

III SEMESTER B.ARCH DEGREE EXAMINATION

(2013 Scheme)

13AR1302 BUILDING MATERIALS & CONSTRUCTION II

MODEL QUESTION PAPER

Time : **3Hours**

Max Marks:100

Instruction: Use Illustrations wherever required. Illustrations carry due marks.

PART –A

Answer all questions. Each question carries 5 Marks.

I. Write short notes on the following.

- a) Cast iron
- b) Anodising
- c) Stepped footing
- d) Rain water harvesting
- e) Metal doors
- f) Plastic windows
- g) Cast glass
- h) Sky lights

(8 x5 Marks = 40 Marks)

MODULE – I & II

*Answer any **one** full question. Each question carries 10 marks.*

II. (a) What are the forms of iron employed in building construction? Explain their properties and uses in buildings.

OR

(b) What are the different types of soils? Explain their properties, bearing capacity, safe bearing capacity and methods for improving it.

MODULE – III & IV

*Answer any **one** full question. Each question carries 10 marks.*

III. (a) What are the Special purpose doors? Explain their uses, properties, and methods of installation.

OR

(b) What are the Special purpose glasses? Explain their uses, properties, and methods of installation.

PART B

*Answer any **one** full question from Module II & III. Each question carries 20 marks.*

MODULE II

IV. (a) Draw, to a suitable scale, the plan and section of RCC footing for steel column.

OR

(b) Draw, to a suitable scale, the plan and section of a combined footing for two RCC columns.

MODULE III

V. (a) Draw, to a suitable scale, the plan, elevation and section of a swinging door for an opening of size 100 cm X 210 cm.

OR

(b) Draw, to a suitable scale, the plan, elevation and section of a double paneled steel window for an opening of size 100 cm x 150 cm.

III SEMESTER B.ARCH DEGREE EXAMINATION

(2013 Scheme)

13AR1303 HISTORY OF ARCHITECTURE II

MODEL QUESTION PAPER

Time : **3Hours**

Max Marks:100

Instruction: Use Illustrations wherever required. Illustrations carry due marks.

PART –A

Answer all questions. Each question carries 5 Marks.

Write short notes on the following.

1. Pendentive
2. Solomonic Column
3. Horseshoe arch
4. Tikal Temple
5. Srirangam Temple
6. Garbhagriha
7. Alai Darwaza
8. Mihrab

(8 x5 Marks = 40 Marks)

PART B

*Answer **one** full question from each Module. Each question carries 15 marks.*

MODULE - I

9. Describe the Architectural characteristics of Hagia Sophia and its importance in Byzantine Empire

OR

10. Discuss the design evolution and planning principles of Romanesque Architecture.

MODULE - II

11. Describe in detail the features and elements of architecture used at Alhambra Spain

OR

12. Explain the Architectural characteristics of City of Chichen Itza and the way it helped Mayan Architecture.

MODULE - III

13. Discuss in detail the architecture evolved during early temples in Brihadeshwara and Srirangam.

OR

14. Explain the Planning Principle used for Khajuraho, its design and technology.

MODULE - IV

15. Discuss the various factors that influenced the origin and characteristics of Islamic Architecture in India.

OR

16. “Quwat ul Islam mosque played a major role in generating the Imperial style of Delhi”

Do you agree with this statement. Discuss your answer in detail.

III SEMESTER B.ARCH DEGREE EXAMINATION

(2013 Scheme)

13AR1304 BUILDING CLIMATOLOGY

MODEL QUESTION PAPER

Time : **3Hours**

Max Marks:100

Instruction: Use Illustrations wherever required. Illustrations carry due marks.

PART –A

Answer all questions. Each question carries 5 Marks.

Write short notes on the following.

1. Tilt of Earth axis
2. Monsoon winds and Mountain winds
3. Sun path diagram
4. Urban climate
5. Conduction and Convection heat flow
6. Corrected Effective Temperature
7. Design of Courtyards in Kerala climate
8. Building orientation in passive design (8 x5 Marks = 40 Marks)

PART B

*Answer **one** full question from each Module. Each question carries 15 marks.*

MODULE - I

9. Explain with a neat sketch- the thermal balance of Earth considering the heat loss and heat gain.

OR

10. Discuss in detail the Global wind pattern considering the Earth's rotation and influence of thermal forces

MODULE - II

11. Describe briefly on five major Elements of climate

OR

12. Explain briefly and compare on the characteristic feature of the elements of climate in any two Tropical climate zones

MODULE - III

13. Describe briefly on the Thermal balance of human body with a neat sketch.

OR

14. Discuss and compare in detail any three thermal comfort indices used to assess the thermal comfort level.

MODULE - IV

15. Compare the design features of the buildings in any two Tropical climate zones.

OR

16. What are the important characteristic features of buildings in Kerala, designed according to the climatic features? Explain in detail.

THIRD SEMESTER B ARCH DEGREE EXAMINATION

(2013 Scheme)

13AR1305 ARCHITECTURAL GRAPHICS - II

MODEL QUESTION- 1

Time : 4 Hours

Max Marks: 100

Instruction: To be supplied with one drawing sheet A2 size & two butter sheets

PART- A

Answer **all** questions. **Each** question carries 5 marks

Write short notes on:

- 1) Vanishing points
- 2) Briefly discuss on any five tools used in Photoshop to edit an image
- 3) Coral draw
- 4) Bird`s eye view (4 x 5Marks = 20 Marks)

PART- B

Answer any **one full** question. **Each** question carries **80** marks.

