FOURTH SEMESTER B.ARCH. DEGREE (2017 SCHEME) EXAMINATION APRIL 2020

AR 17 47—ENVIRONMENTAL STUDIES

Time : Three Hours Maximum : 100 Marks

Part A

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

1. List the problems associated with natural resources ?

2. Write a note on desertification with suitable examples ?

3. Differentiate ecology and eco-system with suitable examples ?

4. Mention any *five* endangered species observed from your case studies in India ?

5. Mention any *five* effects of air pollution ?

6. Write a note on land slide ?

7. Write a note on water shed management with suitable examples ?

8. Write a note on waste land reclamation with suitable examples ?

(8 × 5 = 40 marks)

Part B

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

1. Is the deforestation is one of the main reason to affect the living environment of tribal people in forest eco-system. Illustrate with suitable examples ?

Or

2. Write a note on the following with suitable examples.

    (a) Land degradation.

    (b) Cause and effect of soil erosion in hilly areas.

3. Describe the characteristic features, structure and function of desert and aquatic eco-systems ?

Or

4. Is the succession of food chain is interlinked with ecological pyramid. Illustrate with suitable examples ?

Turn over

5. Explain the cause, effect and control measures of marine and thermal pollution ?

Or

6. Describe the importance and role of community participation in pollution control measures with suitable examples ?

7. Explain the advantages of renewable energy resources observed from your case studies ?

Or

8. Write a note on impact of the following in environmental studies with suitable examples :

   (a) Consumerism.

   (b) Value education.

(4 × 15 = 60 marks)

C 82695

(Pages : 2)

FOURTH SEMESTER B.ARCH. DEGREE (2017 SCHEME) EXAMINATION APRIL 2020

AR 17 46—HISTORY OF ARCHITECTURE—III

Time : Three Hours

Maximum : 100 Marks

Assume Data wherever necessary.

Part A

Answer all questions.
Each question carries 5 marks.

I. (a) How did the church plan evolve from the basilican concept ?

(b) Define clear storey and apse.

(c) What were the social changes in the early medieval periods ?

(d) How did climate and geography influence Romanesque architecture in France ?

(e) Explain the significance of flying buttresses in French gothic architecture.

(f) Mention the important socio political influences of French gothic architecture.

(g) Which phase of renaissance is called mannerist and why ? Who were the advocates of mannerist architecture ?

(h) What is counter reformation movement ? When and why did it happen ?

(8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

II. (a) Explain with sketches the various vaulting systems and its evolution and development during the early medieval period with a suitable case study.

Or

(b) Name the important spaces and their functions in the early Christian churches. Explain in detail with examples.

Turn over

III. (a) Describe the architectural character and spatial organization of the abbey auxhommes with sketches.

Or

(b) Provide a comparative analysis between the Romanesque architecture of France and Italy.

IV. (a) Explain the evolution of the structural systems in Gothic architecture with relevant examples.

Or

(b) Mention the three periods of English Gothic architecture its evolution and types of vaulting and architectural features.

V. (a) Explain the idea of revival and rebirth of renaissance through the patrons of Renaissance with examples and sketches.

Or

(b) Elaborate on English baroque architecture with examples of Christopher wren. Also list his contributions to rebuilding London after the great fire of London.

$(4 \times 15 = 60 \text{ marks})$

FOURTH SEMESTER B.ARCH. DEGREE (2017 SCHEME) EXAMINATION APRIL 2020

## AR 17 45—THEORY OF STRUCTURES—III

Time : Three Hours   Maximum : 100 Marks

Part A

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

1. What are the advantages of indeterminate structure ?

2. What are the methods of analysis of indeterminate structure ?

3. Write down the advantages of theorem of three moments.

4. What is the value of prop reaction in a propped cantilever of span 'L', when it is subjected to a UDL of w/m over the entire length ?
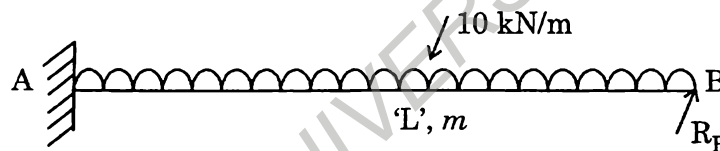
5. What are the assumptions needs in slope deflection method ?

