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B.Arch. Degree III Semester Examination November 2017

AR 1302 BUILDING MATERIALS AND CONSTRUCTION II
(2014 Scheme)

Time: 4 Hours

Maximum Marks: 100

PART A

(8 × 5 = 40)

- I. Write short notes on the following.
- Bulking of sand.
 - General purpose Portland cement.
 - Water-cement ratio.
 - Joints in concrete.
 - Concrete floor.
 - Design of shallow foundation.
 - Factors involved in staircase design.
 - Turning stairs.

(2 × 10 = 20)

- II. What is bearing capacity of soil? Explain the methods for determining it.

OR

- III. Describe the methods to determine workability of concrete.

- IV. Explain with sketches the types of pile foundation used in construction of a framed structure.

OR

- V. Discuss the guidelines involved in designing and detailing the access for physically challenged.

PART B

(2 × 20 = 40)

- VI. Draw to a suitable scale, detailed plan and section of lintel and sunshade for a residential building. Assume necessary details required for drawing.

OR

- VII. Draw to a suitable scale, detailed plan and section of combined footing for columns of an RCC framed building. Draw up to plinth level only. Assume necessary details required for drawing.

- VIII. Draw to a suitable scale, detailed plan and section of dog-legged RCC staircase for a three storeyed commercial building. Draw up to first floor level and assume necessary details required. Floor height = 375 cm.

OR

- IX. Draw to a suitable scale, detailed plan and section of a curved RCC staircase for a residential building. Floor height = 330 cm. Assume necessary details required for drawing.

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B.Arch. Degree III Semester Examination November 2017

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) Kailasanatha temple.
- (b) Brihadeshwara temple.
- (c) Sultan Ghari.
- (d) Khirki Masjid.
- (e) Charminar.
- (f) Well retreats of Ahmedabad.
- (g) Jahangir Mahal.
- (h) Tomb of Rabi Durrani.

PART B

(4 × 15 = 60)

II. Explain the complexity of planning of the Srirangam temple.

OR

III. Trace the evolution of Indo Aryan style of architecture using key examples.

IV. Discuss briefly the origin of Islamic Architecture in India. Illustrate with sketches the experiments carried out in its evolution in terms of structural systems and construction techniques.

OR

V. Describe the planning of City of Firoz Shah Kotla and the architectural features of any two structures within the complex in detail.

VI. Illustrate the salient architectural features of the Jaunpur provincial style of Islamic architecture through Atala Masjid and Jami Masjid.

OR

VII. Trace the evolution and development of provincial style of Islamic architecture in Bengal with the help of examples.

VIII. Establish the statement – ‘With the arrival of Akbar on the Indian scene an era of unparalleled and inspired building activity began’

OR

IX. Compare and contrast Jami Masjid at Delhi and Moti Masjid at Delhi Fort.

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B.Arch. Degree III Semester Examination November 2017

AR 1304 BUILDING CLIMATOLOGY (2014 Scheme)

Time : 3 Hours

Maximum Marks : 100

(Illustrate all answers with sketches wherever necessary)

PART A

(Answer **ALL** questions)

(8 × 5 = 40)

- I. Write short notes on the following.
- (a) Globe thermometer.
 - (b) Effective temperature and corrected effective temperature.
 - (c) Driving rain and rain index.
 - (d) Factors causing urban climate.
 - (e) Coriolis force.
 - (f) Controlling elements that reduce solar heat gain through windows.
 - (g) Thermal balance of core body temperature.
 - (h) Time lag.

PART B

(4 × 15 = 60)

- II. What are the major types of climate? How does the "range of values" of these types of climate that affects architecture and human comfort?
- OR**
- III. Explain how radiation affects the crust of earth. How does earth keep its thermal balance?
- IV. Explain Global wind pattern with a figure and label the parts.
- OR**
- V. What are the two tropical climatic zones? How do these affect the social life and architecture of different countries?
- VI. What is Human Thermal Comfort? What are the various factors contribute to comfort? What are the challenges in finding a scale for climate comfort? Mention four indices that scale comfort.
- OR**
- VII. Draw and explain the effective temperature Nomogram for person wearing normal business clothes of 1 clo. Explain how to find the proper ET or CET for design application given PBT and WBT of a room.
- VIII. Explain the general guidelines that a BUILTFORM appropriate to WARM HUMID region with heavy rainfall.
- OR**
- IX. How does the traditional architecture, which is HOT DRY CLIMATE, proved itself extremely suitable and precise answer to climate problems? Take examples. Discuss through the following points
-planning (residential and town level), construction, materials selected.

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B

B.Arch. Degree III Semester Examination November 2017

AR 1305 ARCHITECTURAL GRAPHICS II
(2014 Scheme)

Time: 4 Hours

Maximum Marks: 100

(One drawing sheet is to be supplied. Illustrate all answers with neat sketches.)

