THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 17 37—HISTORY OF ARCHITECTURE—II

(2017 Admissions)

Time : Three Hours   Maximum : 100 Marks

Supplement your answers with sketches.

Part A

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

1. a) What are the three important religious structures of Islamic architecture ?

   b) Explain the great mosque at Cordoba.

   c) State the development of architectural style during the rule of Khilji dynasty ?

   d) What are the various dynasties of imperial style Delhi and explain in brief about the slave dynasty with an example.

   e) What are the architectural characteristics of provincial style Malwa and Deccan.

   f) Write short notes on Jami Masjid, Ahmedabad.

   g) What are the features of "Buland Darwaza" ? Substantiate with sketches.

   h) Describe the important contribution of Sher-Shah-Suri.

                                                     (8 × 5 = 40 marks)

Part B

*Answer **all** the questions.*
Each question carries 15 marks.

2. a) Explain with examples the two most important building typologies of Islamic Architecture in India.

                              Or

   b) Explain in detail about the great mosque in Persia.

                                                     Turn over

3. a) Explain the characteristics of the Tughlaq dynasty with architectural examples.

Or

b) Describe in detail the architectural features of "Qutub-minar".

4. a) Elaborate on the characteristics of Islamic architecture of the Deccan.

Or

b) Explain Golgumbaz in detail with plans, sections and elevations. Explain the method of intersections of arches with examples.

5. a) Explain the following with sketches :

(i) Humayun Tomb.

(ii) Taj Mahal.

Or

b) The period of Shah Jahan is considered as the Golden age of Mughal Architecture. Discuss with examples.

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 17 36—THEORY OF STRUCTURES–II

(2017 Admissions)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 5 marks.

1. a) Give the relation for change in length of a bar hanging freely under its own weight.

    b) A brass rod 2m is fixed at both its ends. If the thermal stress is not to exceed 76.5 N/mm^2, Calculate the temperature through which the rod should be heated. Take the values of α and E as 17×10^{-6}/K and 90 GPa respectively.

    c) Define the term section modulus and moment of resistance.

    d) What is Flitched beam ? Why it is used ?

    e) Give the value of slope at the free end of a cantilever beam of constant EI and span L carrying concentrated load 'W' at the free end.

    f) Where the maximum deflection will occur in a simply supported beam load with UDL of WkN/m run ? And note about the slope at that point.

    g) Write down the formula for Torque transmitted by hollow shaft.

   h) Write down the assumption's made in Torsion Equation.

    (8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

2. a) Calculate the modulus of rigidity and bulk modulus of a cylindrical bar of diameter 25mm and Length 1.6m. If the longitudinal strain in a bar during tensile stress is four times the lateral strain. Determine the change in volume, when the bar is subjected to a hydrostatic pressure of 100N/mm^2.

    Or

    b) Calculate the values of the stress and strain in portion AC and CB of the steel bar shown in Figure. A close fit exist at both of the rigid supports at room temperature and the temperature Is Raised by 75°C. Take E = 200GPa and α = 12×10^{-6}/°C for steel. Area of cross section of AC is 400mm^2 and BC is 800mm^2.

Turn over
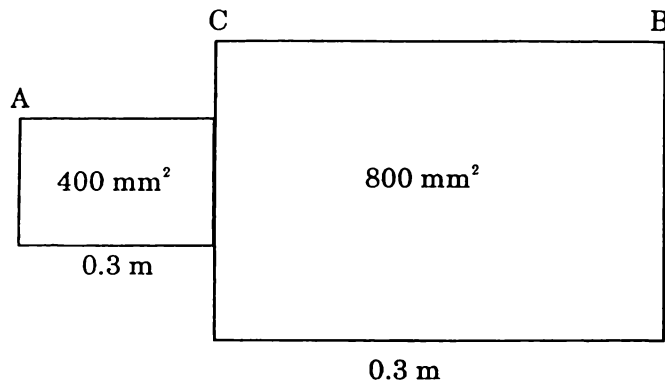
3. a) A model beam 50mm diameter is broken by a transverse load of 900N applied at the centre of the span 0.8m.Using the factor of safety is 3, Calculate the safe load for a beam of 110mm Diameter, freely supported over a span of 2m.

Or

b) An I section, with rectangular end's has the following dimension : Flanges :15CM × 2CM, web : 30CM × 1CM. Find the maximum shearing stress developed on the beam foar a shearing force of 10kN.

4. a) A round bar 8cm diameter is to be used beam.Find the maximum allowable bending moment, if the stress due to bending is limited to $140N/mm^2$. Calculate also the radius of curvature at the point of maximum bending moment, if E = $210KN/mm^2$.

Or

b) A cantilever of length 4m carries a UDL of 8KN/m length over the entire length. If the section is rectangular of 150mm × 260mm. Find the deflection and slope at the free end take E = $2.1 × 10^5 N/mm^2$ by Macaulay's method.

5. a) Find the diameter of a solid circular shaft to transmit 150 KW of power at 300 rpm. If the allowable shear stress is 90MPa and twist 1° over 2m length of the shaft. Take rigidity modulus as 90 GPa.

Or

b) Calculate the safe compressive load on a hollow cast iron column one end rigidly fixed and other hinged of 150mm external diameter,100mm internal diameter and 10m length,Use Euler's formula with a factor of safety of 5, E = $95GN/m^2$.

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION NOVEMBER 2020

AR 17 34—BUILDING CLIMATOLOGY

(2017 Admissions)

Time : Three Hours   Maximum : 100 Marks

Missing data if any, may suitably be assumed.
Drawing Sheets to be issued.

Part A

Answer all questions.
Each question carries 5 marks.

I. Write short notes on :

   (a) Factors that determine the climate of a place.

   (b) Body Heat exchange Process.

   (c) Sol-air temperature.

   (d) Time lag and decrement factor.

   (e) Altitude and Azimuth angle.

   (f) Air flow around the buildings.

   (g) Climate in tropics.

   (h) Climate design process.

                                       (8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

II. (a) Explain the effects of climatic factors on the human body heat loss.

Or

   (b) What are the factors influencing the Global climate ?

Turn over

III. (a) Describe the thermal properties of some of the common building materials.

Or

(b) Write short notes on :

    (i) K value and U value :

    (ii) Thermal gradient :

    (iii) Transmittance of composite walls :

IV. (a) Explain, how Tilt in Earth's Axis affects the Global Climate ?

Or

(b) Elaborate, how the Positioning, size and Location of window affect the indoor airflow ?

V. (a) Explain the design considerations for building in Warm humid climate.

Or

(b) Write short notes on :

    (i) Artificial sky.

    (ii) Mahoney tables.