6. What is the fundamental equation of slope deflection method ?

7. What are the advantages of continuous beam over simply supported beam ?

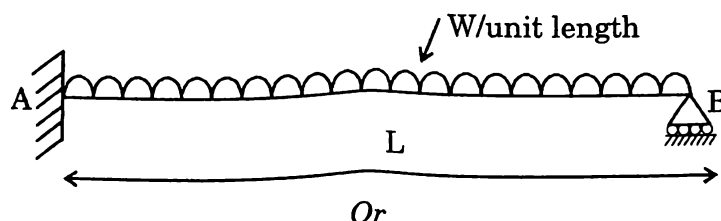8. What is the stiffness factor for simply supported beam and fixed end beam ?

                                          (8 × 5 = 40 marks)

Part B

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

9. Determine the reaction components for the propped cantilever subject to uniformly distributed load as shown in figure.
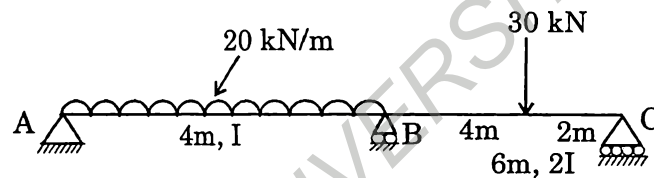

Or

Turn over

10. The cantilever beam shown in figure of span 4m is supported by a 2 m long , 3 mm diameter wire CB. Determine the force developed in the wire due to loading shown in the figure if the flexural rigidity of the beam EI = 5000 KNM^2 and Young's modulus of the wire = 200 KN/MM^2.
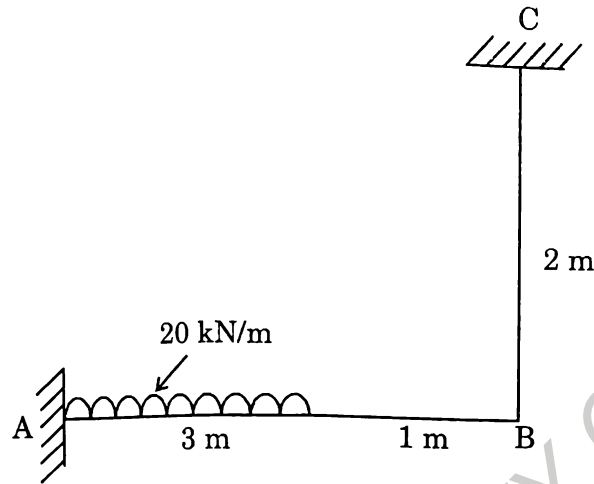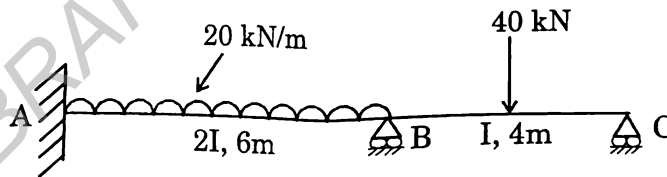

11. Analyse the two span continuous beam shown in figure using three moment theorem.

Or

12. Analyze the continuous beam shown in figure by using three moment equation. Draw the Bending moment diagram.
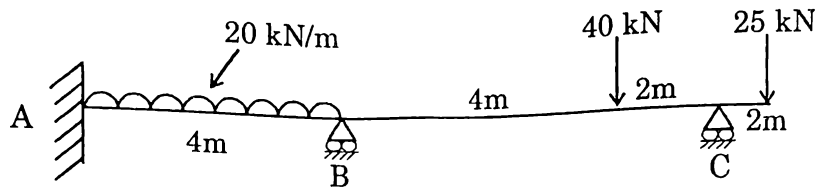