- 5) A) Arrange six cubes of suitable size to form a symmetric composition.
- a) Draw the dimensioned plan of the composition in a suitable scale. (10)
 - b) Draw the bird`s eye view of the same (30)
 - c) Render appropriately for visual effects (10)
- B) Design a Logo for a soft drink company.
- a) Explain the concept of the design in words not less than 50 words. (10)
 - b) Draw the design in a 20cm x20cm square grid. (20)

OR

- 6) A) Draw the interior perspective of a classroom of size 6m x 6m x 3.6m.
- a) Plan showing the furniture to a suitable scale. (10)
 - b) Interior Perspecctive (40)
- B) Design a Banner (100cm x 75cm) for a National Conference on Environment management to be held in the Architecture department at College of Engineering, Trivandrum. (Choose suitable scale). The banner should include all information like date, venue etc. for its display. (30)

THIRD SEMESTER B.ARCH EXAMINATION (2013 Scheme)

13AR1306 HUMANITIES
MODEL QUESTION PAPER

Time: 3Hrs

Max. Marks: 100

PART –A

Answer all questions. Each question carries 5 Marks.

Write brief notes on the following:

1. Define Family
2. Differentiate community and association.
3. Push and Pull factors of urbanization
4. Effects of modernization
5. Poverty line
6. Difference between Race and Class
7. Heritage
8. Differentiate House and housing (8 x5 Marks = 40 Marks)

PART B

*Answer **one** full question from each Module. Each question carries 15 marks.*

MODULE - I

9. How are culture studies relevant to architecture?

OR

10. “Built structure embodies the heritage of the society” Explain.

MODULE - II

11. Differentiate Rural and Urban society in general and with respect to the context of India.

OR

12. Urbanism has positive and negative effects on the society. Discuss in detail.

MODULE - III

13. How does inequality exist in a society? How does Indian constitution address the eradication of inequality that is prevalent in our society?

OR

- 14.** Can a rigid social stratification impede the process of development of a society? Discuss in detail.

MODULE - IV

- 15.** How does social structure influence the way spaces are arranged in a built structure. Explain with examples.

OR

- 16.** How are slums formed? What are the social issues in a slum? Detail any one government scheme that seeks to address this problem.

III SEMESTER B.ARCH DEGREE EXAMINATION

(2013 Scheme)

13AR1308 STRUCTURAL DESIGN II

MODEL QUESTION PAPER

Time : **3Hours**

Max Marks:100

Instruction: Use Illustrations wherever required. Illustrations carry due marks.

PART –A

Answer all questions. Each question carries 5 Marks.

1. What are the assumptions in the theory of simple bending?
2. Define neutral axis, neutral layer and section modulus
3. Prove that maximum shear stress in a rectangular section 1.5 times the average shear stress.
4. Explain Macaulay's method for finding slope and deflection of a beam.
5. Define torsional rigidity, polar modulus and stiffness.
6. Explain conjugate beam method.
7. What are the assumptions made in Euler's theory of buckling of columns?
8. What is slenderness ratio? Explain its significance. (8 x5 Marks = 40 Marks)

PART B

*Answer **one** full question from each Module. Each question carries 15 marks.*

MODULE - I

9. The cross section of a cast iron beam consists of top flange 100mm x 20mm, bottom flange 200mm x 30mm, web 200mm x 25mm. The beam is simply supported over a span of 8m. Determine the maximum uniformly distributed load the beam can carry over the whole length, the stress due to bending shall not exceed 150N/mm² in tension and 180N/mm² in compression.

OR

10. A composite beam consists of a wooden joist 150mm wide and 300mm deep strengthened by steel plates 20mm thick and 250mm deep one on either side of the joist arranged symmetrically. If the maximum stress on timber is 6N/mm². Find the maximum stress in steel. Find also the moment of resistance of the section. Take $E_s=20E_w$.

MODULE - II

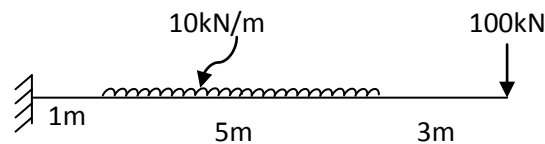
11. A beam of I section 600mm deep and 200mm wide has flange 30mm thick and web 250mm thick. Draw the shear stress distribution if it carries a shearing force of 500kN.

OR

12. A hollow shaft with inner diameter 0.6times the outer diameter is required to transmit 450kW at 120rpm with a uniform twisting moment. The shear stress in the shaft must not exceed 60N/mm^2 and twist in a length of 2.5m must not exceed 1° . Calculate the maximum external diameter of the shaft satisfying these conditions. Take modulus of rigidity as $8 \times 10^4 \text{N/mm}^2$.

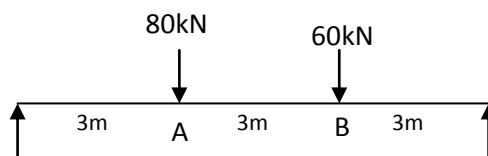
MODULE - III

13. Find the maximum deflection of a cantilever beam as shown in fig by Macaulay's method (EI constant).



OR

14. Find the deflections at points A and B of the simply supported beam by conjugate beam method (EI constant).



MODULE - IV

15. Derive Eulers formula for a long column (a) with one end fixed and other end free
(b) Find Euler critical load of a steel column having 4m length and 200mm diameter with both ends hinged.

OR

16. Find safe critical load of a long column having 5m long and both ends fixed. The column is having 300mm external diameter and 200mm internal diameter. Take Rankines coefficient $f_c = 550\text{N/mm}^2$, factor of safety = 3, $\alpha = 1/1600$.