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 17 33—BUILDING MATERIALS AND CONSTRUCTION–II

(2017 Admissions)

Time : Three Hours   Maximum : 100 Marks

Missing data if any, may suitably be assumed.
Drawing Sheets to be issued.

Part A

*Answer **all** questions.*

I. Write short notes on :

   a) Properties of concrete.

   b) PCC and RCC.

   c) Friction piles.

   d) Open caissons.

   e) Properties and uses of Wrought iron.

   f) Structural steel and stainless steel.

   g) Glass doors & its advantages and disadvantages.

   h) UPVC windows.

                                                            (8 × 5 = 40 marks)

Part B

*Answer **all** questions.*

II. (a) (i) Describe the process involved in the manufacture of concrete.   (10 marks)

       (ii) Discuss on Water cement ratio.   (5 marks)

Or

   (b) (i) Briefly explain the properties and uses of : A) Pre-stressed concrete and B) Fibre reinforced concrete.

                                                                                   (10 marks)

       (ii) Explain the process of guniting and its application in building industry.   (5 marks)

III. (a) (i) Discuss the merits and demerits of cast in situ piles.   (5 marks)

        (ii) List down and briefly explain the classification of pile foundation based on materials of pile construction.

                                                                                   (10 marks)

Or   **Turn over**

(b) (i) Briefly describe the various methods adopted for timbering of foundation trenches.

(10 marks)

    (ii) Sketch a pile cap ? Highlight its functions.   (5 marks)

IV. (a) (i) Briefly describe any four methods to protect steel from corrosion.   (12 marks)

    (ii) Write short notes on anodizing finish of aluminium.   (3 marks)

Or

(b) (i) Discuss in details about the various forms of steel used in building construction. (10 marks)

    (ii) List down the uses of aluminium foil and aluminium sheet.   (5 marks)

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

(15 marks)

Or

(b) (i) Explain the advantages and disadvantages of aluminum doors and windows. (9 marks)

    (ii) Draw and briefly explain any 3 joinery types in wood.   (6 marks)

[4 × 15 = 60 marks]

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 17 32—THEORY OF DESIGN—II

(2017 Admissions)

Time : Three Hours

Maximum : 100 Marks

Supplement your answers with sketches.

Part A

Answer all the questions.
Each question carries 5 marks.

1. a) What are the advantages and disadvantages of Iconic Design ?

   b) What is the relationship between Architectural criticism and Judgement ?

   c) Explain the role of an Architect towards design ?

   d) What are the differences between Tame problems and Wicked problems ?

   e) Explain the concepts of Creativity.

   f) What do you understand by the term 'brainstorming' ? Do you think it is an effective way to generate creative ideas ?

   g) Describe Organic Architecture.

   h) Explain Postmodernism in Architecture.

   (8 × 5 = 40 marks)

Part B

Answer all the questions.
Each question carries 15 marks.

2. a) Give a brief account of the different ways in which design can be classified.

   Or

   b) Explain in detail the Pragmatic type of design classification with examples.

3. a) What are the different models of design process according to design theorists ? Give your own opinion regarding this.

   Or

   b) Describe various methods / ideas of design methodology.

Turn over

4.   a)   Give a brief account of different types of thinking process.

Or

b)   Describe in detail the six thinking hats invented by Dr. Edward de Bono.

5.   a)   Explain the use of "pure Geometry" in Le Corbusier's work with examples.

Or

b)   Describe Deconstructivism and the design philosophy of Zaha Hadid.

(4 × 15 = 60 marks)

D 91960

Name.....................................

Reg. No...............................

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 12 39—BUILDING SERVICES—I
(Water Supply and Sanitation)

(2012 Admissions)

Time : Three Hours

Maximum : 100 Marks

Assume suitable data wherever necessary.

Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* the questions. Each question carries 5 marks :

1   Write short notes on the aspects of water supply engineering.

2   State the factors affecting consumption of water.

3   Discuss the process of water transmission.

4   State the advanced treatment methods of water.

5   State the characteristics of wastewater.

6   What is grit chamber ?

7   State the sewer appurtenances.

8   What is meant by conservancy ?

(8 × 5 = 40 marks)

Part B

II. Answer *all* the questions. Each question carries 15 marks :

1   Describe the various sources of surface water.

Or

2   Enumerate the types of water demand.

3   Explicate the removal of iron and manganese, fluoridation and de-fluoridation from water.

Or

4   Elaborate on the physical, Chemical and bacteriological analysis of water.

Turn over

5   Explicate activated sludge process.

Or

6   Describe the role of anaerobic digesters.

7   What is meant by sanitary land fill, incineration and composting ?

Or

8   Explain the separate, combined and partially combined systems of sewerage.

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 12 37—VERNACULAR ARCHITECTURE

(2012 Admissions)

Time : Three Hours   Maximum : 100 Marks

Assume suitable data wherever necessary.

Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* the questions :

  1 Define vernacular architecture.

  2 Discuss the classification of vernacular architecture.

  3 Elaborate on factors that shape the architectural character of a region.

  4 With an example clarify how religious topographies contributed to development of architecture.

  5 With an example bring out the evolution of religious architectural form.

  6 Delineate the characteristics of early Hindu temples.

  7 Briefly explain the vernacular architecture of India.

  8 Explain the influential features in the Bohra houses of Gujarat.

                                                                (8 × 5 = 40 marks)

Part B

II. Answer *all* the questions :

  1 Describe the contextual responsiveness of vernacular architecture with examples.

Or

  2 Discourse the various concepts in the study of vernacular architecture.

  3 Elucidate the evolution of early forms of Kerala architecture.

Or

  4 Explain the typology of ekasala with suitable example.

Turn over

5   Determine the architectural morphology of Christian place of worship.

Or

6   Write in detail about Kalithattu's architectural forms.

7   Discuss the significance of spatial planning with suitable examples.

Or

8   Explicate the fruition of village huts in Bengal.

(4 × 15 = 60 marks)

D 91958

Name...

Reg. No.......................................

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 12 36—THEORY OF STRUCTURES–I

(2012 Admissions)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 5 marks.

1. What do you mean by the term stress and strain and write its SI Units ?

2. Differentiate elasticity and elastic limit.

3. State the linkages of the term SFD and BMD.

4. State the different types of beam and differentiate between a cantilever and simply supported beams with neat sketch.

5. List the three methods of determining slope and deflection of a load beam.

6. Find the slope and deflection of a simply supported beam carrying point load at the centre and UDL over the entire length using moment area method.

7. List the three factors for failure of columns.

8. List the theory referred in your syllabus for columns.

$(8 \times 5 = 40 \text{ marks})$

Part B

Answer all questions.
Each question carries 15 marks.