13. Analyze the continuous beam shown in figure by slope deflection method.
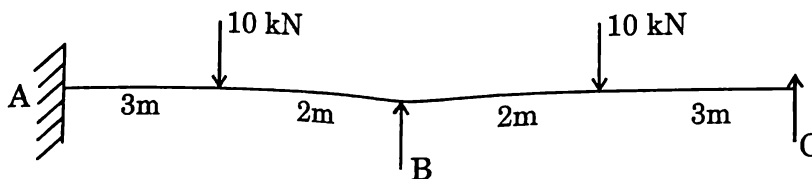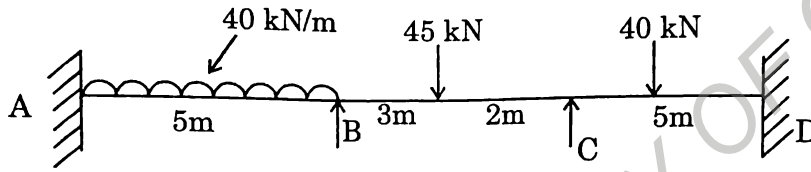

Or

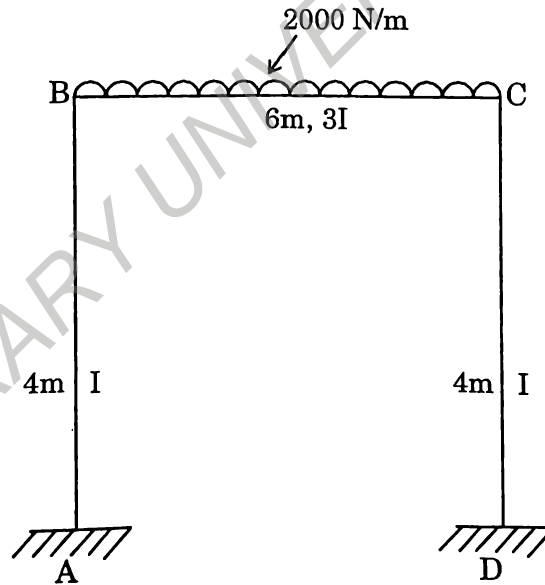14. Analyze the beam shown in figure by slope deflection method.

15. Analyze the beam by moment distribution method. Draw SFD and BMD.

Or

16. Analyze the Portal Frame by moment distribution method. Draw BMD.

(4 × 15 = 60 marks)

C 82693 (Pages : 2) Name..

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

FOURTH SEMESTER B.ARCH. DEGREE (2017 SCHEME) EXAMINATION APRIL 2020

AR 17 44—BUILDING SERVICES—I (WATER SUPPLY AND SANITATION)

Time : Three Hours   Maximum : 100 Marks

Answer all questions.
Support you answers with neat sketches, wherever appropriate.

Part A

Answer all questions.

I. Write short notes on :

   (a) Write short notes on sources of water supply.

   (b) Differentiate between Wholesome and potable water.

   (c) Explain the purpose of water quality and nature of impurities.

   (d) Give a brief account on the use of rapid sand filters.

   (e) State the significance of waste water treatment.

   (f) Sketch and write short notes on skimming tank.

   (g) Give an account on sanitary land filling.

   (h) Explain the materials used for piping system.

(8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

II. (a) Elucidate about water distribution system and calculation of water requirement.

Or

   (b) List down the various surface and subsurface sources of water supply. Explain briefly about the various factors which affect the selection of water source.

Turn over

III. (a) Explain the various stages in the water treatment process with neat sketches.

Or

(b) Sketch and explain the various water distribution layouts and its advantages and disadvantages.

IV. (a) List down the various physical, chemical and biological treatment of wastewater system. Explain any *two* of them.

Or

(b) With a neat diagram of septic tank and soak pit, explain the process taken place.

V. (a) Outline the features of any *two* types of standard sanitary fittings used in house drainage system with sketches.

Or

(b) Explain in detail the essential criteria followed for planning of toilets in multistoried buildings.

(4 × 15 = 60 marks)

C 82692

(Pages : 2)

FOURTH SEMESTER B.ARCH. DEGREE (2017 SCHEME) EXAMINATION APRIL 2020

AR 17 43—BUILDING MATERIALS AND CONSTRUCTION—III

Time : Three Hours   Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 5 marks.