PART A

(Answer **ALL** questions)

(4 × 5 = 20)

- I. Write short notes on the following:
- Briefly discuss on any five tools used in photoshop to edit an image.
 - Explain the principles of logo designing.
 - Describe perspective projection concept.
 - Explain coral draw.

PART B

(2 × 40 = 80)

- II. Sketch out the bird's eye view of a well-planned city using pencil rendering.
- OR**
- III. Design a logo for a company making food products.
- Explain the concept of design in words (not less than 50 words).
 - Draw the design in a 15 cm × 15 cm square grid.
- IV. Design a colour poster in connection with the golden jubilee celebrations at your college to an approximate size of paper 20 × 30 cm and explain the salient features incorporated in this design.
- OR**
- V. Compose a sculpture for shallow relief with the theme - "SAVE WATER" using any two colours and white.

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B.Arch. Degree III Semester Examination November 2017**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.
- Family as an institution.
 - Competition and Conflict.
 - Features of a rural society in India.
 - Criteria for classifying an area as urban.
 - Disaster and its mitigation.
 - Urban crime.
 - Cultural influence on society.
 - Social structure.

PART B

(4 × 15 = 60)

- II. Differentiate between societies which existed prior to and after industrial revolution. How can this concept be extended to pre and post Globalization?
- OR**
- III. What is the relevance of studying sociology by architectural students?
- IV. Outline the effect of society in settlement patterns.
- OR**
- V. Is an urban resident more anthropocentric than a rural man? Discuss.
- VI. What are the effects of urbanization on safety of citizens? Explain with specific reference to the problems faced by women and children.
- OR**
- VII. How does settlement pattern aid urban crime? Give examples from recent incidents.
- VIII. How does urban spatial structure effect the accessibility and sustainability in cities?
- OR**
- IX. How do the pavement dwellers effect the environment and in turn sustainability of an urban area? Discuss the problem with specific reference to India.

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B.Arch. Degree III Semester Examination November 2017

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 section modulus? Compare section modulus of square and circular section with same area.
- (b) Derive the equation of simple bending.
- (c) Draw the shear stress distribution across section of (i) rectangular section and (ii) circular sections and mark the maximum values due to shear force F.
- (d) Determine the maximum shear stress produced in a solid circular shaft of 100 mm diameter subjected to Torque of 100 kN-m.
- (e) State and explain moment area theorems.
- (f) Give short note on various methods for determining the slope and deflection in a beam.
- (g) Differentiate between the structural behavior of short and long column.
- (h) Write the Euler's crippling load of column for various end conditions in terms of its actual length.

PART B

(4 × 15 = 60)

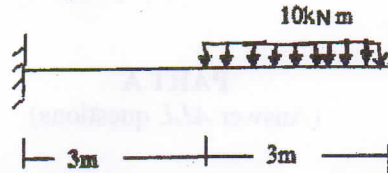
- II. A simply supported beam of 5 m span carries uniformly distributed load of 10 kN/m and a point load of 20 kN at the centre of the span. If the permissible stress is limited to 150 MPa, determine the dimensions of rectangular section taking width equal to half the depth of the beam. (15)
- OR**
- III. A simply supported beam of 6 m span is made of symmetrical I section having 80 mm wide flange and overall depth of 200 mm with 10 mm thick flange and 6 mm thick web. Determine the concentrated load that can be placed at mid span if the maximum permissible stress is 80 MPa. (15)
- IV. Draw shear stress distribution across T section with flange width of 120 mm, web and flange thickness 20 mm and overall depth 160 mm due to shear force of 140 kN and mark the values at salient points. (15)
- OR**
- V. Determine suitable diameter of shaft for transmitting 20 kW at 120 rpm, if the maximum allowable shear stress in the shaft is not to exceed 50 MPa and angle of twist not to exceed 1° in a length of 1.2 m. (15)

(P.T.O.)

- VI. A simply supported beam of 8 m length has two concentrated loads of 32 kN and 24 kN at 1 m and 4 m respectively from left support. Find the deflection under each load and the maximum deflection. Take $E = 200 \text{ GPa}$ and $I = 180 \times 10^6 \text{ mm}^4$. (15)

OR

- VII. Calculate the slope and deflection at the free end of the cantilever subjected to udl as shown below, by moment area method. The beam is having uniform flexural rigidity. (15)



- VIII. (a) What are the: (i) assumptions made in the Euler's buckling theory? (5)
 (ii) limitations of Euler's theory? (10)
 (b) Find the slenderness ratio and Euler's crippling load for a hollow cylindrical column of external diameter 40 mm and internal diameter 30 mm, 3.5 m long fixed at both ends. $E = 200 \text{ GPa}$. (10)

OR

- IX. A tubular strut fixed at one end and other end free has outer and inner diameters as 40 mm and 36 mm respectively and is 2.4 m long. Compare the crippling load by Euler's and Rankine's formulae. $E = 204 \text{ GPa}$, Yield stress = 310 MPa and $a = 1/7500$. (15)