1. A steel rod 6m long and 40mm diameter is subjected to an axial load tensile load of 60KN. Determine the change in length, diameter and volume of the rod. Take $E = 2 \times 10^5$ N/mm^2 and Poisson's ratio 0.25.

Or

2. a) Discuss the different types of stress and strains. (6 marks)

   b) A steel rod of 4cm diameter is enclosed centrally in a hollow tube of external dia 6cm and internal dia 5.5cm. The composite bar is then subjected to an axial pull of '40000N. The length of each bar is equal to 20cm. Determine the following :

   (i) Stress in the rod and tube

   (ii) Load carried by each bar.

   Take E for steel = 2×10^5 N/mm^2 and-copper 1×10^5 N/mm^2.

(10 marks)

Turn over

3. a) Write a note on simple bending and assumptions made in the theory of simple bending.

    (6 marks)

    b) A simply supported beam of length 6m rest on supports 4m apart at the right hand end is over hanging by 2m. The beam carries UDL of 1600kN/m over the entire length. Draw SF and BMD Find the point of contra flexure ?

    (10 marks)

Or

4. A cantilever of length 4m carries a UDL of 2kN/m over the whole length and a point load 3kN at a distance 1m from the free end. Draw the SF and BM diagrams for the cantilever.

5. Derive an expression for the slope and deflection of a beam subjected to uniform bending moment.

Or

6. A beam PQR of length 10m has one support at left end and other support at a distance of 6m from the left end. The beam carries a point load of 10KN at the right end. Find the slope over each support and at a right end. Find also the deflections at the right end. Take $E = 2 \times 10^5$ N/mm^2 and $I = 5 \times 10^8$ mm^4.

7. a) Write a note on slenderness ratio. State the limitations of Euler's formula ?

    (6 marks)

    b) A simply supported beam of length of 6m is subjected to a UDL of 40kN/m over the whole span and deflects 16mm at the centre. Determine the crippling load when the beam is used as a column with the following condition :

    (i) One end fixed and other end hinged.

    (ii) Both the ends are pin jointed.

    (10 marks)

Or

8. a) Determine the crippling load for T-Section of dimensions 12cm × 12cm × 3cm and of length 6m when it is used as strut with both ends hinged. Take $E = 2 \times 10^5$ N/mm^2.

    b) A solid round bar 6m long and 8cm diameter is used as strut with both ends hinged. Determine the crippling load. Take $E = 2 \times 10^5$ N/mm^2.

    [4 × 15 = 60 marks]

D 91957

Name.......................................

Reg. No................................

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 12.35—THEORY OF DESIGN—II

(2012 Admissions)

Time : Three Hours

Maximum : 100 Marks

Assume suitable data wherever necessary.

Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* the questions. Each question carries 5 marks :

   1 Express your understanding on studying architectural theory from historical perspective.

   2 Define pragmatic design.

   3 Establish the connection between society and design.

   4 What are the behavioural aspects of design ?

   5 Draw parallels between creativity and design.

   6 State the impact of computer applications on creativity and design.

   7 Mention the contemporary movements in architecture.

   8 Elucidate organic architecture.

(8 × 5 = 40 marks)

Part B

II. Answer *all* the questions. Each question carries 15 marks :

   1 Explain the concept of analogical design with suitable examples.

Or

   2 Explicate canonic design with illustrations.

   3 Discourse on design for performance with illustrations.

Or

   4 Elucidate on role of designer in the society.

Turn over

5   Provide a picturesque on issues of creative design.

Or

6   Emphasize the concepts of creativity in realistic designs.

7   Concisely outline the post-modern movements in architecture.

Or

8   Discourse deconstruction with suitable examples.

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 12 34—BUILDING CLIMATOLOGY

(2012 Admissions)

Time : Three Hours   Maximum : 100 Marks

Assume suitable data wherever necessary.

Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* the questions :

  1   Discuss the various elements of climate and climatic factors.

  2   Define humidity and vapour pressure.

  3   Express the design criteria for creating comfort in environment.

  4   Explain the concept of effective temperature.

  5   What is meant by heat load in built environment ?

  6   Elaborate on heat gain.

  7   Explain the function of ventilation.

  8   Mention the utility of ventilation ducts.

(8 × 5 = 40 marks)

Part B

II. Answer *all* the questions :

  1   Explain with examples the implications of climatic elements in design.

Or

  2   Elaborate on the global wind pattern and trade wind. Discuss their relevance in building climatology.

  3   Explicate Bio-climatic chart and its applications.

Or

Turn over

4   Demonstrate that the design of openings has a significant role in achieving comfort indices.

5   Explicate the role of materials in designing buildings for thermal comfort.

Or

6   Elaborately discuss the parameters for designing buildings for thermal comfort.

7   Define precipitation and discourse the factors associated with it in modifying climate.

Or

8   Provide a deep insight on the different prediction techniques of daylighting and their usefulness.

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 12 33—HISTORY OF ARCHITECTURE-II

(2012 Admissions)

Time : Three Hours

Maximum : 100 Marks

Assume suitable data wherever necessary.
Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* the questions :

 1 Write a brief note on any two building types of Islamic architecture.

 2 Sketch the Great Mosque of Damascus, Syria.

 3 Explain the context behind Sultan Ghari.

 4 Highlight the architecture of Tughlaq dynasty through the tomb of Ghias-ud-din.

 5 Elucidate the significance of Firoze Minar.

 6 Write short notes on Jami Masjid of Jaunpur.

 7 Explain the evolution of Mughal style in India.

 8 Sketch the tomb architecture of Humayun and name the person behind it.

(8 × 5 = 40 marks)

Part B

II. Answer *all* the questions :

 1 Explain in detail the origin and development of Islamic architecture in India.

Or

 2 Enumerate the Islamic Architecture of Persia.

 3 Islamic Architecture of: Syria and Egypt.

Or

 4 Enumerate with sketches the City of Firoz shah Kotla.

 5 Discourse on any three provincial styles with examples.

Or

 6 Explain in detail the Jami Masjid of Gujarat.

 7 Bring out the purpose and architecture behind Jahangir Mahal at Agra.

Or

 8 Describe the architecture of Jami Masjid at Delhi.

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 12 32—BUILDING CONSTRUCTION MATERIALS AND STRUCTURAL SYSTEMS

(2012 Admissions)

Time : Three Hours   Maximum : 100 Marks

Assume suitable data wherever necessary.

Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* the questions :

1   State any *two* physical and mechanical properties of concrete. Indicate any one test for concrete.

2   Write short notes on water reducing agents.

3   State the most commonly used iron-bearing minerals.

4   Write short notes on the alloys of steel.

5   Differentiate between lintels and arches.

6   Differentiate between timber truss and steel truss.

7   State the constituents of paint.

8   Briefly discuss the method of painting timber.

(8 × 5 = 40 marks)

Part B

II. Answer *all* the questions :

1   What are Admixtures ? Explain their types and uses in building industry.

Or

2   What are the tests performed to assess the workability of concrete ?

3   Explain in detail the manufacturing of iron from its ore.

Or

4   Deliberate on the heat treatment of steel.

Turn over

5   Draw and explain the concepts of jack arch and shell roof.

Or

6   With the help of neat sketches explain the details of roof covering and gutters.

7   Elaborate on the properties of paints and their application.

Or

8   Discuss on the types of distempers stating their composition and uses.

(4 × 15 = 60 marks)

D 91953

Name.......................................

Reg. No...............................

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION NOVEMBER 2020

AR 01 37—THEORY OF DESIGN—I

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** *questions.*

Each question carries 5 marks.

1. Differentiate balance and symmetry with suitable examples ?

2. What do you mean by the term Ergonomics with suitable examples ?

3. Mention any *five* contemporary building and their Architects observed from case studies ?

4. Write a note on User *vs* Furniture. With suitable Examples ?

5. What do you mean by the term concept and justify with suitable examples ?

6. Write a note design evaluation methods ?

7. What do you understand by the term "Design" in Architecture ?

8. Mention any *five* factors to be considered for visual application in kids furniture ?

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*

Each question carries 15 marks.

1. Is the graphical representation and model is-important in Architectural presentation - Justify with suitable examples.

Or

2. Explain the various stages of design development for residential design ?

Turn over

3. Discuss with suitable examples, methods of overlay in design of any projects ?

Or

4. Explain with suitable examples new techniques in analysis of spatial relation ?

5. Explain the design consideration for furniture design and service in kids play area ?

Or

6. Is the user define the spatial and functional arrangement - Express with suitable examples?

7. Building envelope as a space definer element - discuss with suitable examples ?

Or

8. Discuss the character of the interior space of any type observed from your case studies ?

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 01 35—BUILDING CLIMATOLOGY

(2004 Admissions)

Time : Three Hours   Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 5 marks.

1. (a) What are the elements of climate ?

   (b) Define micro climate.

   (c) What are the general design criteria to be considered with respect to climatology ?

   (d) Write about the mechanism of comfort in various climatic environments.

   (e) What are the factors influencing local climatic conditions ?

   (f) Explain the exchange of heat flow through building with sketches.

   (g) What is the relationship between climate and lighting ?

   (h) Explain the concept of cross ventilation and air movement in buildings.

   (8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

2. (a) Explain the classification of global climate regions with respect to design considerations.

   Or

   (b) Explain in detail the process of recording of climatic data, equipment and techniques.

3. (a) Explain the criteria for comfort indices and comfort scales in detail.

   Or

   (b) Elaborate on the impact of structural controls with design of openings of various sizes with sketches.

Turn over

4. (a) Give detailed design and planning considerations for buildings of local climate zone with examples and sketches.

Or

(b) Explain the process of conductance of heat through building envelope with relevant examples.

5. (a) What are daylight protractors ? Mention its role and uses in building design.

Or

(b) Explain briefly : Lighting, Ventilation and Dampness Control.

(4 × 15 = 60 marks)

D 91951

Name..

Reg. No................................

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 01 33—HISTORY OF ARCHITECTURE—II

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer **eight** questions.*

Each question carries 5 marks.

1. Write short notes on the architectural features of the following with sketches :

    (a) The Dome of the Rock.

    (b) The Great Mosque at Cordoba.

    (c) Provincial Style.

    (d) Architecture of the Malwa.

    (e) Japanese Architecture.

    (f) Shinto Shrines.

    (g) Buddhist Temples.

    (h) Charminar of Hyderabad.

(8 × 5 = 40 marks)

Part B

*Answer any **four** questions.*

Each question carries 15 marks.

2. Discuss and compare the style of Islamic Architecture of Syria and Egypt in detail.

3. Give an elaborate account on the architectural examples of Tughlaq dynasty with relevant sketches.

Turn over

4. Explain the architecture of Gol Gumbaz in detail with sketches.

5. Explain the salient architectural features of Akbar's Tomb in detail with sketches.

6. Elaborate Japanese Architecture with Gardens as examples.

7. Give a chronological classification and overview of architectural contribution of dynasties to Indian Islamic architecture.

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 01 32—BUILDING CONSTRUCTION–II

(2004 Admissions)

Time : Three Hours   Maximum : 100 Marks

Assume suitable data wherever necessary.
Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* the questions :

  i) What is bearing capacity of soil ? Discuss its applications.

  ii) Explain 'settlement of foundations' with its causes and effects.

  iii) Discuss the advantages of Rat Trap Bond.

  iv) Elaborate on Reinforced Brick Work.

  v) Explain how strength of bricks influence the selection of mortars.

  vi) Explain why bricks are wetted before use and why are the brick frog kept facing upwards.

  vii) Differentiate between random rubble - set dry and random rubble in cement mortar.

  viii) Briefly explain the various types of mortars used in stone masonry.

(8 × 5 = 40 marks)

Part B

II. Answer the following :

  1 (A) Explain the technicalities of wall footing and column footing with detailed sketches.

Or

  (B) Illustrate the different types of pile foundations. Differentiate between pre-cast and cast-in-situ piles.

  2 (A) Enumerate the various types of composite masonry and state the circumstance under which each type is used.

Or

  (B) Give detailed specifications of first class brick masonry in cement mortar with special reference to laying of brick, stiffness of mortar and bonding.

Turn over

3 (A)   Explain the following with their applications - batching, gauging and mixing.

Or

(B)   Explain any three different types of brick masonry arches with sketches.

4 (A)   Draw plan, elevation of the following types of stone masonry - ashlar masonry, random rubble, uncoursed rubble.

Or

(B)   Draw a neat labelled cross-section of a wall to suitable scale in ashlar facing with brick backing starting from the foundation to the coping. The section should indicate a two-storeyed building with flat roof passing through a door or window.

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 01 31—THEORY OF STRUCTURES-I

(2004 Admissions)

Time : Three Hours   Maximum : 100 Marks

Assume suitable data wherever necessary.
Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* questions :

1 State the relationship between a) Young's Modulus and Modulus of Rigidity, b) Bulk Modulus and Young's Modulus.

2 Determine the Poisson's ratio and bulk modulus of a material, for which Young's modulus is 1.2×10^5 N/mm^2 and modulus of rigidity is 4.8×10^4 N/mm^2.