1. Differentiate reinforced and unreinforced masonry system with examples.

2. Sketch the types of partition wall systems.

3. Sketch the one and two way slab and state it's any *two* functions.

4. Sketch any *two* wooden connections and label its parts.

5. Sketch any *five* types of roof ?

6. Write a note space frame and write its advantages.

7. Sketch the types of vertical transportation.

8. Sketch the section through ramp for institutional buildings and label its dimension and parts ?

(8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

1. Describe the types of arches and state its construction techniques and functions with suitable sketches.

Or

2. Explain the functional characteristics of framed structures with examples.

3. Describe the types of steel systems referred in your syllabus.

Or

4. Draw the plan of a room size 3 m. × 4.5 m. and section through wall and label its dimension and building parts, where rcc used for foundation and bricks used for wall in 1 : 20 scale ?

Turn over

5. Differentiate the functional characteristics of king and queen post truss with suitable examples.

Or

6. Write a note on the following with suitable examples :

   (a) FRP and RMP in roof covering systems.

   (b) Sketch the roof drainage systems and factors to be considered for roof drainage systems.

7. Design the steel stair case for residential building of room height 3 m. Draw the plan, section and baluster fixing details in suitable scale. Assume the necessary data.

Or

8. Design the capsule lift for commercial building of G + 7 floors. Floor height of each floor is about 3.6 m. Draw the plan, section and pit room details in suitable scale. Assume the necessary data.

(4 × 15 = 60 marks)

FOURTH SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION APRIL 2020

AR 12 46—THEORY OF STRUCTURES—II

Time : Three Hours   Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 5 marks.

1. Differentiate statically determinate and indeterminate structures.

2. Mention any *five* application of three-moment equation.

3. Write a note on slope deflection.

4. Sketch the continuous beam and list any *three* factors to be considered in analysis of continuous beam.

5. Differentiate hogging and sagging moments in beams.

6. List the factors to be considered to analysis the multi-storeyed frames.

7. Write a note on shape factor in plastic theory.

8. Write a note on plastic theory.
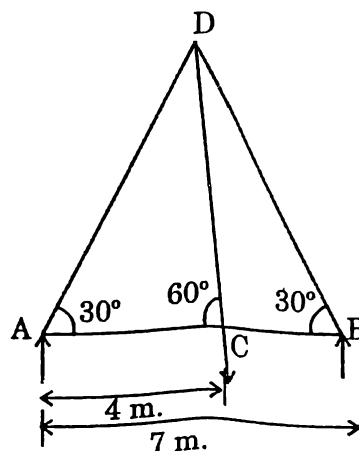
(8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

1. Derive the three moment equation.

Or

2. A truss of span 7 m. carries a point load of 2 KN at joint C as shown in figure. Find the reactions and forces in the member of truss ?
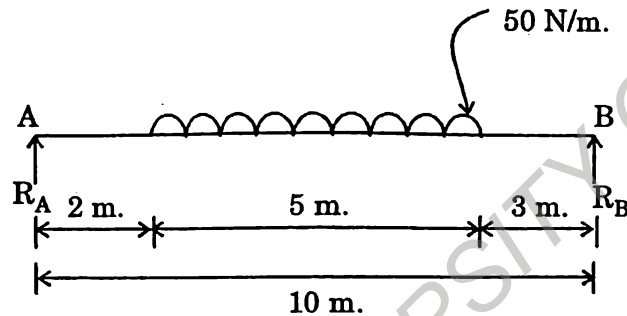

Turn over

3. A beam of length 10 m. is simply supported at Its end. It carries UDL of 50 KN/m. Determine the following :

    (a)   Deflection of beam at its mid-point.

    (b)   Maximum deflection.

    Take $E = 2 \times 10^5$ N/MM^2 and I. $= 4.5 \times 10^8$ MM^4.

Or

4. A continuous beam ABC consists of two consecutive spans AB and BC of length 10 m. and 6 m. respectively. The beam carries UDL of 1 KN/m. through its length. The end A is fixed and the end C is simply supported. Find the support moments and reactions. Also draw the SF and BM Diagrams.

