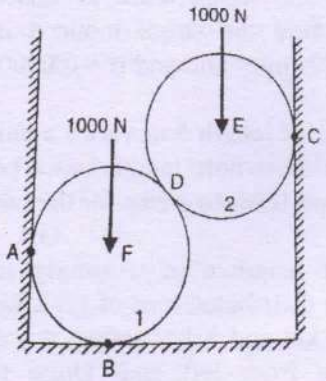
(g) Draw the S.F and B.M diagrams for a cantilever of length L carrying a point load W at the free end.

(h) Explain the difference between point of contraflexure and point of inflection.

PART B

(4 × 15 = 60)

II. Two spheres, each of weight 1000 N and of radius 25 cm rest in a horizontal channel of width 90 cm as shown in figure. Find the reactions on the points of contact A, B and C.

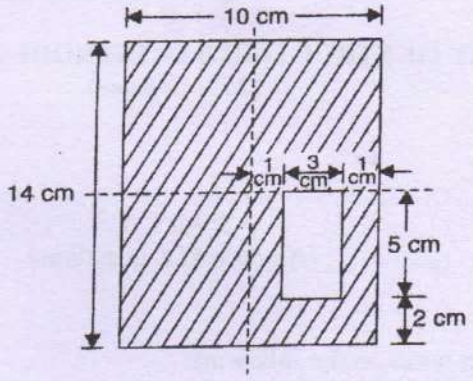


OR

III. An effort of 180 N is required just to move a certain body up an inclined plane of angle 15°, the force being parallel to the plane. If the angle of inclination of the plane is made 20°, the effort required, again applied parallel to the plane, is found to be 210 N. Find the weight of the body and co-efficient of friction.

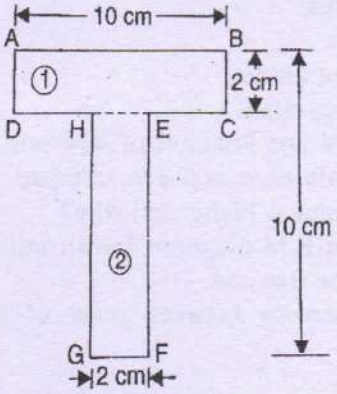
(P.T.O.)

IV. From a rectangular lamina ABCD 10 cm × 14 cm a rectangular hole of 3 cm × 5 cm is cut as shown in the figure below. Find the center of gravity of the remainder lamina.



OR

V. Below figure shows a T-section of dimensions (10 ×10 × 2) `cm. Determine the moment of inertia of the section about the horizontal and vertical axes, passing through the centre of gravity of the section.



VI. The ultimate stress for a hollow steel column which carries an axial load of 2 MN is 500 N/mm^2. If the external diameter of the column is 250 mm, determine the internal diameter. Take the factor of safety as 4.0.

OR

VII. A rod is 3 m long at a temperature of 15°C. Find the expansion of the rod, when the temperature is raised to 95°C. If the expansion is prevented, find the stress induced in the material of the rod. Take $E = 1 \times 10^5$ N/mm^2 and and $\alpha = 0.000012$ per degree centigrade.

VIII. A cantilever of length 5 m varies a uniformly distributed load of 2 kN/m length over the whole length and a point load of 4 kN at the free end. Draw S.F and B.M diagrams for the cantilever.

OR

IX. A beam of length 6 m is simply supported at the ends and carries a uniformly distributed load of 1.5 kN/m run and three concentrated loads of 1 kN, 2 kN and 3 kN acting at a distance of 1.5 m, 3 m and 4.5 m respectively from left end. Draw the S.F and B.M diagrams and determine the maximum bending moment.

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C

B.Arch. Degree II Semester Regular/Supplementary Examination April 2023

AR 1205 ENVIRONMENTAL STUDIES

(*2021 Scheme*)

Time: 3 Hours Maximum Marks: 100

PART A

(Answer **ALL** questions)

(8 × 5 = 40)

I. Write short notes on the following:

(a) In-situ and Ex-situ conservation of biodiversity.

(b) Grassland ecosystem.

(c) Environmentalism.

(d) Acid rain.

(e) Effects of population explosion on the environment.

(f) Passive cooling methods in Tropical areas.

(g) Environmental Protection Act.

(h) CRZ.

PART B

(4 × 15 = 60)

II. What is an ecosystem? Mention different types of ecosystems. Also, explain the structure and functioning of an ecosystem with the help of a neat sketch.

OR

III. What is meant by the term biodiversity? How do habitat loss and fragmentation affect biodiversity, and what conservation strategies can help mitigate these effects?

IV. What is solid waste management? Discuss the challenges and strategies for effective solid waste management in urban areas.

OR

V. What are the main environmental effects of air pollution? Discuss the impacts with the help of a case study. Mention various measures to overcome the situation.

VI. What is a microclimate? Explain with neat sketches. How can architectural design help mitigate the effects of extreme weather conditions in a microclimate?

OR

VII. Name any five examples of energy-efficient materials commonly used in construction. How do energy-efficient materials help reduce energy consumption and improve thermal insulation in buildings?

VIII. Explain the term CRZ with neat sketches. How do the CRZ regulations address the concerns of coastal communities and livelihoods?

OR

IX. What is the objective of the Wild Life Protection Act? As per this act, what are the major threats to wildlife? Name five mammals protected according to this act.

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C

B.Arch. Degree II Semester Regular/Supplementary Examination April 2023

AR 1206 ARCHITECTURAL DRAWING AND GRAPHICS - II

(*2021 Scheme*)

Time: 4 Hours Maximum Marks: 100

(*Candidates will be supplied with one A-2 size handmade drawing sheet*)

(4 × 25 = 100)

I. Write a summary of Renaissance and Impressionism. Describe their characteristics in the field of art.

OR

II. Explain the evolution of art in the various stages to the contemporary.

III. With the help of a composition, explain colour theory and principles.

OR

IV. Create a logo for architects and explain how different architectural principles are applied.

V. Sketch a three dimensional composition of any four basic geometric shapes. Imagine a point light source from any direction and render the shadow.

OR

VI. Design a bowl, cup and spoon for the 3 year old. Use fluid forms of design.

VII. Explain the importance of colour, light and visual composition in photographs by means of sketches.

OR

VIII. Explain how to use Scene, Aperture Priority, Shutter Priority and Manual Mode. With the assistance of a sketch, describe how each object composition is affecting the viewer.

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