3 Draw the SF and BM diagrams for the simply supported beam of length L subjected to UDL of w/m length throughout its length.

4 Write the assumptions in the theory of simple bending.

5 Sketch the bending stress distribution in a cantilever beam indicating the nature of stresses.

6 Explain in detail about moment area method for finding the deflection of structures.

7 Define strain energy theory and state the formula for strain energy and deflection due to bending.

8 A steel column is of length 8 m and diameter 600 mm with both ends hinged. Determine the crippling load by Euler's formula. Take E = 2.1×10^5 N/mm^2.

(8 × 5 = 40 marks)

Part B

II. Answer *all* questions :

1 (A) A metallic bar 250 mm × 100 mm × 150 mm is loaded as shown in figure, (i) Find the change in volume. Take E = 200 kN/mm^2 and Poisson's ratio = 0.25. Also find change the should be made in the 4000 kN, in order that there should be no change in the volume of the bar.

Or

(B) An cylindrical shell 1.5 m diameter and 4 in length is subjected to an internal pressure of 3 MPa. Calculate the minimum thickness. Find the change in diameter, Length and volume of the shell. Poisson's ratio = 0.25 and E = 2×10^5 N/mm^2.

Turn over

2 (A) An overhanging beam of span 6 m. In beam ABC is simply supported at A and B over a span of 4 m with end C being free. It carries point load of 2 kN at free end and a u.d.l. of 2 kN/m at distances 3 m and 5 m from C. The beam also has uniformly distributed loads of intensity 4 kN/m for a distance of 4m starting from C and of 6 kN/m on AB. Draw shearing force and bending moment diagram indicating all principal values.

Or

(B) A simply supported beam of span 5 m has a cross-section 150 mm × 250 mm. If the permissible stress is 10 N/mm^2, Find

   a) Maximum intensity of uniformly distributed load it can carry.

   b) Max. Concentrated load P applied at 2 m from one end it can carry.

3 (A) A simply supported beam of 6m span subjected to a concentrated load of 18 kN at 4m from the left support. Take E = 200 Gpa and I = 15 × 10^6 mm^4. Calculate : a) The position and the value of Max. Deflection : b) Slope at mid-span : c) Deflection at the load point.

Or

(B) A beam of span 4m is simply supported at the ends and carries an U.D.L. of 6kN/m length over the entire length. Determine the strain energy stored in the beam. Take E = 200 GN/m^2 and I = 1440 cm^4.

4. (A) A solid shaft in a rolling mill transmits 20 kW at 2 Hz. Determine the diameter of the shaft if the shearing stress is not to exceed 40 MPa and angle of twist is limited to 6° in a length of 3 m. Use C = 83 GPa.

Or

(B) A mild-steel tube 4 m long, 3 cm internal diameter and 4 mm thick is used as a strut with both ends hinged. Find the Euler's collapsing load, what will be the crippling load if

   i) Both ends are built in.

   ii) One end is built-in and one end is free.

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE (2017 SCHEME) EXAMINATION NOVEMBER 2021

B.Arch

AR 17 37—HISTORY OF ARCHITECTURE—II

Time : Three Hours   Maximum : 100 Marks

Part A

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

1. (a) List down the materials used for various elements in Islamic architecture.

   (b) Write short notes on Great Mosque of Damascus.

   (c) Discuss about the three royal tombs of the octagonal type built during Sayyid and Lodi dynasty.

   (d) Explain the architectural features of Qutb Minar.

   (e) What were the influences of Provincial style of Deccan ?

   (f) Give a brief account on the mosques in Bengal.

   (g) Explain the features of Humayun's Tomb.

   (h) Outline the salient features of Mughal Garden.

   (8 × 5 = 40 marks)

Part B

Answer **all** *questions.*
Each question carries 15 marks.

2. (a) Explain the architectural character of Islamic architecture with neat sketches and examples.

   Or

   (b) Discuss in detail about the morphological categories/evolution of the Mosque.

3. (a) Elucidate in detail with neat sketches about the evolution of Islamic architecture under the Slave, Khalji dynasty.

   Or

   (b) Describe in detail about the characteristic features of Islamic architecture during Tughlaq dynasty.

Turn over

4. (a) Elaborate the regional influences in Islamic architecture which spread in Gujarat with examples.

Or

(b) Discuss the architectural characteristics of Islamic architecture in Bijapur.

5. (a) Elucidate the contributions of the great emperor Akbar to Islamic architecture with neat sketches and examples.

Or

(b) Describe the architectural characteristics of the structures built during Jahangir's reign in India.

(4 × 15 = 60 marks)

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THIRD SEMESTER B.ARCH. DEGREE [2017 SCHEME] EXAMINATION, NOVEMBER 2021

B.Arch.

AR 17 36—THEORY OF STRUCTURES—II

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **eight** *questions.*

Each question carries 5 marks.

1. (a) Define Youngs modulus and elastic modulii.

   (b) Determine the relationship between stress and strain.

   (c) Define section modulus and derive the equation for $M = \sigma_{max} Z$.

   (d) Determine the section modulus for a rectangular section.

   (e) A cantilever of length 2.5 m. carries a uniformly distributed load of 16.4 KN per metre length over the entire length. If the moment of interia of the beam = 7.95×10^7 mm^4 and the value of E = 2×10^5 N/mm^2. Determine the deflection at the free end.

   (f) A cantilever of length 6 m. carries a point load of 48 KN at its centre. The cantilever is propped rigidly at the free end. Determine the reaction at the rigid prop.

   (g) Give the formula for Rankine's formula of column.

   (h) Give the assumptions of Eulers column theory for a column.

(8 × 5 = 40 marks)

Turn over

Part B

*Answer* **all** *questions.*

Each question carries 15 *marks.*

2. (a) A bar of 30 mm. diameter is subjected to a pull of 60 KN. The measured extension on gauge length of 200 mm. is 0.1 mm. and change in diameter is 0.004 mm. Calculate : (1) Young's modulus ; (2) Poisson's ratio ; and (3) Bulk modulus.

Or

(b) A rectangular block of material is subjected to a tensile stress of 110 N/mm^2 on one plane and a tensile stress of 47 N/mm^2 on the plane at right angles to the former. Each of the above stresses is accompanied by a shear stress of 63 N/mm^2 and the associated with the former tensile stress tends to rotate the block anticlockwise. Find (1) The direction and magnitude of each of the principal stress ; and (2) Magnitude of the greatest shear stress.

3. (a) A rectangular beam 200 mm. deep and 300 mm. wide is simply supported over a span of 8 m. What uniformly distributed load per metre the beam may carry, if the bending stress is not to exceed 120 N/mm^2.