5. A Cantilever beam of length 5 m. carries a UDL of 1 KN/m. run over the whole length and point load of 2 KN/m. at a distance of 1 m. from the free end. Draw the SF and BM Diagrams for cantilever beam.
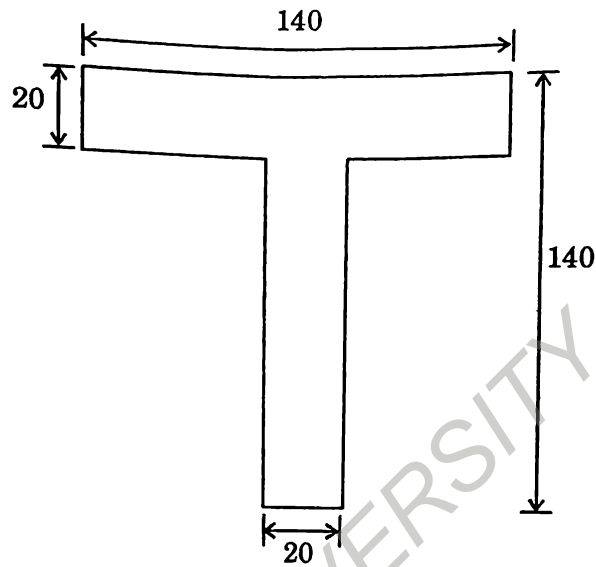
Or

6. A simply supported beam of length 10 m. carries point loads of 5 KN, 12 KN, 9 KN, at a distance of 3 m., 4 m., 3 m. respectively from left end A. Draw the SF and BM Diagrams for simply beam.

7. Describe the analysis of beam by equilibrium and mechanism method based on plastic theory ?

Or

8. Determine the shape for following figure :

(4 × 15 = 60 marks)

FOURTH SEMESTER B.ARCH. DEGREE (2017 SCHEME) EXAMINATION APRIL 2020

AR 17 42—SITE SURVEYING AND ANALYSIS

Time : Three Hours 	Maximum : 100 Marks

Assume data wherever necessary.

Part A

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

a) Describe briefly chain surveying.

b) What are the secondary classification of surveying ?

c) Explain the advantages and disadvantages of Total station.

d) What is theodolite surveying and explain its classification.

e) What is site grading ? List the various factors to be considered for site grading.

f) Write a short note on Cultural and Aesthetic factors of a site.

g) Explain on street and off street parking with sketches.

h) Explain the classification and hierarchy of roads with the help of sketches.

(8 × 5 = 40 marks)

Part B

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

I. a) Explain briefly the purpose and principal of Compass surveying. What are the two types of compass compass survey ?

Or

b) Distinguish between Geodetic surveying and plane surveying. Explain the primary and secondary classification of surveying.

II. a) Explain in detail the functions performed by total station.

Or

b) Explain total stations application in surveying and write a short note on precautions to be taken while using total station.

Turn over

III. a) What are the vegetation and climatic aspects influencing a site.

Or

   b) Explain in detail the methods of surface drainage with heat sketches.

IV. a) Illustrate the types of parking with a help of neat sketches.

Or

   b) List down the factors to be considered for the developing a site of your choice for a shopping centre in a city.

(4 × 15 = 60 marks)

FOURTH SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION APRIL 2020

AR 1245—SOCIOLOGY AND ECONOMICS

Time : Three Hours   Maximum : 100 Marks

SOCIOLOGY

Part A

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

1. What do you mean by the term process, how it is structured in sociology ?

2. Write a note on primary concept of community ?

3. Write the merits and demerits of socialisation ?

4. List the five factors for social change ?

(4 × 5 = 20 marks)

Part B

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

1. Discuss with suitable examples factors deteriorating the social concepts in present day life ?

Or

2. Write a note on the following in sociology with suitable examples :

    a) Accommodation.

    b) Assimilation.

3. Write a note on the following with suitable examples :

    a) Social disorganization.

    b) Social problems.

Or

4. Describe the cause and effect of faulty socialization with suitable examples.

(2 × 15 = 30 marks)

Turn over

ECONOMICS

Part A

Answer all questions.
Each question carries 5 marks.

1. Write a note on determinants of supply.

2. Write a note on even break analysis.

3. Write a note on sinking fund factor.

4. Write a note on benefit cost ratio.

(4 × 5 = 20 marks)

Part B

Answer all questions.
Each question carries 15 marks.

1. Write a note on the following :

   a) Law of demand.

   b) Law of supply.

Or

2. Discuss the factors affecting the price elasticity of demand.

3. Discuss the factors to be considered for investment criteria. Illustrate with suitable examples.

Or

4. a) Calculate the EMI for house cost of Rs. 25,00,000.

   Initial payment of Rs. = 3,00,000.

   Interest rate - 8.6/year.

   Loan tenure 7 years.

   b) The saver requires Rs. 10,00,000 at the end of 16 years for his daughter. Bank interest of 8.4 % / year.

   Find the compound interest in monthly and yearly.

[2 × 15 = 30 marks]

FOURTH SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION APRIL 2020

AR 12 44—LAND SURVEY

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 5 marks.

1. Write a note on purpose of field notes in surveying.

2. How to find local attractions in surveying ?

3. List the purpose of two and three points in plane table survey.

4. Write a note on auto level in levelling.

5. What do you mean by the term repetition in theodolite survey with suitable examples ?

6. Write note on movable hair method in tachometric survey.

7. Mention any four determinants for excavation quantities.

8. Express the trapezoidal and prismodial formula to calculate volumes.

(8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

1. How the Total station survey is different from other types of survey referred in your syllabus ?
   Write a note on computation and ordinates in TSS.

Or

2. A railway embankment of length 500m, width at formation level 9m, and side slopes 2:1 is to be constructed. The ground levels every 100m along the centre line are :

Distance (M)	:	0	100	200	300	400	500
GL- M	:	107.8	106.3	110.5	111.0	110.7	112.2

   The embankment has a rising gradient of 1.2m per 100m and the formation level is 110.5 m at zero chainage. Assuming the ground to be level across the centre line , compute the volume of earth work.

Turn over

3. Explain the different methods in tachometric survey.

Or

4. The following bearings were observed in compass traverse.

Line	Fore Bearing	Back Bearing
AB	305°00'	125°30'
BC	75°30'	254°30'
CD	115°30'	297°00'
DE	165°35'	345°30'
EA	225°00'	44°00'

At which of these stations would local attraction be suspected? Find the corrected bearings of the lines. Find also the true bearings of the lines, if the magnetic declination is 4°30'W.

5. Explain the procedure to follow LS and CS contouring and plotting.

Write a note on the two auto levels with suitable examples.

Or

6. Following consecutive readings were taken with a level 0.250, 0.380, 0.520, 2.345, 1.695, 0.240, 0.580, 1.225, 2.100. The instrument was shifted after the 5th and 7th reading. Prepared level book and calculate RL of different points. The RL of the first point is 200.00m.

7. Explain the general criteria to be considered to conduct any type of land survey and explain the procedure to be followed to conduct chain survey.

Or

8. A) What is compass survey and write its principles ?

   B) Write a note on the purpose of prismatic and surveyors compass.

(4 × 15 = 60 marks)

FOURTH SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION APRIL 2020

AR 12 43—HISTORY OF ARCHITECTURE–III

Time : Three Hours   Maximum : 100 Marks

Part A

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

1. Write a note on surface treatment in early Christian Architecture.

2. Write a note on salient features of French Romanesque Architecture with suitable examples.

3. Mention any four examples of gothic Architecture referred in your syllabus.

4. Write a note on ornamentation critique by Adolf loof.

5. Differentiate pointed and ribbed vaults in terms of its structural features.

6. Mention the causes and impact of industrial revolution during post renaissance period.

7. List any five modern Architects and their works.

8. Write a note on impressionism.

(8 × 5 = 40 marks)

Part B

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

1. Describe the Architectural features and planning principles of Pisa Cathedral complex with suitable sketches ?

Or

2. Byzantine Architecture is known for its massive domes with square base. Illustrate with suitable examples.

3. Bring out differences identified in the Architectural features in terms of its spatial organization and planning features of renaissance styles referred in your syllabus.

Or

4. Discuss the Architectural philosophy and its implication in projects of by Indio Jones.

Turn over

5. Describe the engineering technology coherence with Architectural features in the crystal palace. Illustrate with suitable examples.

Or

6. Briefly describe art and craft movement with suitable examples.

7. Is the commercial style is another name of Chicago school of Architecture thought. Illustrate the statement with suitable examples.