Or

(b) A rolled steel joist of I-section has the dimension as shown in figure. This beam of I-section carries a UDL of 40 KN/m. run on a span of 10 m. Calculate the maximum stress produced due to bending :

200 mm.

20 mm.

360 mm.

10 mm.

20 mm.

200 mm.
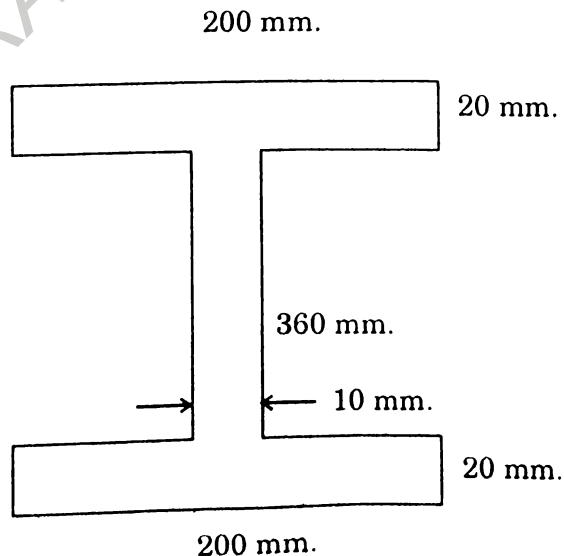
4. (a) A simply supported beam 6 m. span is subjected to two point loads of each 60 KN at one third span. The permissible bending stress for the beam material is 120 N/mm². Design the beam as a rectangular section keeping breadth as half of depth. Neglect self weight of the beam.

Or

(b) A cantilever beam of length 7 m. carries a UDL of 18 KN/m. over a length of 3 m. from free end along with a point load 2 KN at 3 m. from free end .Determine the deflection at the free end of the beam. Take E = 2.1 × 10⁵ N/mm² and I = 1.2 × 10⁸ mm⁴. by Moment area method.
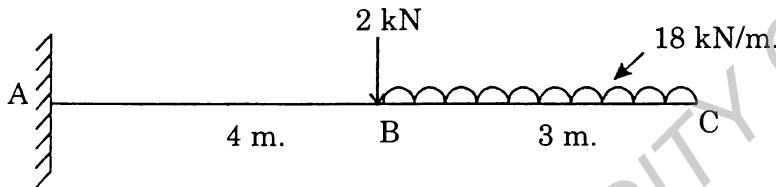
5. (a) A solid steel shaft has to transmit 100 KW at 150 RPM. Find the shear stress if the diameter is 75 mm.

Or

(b) Find the maximum torque that can be safely applied to a shaft of 120 mm. diameter if the allowable twist is 3° in a length of 1.5 m. Take C = 1 × 10⁵ N/mm².

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE (2017 SCHEME) EXAMINATION NOVEMBER 2021

B.Arch.

AR 17 34—BUILDING CLIMATOLOGY

Time : Three Hours   Maximum : 100 Marks

Part A

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

I.   1   List the Factors that determine Climate of a Place.

     2   What is a Bio-Climatic Chart ?

     3   Write a note on K-Value

     4   Explain "Temperature".

     5   Define "Heat Gain".

     6   Explain "Sun Path".

     7   Highlight the uses of Mahoney Table.

     8   Design Strategies of Cold Climate—Explain.

(8 × 5 = 40 marks)

Part B

*Answer **all** questions.*
Each question carries 15 marks.

II.   A)   List and explain in detail about the climate classifications for building designers in tropics.

Or

    B)   Explain in detail about Human body heat balance - Human body heat loss.

III.   A)   Write a detailed note on "HEAT EXCHANGE OF BUILDING".

Or

    B)   With help of sketches write a note on :

       1   SOL - AIR TEMPERATURE ; and

       2   SOLAR HEAT GAIN.

Turn over

IV. A) Explain in detail about Various External shading devices.

Or

B) Elaborate "Factor's that causes change in SUNPATH".

V. A) With the Help of sketches explain in detail design strategies of Hot and dry Climate.

Or

B) Write a note on :

    1 Stack effect ; and

    2 Artificial sky.

(4 × 15 = 60 marks)

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THIRD SEMESTER B.ARCH. DEGREE (2017 SCHEME) EXAMINATION NOVEMBER 2021

B.ARCH.

AR 17 33—BUILDING MATERIALS AND CONSTRUCTION-II

Time : Three Hours   Maximum : 100 Marks

Missing data, if any, may suitably be assumed.
Drawing sheets to be issued.

Part A

1. Write short notes on :

    a) Various types of Concrete.

    b) What is Water Cement Ratio ?

    c) What is Annealing ?

    d) Brief out Coal tarring and Electroplating.

    e) Bearing piles and Friction piles.

    f) Elaborate Timber Piles.

    g) Explain Bay window with a neat sketch.

    h) What are the different types of windows ?

                                                                   (8 × 5 = 40 marks)

Part B

2. a) (i) Explain the following terms.   (10 marks)

        i) Batching of Concrete.

        ii) Mixing of Concrete.

        iii) Placing of Concrete.

        iv) Curing of Concrete.

    (ii) Differentiate PCC and RCC.   (5 marks)

Or

Turn over

a) (ii)   What are the factors affecting workability and strength of Concrete and how of improve workability of Concrete.

(8 marks)

b)   Explain the following :

    i)   Ready-mix concrete.

    ii)   Precast concrete.

    iii)   Light - Weight Concrete.

(7 marks)

3.   a)   Explain in detail about :

    i)   Properties and uses of Cast iron.   (8 marks)

    ii)   Properties and uses of Wrought iron.   (7 marks)

Or

b)   Difference between Mild Steel and Hard Steel.   (15 marks)

4.   a)   Write short notes on the following :

    i)   Timber Piles.

    ii)   Steel Piles.

    iii)   Concrete Piles.

(15 marks)

Or

b)   Writes short notes on the following :

    i)   Precast Concrete Piles, its advantages and disadvantages.   (8 marks)

    ii)   Cast In-Situ Concrete Piles, its advantages and disadvantages.   (7 marks)

5.   a)   Write short notes with necessary sketches :

    i)   Flush door.

    ii)   Louvered door.

    iii)   Collapsible door.

    iv)   Revolving door.

(15 marks)

Or

b)   Enumerate on types of windows with neat sketches.

(15 marks)

[4 × 15 = 60 marks]

THIRD SEMESTER B.ARCH. DEGREE (2017 SCHEME) EXAMINATION NOVEMBER 2021

B.Arch.

AR 17 32—THEORY OF DESIGN–II

Time : Three Hours Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 5 marks.

1. a) Highlight the advantages and disadvantages of Iconic design.

   b) Write your observations on the design of Villa Savoye, France.

   c) Explain briefly on the role of architect in the society.

   d) How 'intuition' plays a major role in concept generation ?

   e) Write short notes in the techniques of creativity.

   f) Write down the differences between Innovation and creativity.

   g) Write short notes on Horizontality and Verticality in Wright's Prairie House.

   h) Discuss on the Organic architecture of F.L.Wright.

   (8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

2. (a) With neat sketches describe Pragmatic type of classification in design siting examples.

   Or

   (b) What do you know about 'Architectural criticism' ? Explain its role, principles and functions in architecture.

3. (a) Highlight your views on the connectivity between behavioral aspects and design with suitable examples and sketches.

   Or

   (b) Describe in detail about the design development process from identification of problem to the last stage of design.

Turn over

4. (a) Elucidate in detail about the concept of creativity, its techniques and issues related to creative design.

Or

(b) Discuss on the various impacts of computer applications on the creativity and design.

5. (a) Discuss postmodern theory with special reference to the works of Louis Sullivan.

Or

(b) Elaborate the Deconstructivism concept of Zaha Hadid with suitable examples and neat sketches.

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION NOVEMBER 2021

B.Arch

AR 12 39—BUILDING SERVICES—I

(Water Supply and Sanitation)

Time : Three Hours   Maximum : 100 Marks

Part A

Answer any **eight** *questions.*
Each question carries 5 marks.

1. Mention any *five* purposes for value of rate of demand of water any particular town ?

2. Mention any *five* methods of population forecasts for water supply ?

3. State any *five* reasons for analysis of water ?

4. Write a note on fluoridation ?

5. In what three categories the waste water treatment is classified ?

6. Define the following sewage, sewerage and sullage ?

7. Mention any *five* factors to be considered for maintenance of sewers ?

8. Sketch the man hole pit with dimension and label the parts ?

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*
Each question carries 15 marks.

1. Describe the procedure for laying and testing of sewers and state the points to be carefully attended during this process ?

Or

2. Discuss the factors to be considered for connection of drains for g + 9 floor residential building. Sketch the drainage layout plan for abovementioned residential building ?

Turn over

3. Describe the preliminary treatment of water ?

Or

4. Discuss the cause, effect and remedial solution for disposal waste water in vacant land ?

5. Explain the physical tests of water ?

Or

6. Describe the types of layout distribution of pipes ?

7. Describe the any *four* methods of forecasting population for water supply ?

Or

8. Explain the factors which affect the coefficient of runoff ?

(4 × 15 = 60 marks)

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(Pages : 2)

THIRD SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION NOVEMBER 2021

B.Arch.

AR 12-37—VERNACULAR ARCHITECTURE

Time : Three Hours   Maximum : 100 Marks

Supplement your answers with sketches.

Part A

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

I. Write Short notes on :

     a) Rudimentary hut forms in Vernacular tradition.

     b) Cave architecture as dwellings.

     c) Chatursala.

     d) Radiating rafters in roofing system.

     e) Structural system of Kerala vernacular theatre.

     f) Kalithattu.

     g) Bohra house.

     h) Jharoka in Haveli.

(8 × 5 = 40 marks)

Part B

*Answer **all** questions.*
Each question carries 15 marks.

II.   a) What are the different approaches and concepts to study the vernacular architecture in India ?

Or

     b) Vernacular architecture is the product of culture. Verify.

III.   a) Enumerate the principle of Kerala vernacular residential architecture.

Or

     b) Early palaces in Kerala Architecture were unique when compared to other parts in the country. Establish with respect to a known palace in Kerala.

Turn over

IV. a) Explain the planning and morphology of Kerala temples with an example.

Or

b) Explain the evolution of performing theatre architecture in Kerala with reference to a known example you have studied.

V. a) Architecture of Banglas (village huts) of Bishnapur in Bengal were unique with respect to their geographical location and culture. Establish.

Or

b) Explain in detail the materials and method of construction of an Haveli in Rajasthan with an example you have studied.

(4 × 15 = 60 marks)

Name...

Reg. No...................................

THIRD SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION NOVEMBER 2021

B.ARCH

AR 12 36—THEORY OF STRUCTURES—I

Time : Three Hours   Maximum : 100 Marks

Part A

Answer any **eight** *questions.*
Each question carries 5 marks.

1. Write the formula and expression for modulus of elasticity and factor of safety ?

2. What do you mean by the term principal stress and state its two methods of determining stress on oblique section ?

3. State the sign conventions for shear force and BM in general ?

4. Draw the SF and BM diagram for a simply supported beam carrying UDL of W per unit length over the entire span ?

5. State the expression for slope at the support of a simply supported beam carrying point load at centre ?

6. Write a note on Maculay's method and where it is used ?

7. State the four types of end condition of the columns ?

8. Sketch the two types of sign conventions for the bending of columns ?

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*
Each question carries 15 marks.

1. A steel rod 10 m long and 80 mm diameter is subjected to an axial load tensile load of 100 KN. Determine the change in length, diameter and volume of the rod. Take E = 2×10^5 N/MM² and Poisson's ratio 0.36.

Or

Turn over

2. (A) Write a note on Hooke's law ? (6 marks)

(B) A steel rod of 2 cm diameter is enclosed centrally in a hollow tube of external dia 10 cm and internal dia 9.5 cm. The composite bar is then subjected to an axial pull of 60000N. The length of each bar is equal to 30 cm. Determine the following :

(i) Stress in the rod and tube.

(ii) Load carried by each bar.

Take E for steel = 2×10^5 N/MM^2 and copper 1×10^5 N/MM^2 .

(10 marks).

3. A square beam 30 mm × 30 mm in section and 3 m long is supported at the ends. The beam fails when a point load of 500 N is applied at the centre of the beam. What UDL per metre length will break a cantilever of the same material 50 mm wide, 70 mm deep and 4 m long ?

Or

4. A column in rectangular in cross section of 300 mm × 450 mm in dimensions. The column carries an eccentric point load of 360 KN on one diagonal at a distance of quarter diagonal length from a corner. Calculate the stress at all four corners. Draw stress distribution for any *two* adjacent sides ?

5. What is a Macaulay's method ? Where it is used ? Find an expression for deflection at any section of a simply supported beam with an eccentric point load using Macaulay's method ?

Or

6. A beam of length 8 m and carries point load of 80 KN and 40 KN at a distance of 1 m and 4 m respectively from left support. Calculate the deflection.

Take I = 18×10^8 mm^4 and E = 2×10^5 N/MM^2.