Or

8. Discuss the design thought of Le Corbusier. Illustrate with suitable examples.

(4 × 15 = 60 marks)

FOURTH SEMESTER B.ARCH. DEGREE (2012 SCHEME) EXAMINATION APRIL 2020

AR 12 42—BUILDING CONSTRUCTION MATERIALS AND STRUCTURAL SYSTEM–III

Time : Three Hours   Maximum : 100 Marks

Part A

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

1. State any five composition of glass.

2. Mention any five preventive measures taken into consideration for glazing.

3. Mention any five technical terms used in stair case.

4. Sketch the newel post fixing details and label its dimension and parts.

5. List and sketch the components of lifts.

6. List the types of escalators.

7. List any five modern equipment's used for construction of high rise building.

8. Write a note on masons scaffold.

(8 × 5 = 40 marks)

Part B

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

1. Is the "glass "in the building determine the aesthetic appearance of the built structure. Illustrate the statement with suitable examples.

Or

2. Discuss the application and characteristics of glass in building blocks with suitable sketches.

3. Design the Rcc staircase for commercial building of G+ 9 floors, each floor is about height 4.5m. Draw the plan, section and detail out the fixing of baluster and hand rail in the staircase.

Or

4. Briefly discuss the classification of staircase.

Turn over

5. Draw to suitable scale and suggest lift size of 12 person's capacity for hospital building. Draw the plan and section of lift core and detail out the lift pit and machine room.

Or

6. Briefly describe the factors to be considered for the construction of escalator for commercial building.

7. Compare the advantage and disadvantage of timber and steel scaffolding.

Or

8. List and describe the any four operational characteristics of equipment referred in your syllabus.

(4 × 15 = 60 marks)

Name..

Reg. No..

FOURTH SEMESTER B.ARCH. DEGREE (2004 SCHEME) EXAMINATION APRIL 2020

AR 01 46—THEORY OF DESIGN–II

Time : Three Hours

Maximum : 100 Marks

Illustrate your answers with neat and relevant sketches.

Part A

Answer all questions.
Each question carries 5 marks.

1. Write short notes on :

    (a)   Pragmatic design.

    (b)   Iconic Design.

    (c)   Designing public spaces for elderly people.

    (d)   Problems of non-user-centric design.

    (e)   Organic architecture.

    (f)   Creativity in architectural design.

    (g)   One example of Postmodern building.

    (h)   Systems theories.

(8 × 5 = 40 marks)

Part B

Answer any four questions.
Each question carries 15 marks.

2. Through examples of famous buildings, explain the analogic mode of design.

3. Explain canonic approach to design.

4. What role does a designer play in society ?

5. How does an architect design for performance ?

6. What are the architectural characteristics of buildings of the Modern movement ?

7. What led to the rise of Deconstructivism ? Describe outstanding examples of this style of architecture.

(4 × 15 = 60 marks)

FOURTH SEMESTER B.ARCH. DEGREE (2004 SCHEME) EXAMINATION APRIL 2020

AR 01 44—HISTORY OF ARCHITECTURE—III

Time : Three Hours

Maximum : 100 Marks

Illustrate your answers with neat and relevant sketches.

Part A

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

1. Write short notes on :

    (a) Old St. Peter's Basilica.

    (b) Pendentives.

    (c) Dome of Florence Cathedral.

    (d) Contributions of Palladio.

    (e) Organic architecture.

    (f) Contribution of Adolf Loos.

    (g) Mies van der Rohe.

    (h) Alvar Alto.

(8 × 5 = 40 marks)

Part B

*Answer any **four** questions.*
Each question carries 15 marks.

2. Describe the architecture of the Church of Notre-Dame La Grande at Poitiers.

3. Explain the structural elements of Gothic churches.

4. What are the factors that led to the rise of the architectural style of the Renaissance period ?

5. Explain the architecture of St. Peter's Cathedral.

6. Describe Louis Sullivan's contributions.

7. What are the contributions of Chicago School ?

8. Discuss Oscar Niemeyer's works.

9. Explain B.V. Doshi's contributions to architecture in India.

(4 × 15 = 60 marks)

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

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

FOURTH SEMESTER B.ARCH. DEGREE (2004 SCHEME) EXAMINATION APRIL 2020

AR 01 43—BUILDING CONSTRUCTION-III

Time : Three Hours   Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 5 marks.