7. A hollow cylindrical cast iron column is 5m long both ends fixed. Determine the mini diameter of the column if it has to carry a safe load of 300 KN with a factor of safety 0.5. Take a internal diameter 0.9 times the external diameter. Take 550N/MM^2 and $a = 1/1600$ in Rankine's formula.

Or

8. (A) Determine the crippling load for T-Section of dimensions 16 cm × 16 cm × 5 cm and of length 10 m when it is used as strut with both ends hinged. Take E = 2×10^5 N/MM^2.

(B) A solid round bar 10 m long and 12 cm diameter is used as strut with both ends hinged. Determine the crippling load. Take E = 2×10^5 N/MM^2.

[4 × 15 = 60 marks]

THIRD SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION NOVEMBER 2021

B.Arch.

AR 12 35—THEORY OF DESIGN—II

Time : Three Hours   Maximum : 100 Marks

Assume suitable data wherever necessary.

Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* the questions :

 1 Elucidate canonic design.

 2 Outline the historical perspectives of architectural theory.

 3 Irradiate the relation between design and society.

 4 Express the behavioural aspects of design.

 5 Enlighten on the aspects of creativity and design.

 6 Briefly state the concepts of creativity.

 7 Define Deconstruction and state any *two* architects from this movement.

 8 State five contemporary movements in architecture.

(8 × 5 = 40 marks)

Part B

II. Answer *all* the questions :

 1 Illustrate iconic design and its related aspects while discussing their significance in the society.

Or

 2 Expound analogical design while demonstrating with a historical and modern example.

 3 State your understanding on design for performance as compared to design for compliance.

Or

 4 Explicate the role of designer in the society. Draw analogy from historical perspective.

Turn over

5   Elucidate the issues of creative design with suitable examples.

Or

6   Justify the idea of computer applications having an impact on creativity and design.

7   Elucidate the origin and development of modern movements in architecture.

Or

8   Discuss in what way post-modern movements of architecture elevated the society in terms of development.

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION NOVEMBER 2021

B.Arch.

AR 12-34—BUILDING CLIMATOLOGY

Time : Three Hours   Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 5 marks.

1. Mention any five factors for seasonal change.

2. Differentiate solar radiation quantity and Quality.

3. Write a note on corrected effective temperature.

4. What do you mean by the term angle of incidence in climate ?

5. List the elements of heat flow mechanism in building.

6. Write a note on heat conductance with suitable examples.

7. Mention the functions of Ventilation.

8. List the elements of prediction techniques in day light factor.

(8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

1. Discuss the representation techniques of climatic data in design with suitable examples.

Or

2. Explain any four elements of climate with suitable examples.

3. Bring out the functional aspects of horizontal and vertical shading device with suitable examples.

Or

4. Describe the process involved to use the Mahoneys table in design. Illustrate with suitable examples.

Turn over

5. Discuss the heat gain and loss with suitable examples.

Or

6. Describe the role of building components and materials in thermal comfort observed in case studies.

7. Describe the techniques to be followed to control the day light factor in hot-dry and warm humid climate. Illustrate with suitable examples.

Or

8. Is wind direction plays vital role in orientation, location and size of opening in building ? Illustrate with familiar case studies observed during the field visit.

(4 × 15 = 60 marks)

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THIRD SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION NOVEMBER 2021

B.ARCH

AR 12 33—HISTORY OF ARCHITECTURE—II

Time : Three Hours   Maximum : 100 Marks

Part A

Answer any **eight** *questions.*
Each question carries 5 marks.

1. State any *five* Architectural character of Islamic Architecture ?

2. Write a note on construction techniques followed of mosque in Syria and Egypt ?

3. List any familiar mosque found in India ?

4. State the Architectural features of Tomb of Iltumish ?

5. State the Architecture features of provincial style ?

6. Sketch and state the Architecture features of Hawa Mahal ?

7. Sketch plan, elevation and section of TajMahal ?

8. State the Architecture features of Shahjahanabad in Delhi ?

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*
Each question carries 15 marks.

1. Is the Islamic ruler tried to bring secularism through Architecture and spatial planning - Illustrate with suitable examples ?

Or

2. Justify with suitable examples - Is structural system acts as aesthetic element rather than structural support system in Construction of any type of Mosque ad Tomb in Islamic period.

Turn over

3. Discuss the geographical and economic factors that influenced Mughal Architecture ?

Or

4. Explain the Architecture features and construction techniques of Bara Gumbad. Illustrate with neat plan and sections ?

5. Discuss the common Architectural Features in terms of spatial planning and element ornamentation found in Jama masjid in India. Illustrate with neat plan and sections ?

Or

6. Briefly, discuss the Architectural Features and construction features of Charminar in Hyderabad. Illustrate with neat plan and sections ?

7. Briefly discuss the Architectural Features and construction features of Taj mahal. Illustrate with neat plan and sections ?

Or

8. Describe the contribution of Akbar to Fathepur sikri ?

(4 × 15 = 60 marks)

THIRD SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION NOVEMBER 2021

B.Arch.

AR 12-32—BUILDING CONSTRUCTION, MATERIALS AND STRUCTURAL SYSTEM-II

Time : Three Hours   Maximum : 100 Marks

Part A

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

1. List down any five properties of concrete.

2. Mention any five material used in the manufacture pf cement concrete.

3. List the causes and effect in defects of any forms of steel used for construction industry.

4. List the different types of steel available in the market.

5. List any five market forms of steel available in the market.

6. Sketch the jack arch and label the technical terms used for construction.

7. List any five character of good paint.

8. Write down the types of varnish.

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*
Each question carries 15 marks.

1. Describe the various operations involved in the preparation of any types of concrete.

Or

2. Describe the factors affect the strength and workability of concrete.

3. Write a note on the following based on their functional aspects :

   a) Hot rolled bars.

   b) Structural steel.

   c) Stainless steel.

   d) Welded wire fabrics.

Or

Turn over

4. Design the single leaf aluminium door of any type for office room of size 3m × 4.5m. Draw the Plan, Sectional elevation in 1 : 20 scale. Any two joining details in 1 : 5 scale. Assume the necessary data.

5. Classify the types of lintel and discuss their relative use with relevant sketches.

Or

6. Design the tubular truss of the ware house of size 6mx8m and specify the roof covering material. Draw, the Plan, Sectional elevation in 1 : 20 scale. Any two joining details in 1 : 5 scale. Assume the necessary data.

7. Describe the various defects in Painting.

Or

8. a) Describe the constituents of varnish.

   b) Write a note on the process involved in white and colour washing in distemper.

(4 × 15 = 60 marks)