1. List down the process involved in the construction by using concrete as material.

2. List down the roof covering material referred in your syllabus.

3. What are the types of floor covering referred in your syllabus ?

4. State the different types of RCC Floors.

5. Sketch the window and label its parts.

6. Write down the types of ventilators.

7. What do you mean by term dampness ?

8. Sketch the expansion joints.

(8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

1. Draw the plan and section of RCC Foundation and roof slab for room size 3 m × 4.5 m in suitable scale. Assume the necessary data.

Or

2. Briefly explain the types of truss with suitable sketches.

3. a. Explain through sketches the process involved in construction of jack arch.   (10 marks)

    b. Write a note on parquet flooring.   (5 marks)

Or

4. Explain through sketches the process involved in the laying techniques involved in the construction of fixing details.

Turn over

5. Draw the plan, elevation, section and any two fixing details of timber door of size 1.2 m × 2.1 m. Assume the necessary data.

Or

6. Draw the plan, elevation, section and any two fixing details of aluminium door with glass partition of size 1.2 m × 2.1 m. Assume the necessary data.

7. Explain the types of DPC methods to prevent the leakage in roof.

Or

8. a) Write a note on solid and cavity walls. (10 marks)

 b) Sketch the damp proof of floors observed from the case studies. (5 marks)

[4 × 15 = 60 marks]

FOURTH SEMESTER B.ARCH. DEGREE (2004 SCHEME) EXAMINATION APRIL 2020

AR 01 42—LAND SURVEYING AND PRACTICAL

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 5 marks.

1. List any *five* secondary classification of surveying.

2. Differentiate arbitrary and grid meridian in survey.

3. Write any *four* principles of plane table survey.

4. List the accessories of plane table survey.

5. List any *five* purpose of theodolite survey.

6. What are the permissible errors ?

7. What do you mean by the term photogrammetry ?

8. Write any *four* principles of photogrammetry survey.

(8 × 5 = 40 marks)

Part B

Answer all questions.

Each question carries 5 marks.

1. Describe the field procedure to be followed to conduct chain survey with suitable sketches ?

Or

2. List the instruments required and procedure to be followed in plotting ?

3. What is two point problems ? Explain with a neat sketch, the procedure of solving two-point problem in plane table surveying ?

Or

4. The following readings are successively taken with a level :

0.355, 0.485, 0.625, 1.755, 1.895, 2.350, 1.780, 0.345, 0.685, 1.230, and 2.150.

The instrument as shifted after the fourth and seventh readings. Prepare a level book and calculate the RLs of different points. The RL of the first point is 255.500 m.

Turn over

5. (a) Why theodolite is called transit theodolite and list its essential parts of theodolite ?

(8 marks)

   (b) Discuss the function of temporary and permanent adjustments in theodolite survey ?

(8 marks)

Or

6. Describe the procedure to be followed to conduct tachometric survey with suitable examples ?

7. (a) Write down the functions and principles of ground and aerial photogrammetry ?

(8 marks)

   (b) Discuss the methods of aerial survey ?   (8 marks)

Or

8. Explain the procedure to be followed in computation of areas for residential projects. Illustrate with suitable examples ?

[4 × 15 = 60 marks]

FOURTH SEMESTER B.ARCH. DEGREE (2004 SCHEME) EXAMINATION APRIL 2020

AR 01 41—THEORY OF STRUCTURES—II

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** *questions.*

Each question carries 5 marks.

1. Write short notes on Strain energy.

2. What is meant by bending shear and torsion ?

3. What are the three classification of total degree of indeterminacies ?

4. Write short notes on sway type of Frames.

5. List all the methods falling under the two categories of Methods of analysis.

6. Write down the equation of External Indeterminacy and provide of expansion of the same.

7. Draw the diagram representing a three-hinged stiffening girder with a span L, supported at the ends and connected to the cable. Suppose the girder is subjected to any external load system P_1, P_2 and W_e per unit run be the uniformly distributed load transferred to the cable.

8. Write short notes on Displacement factor.

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*

*Each question carries 15 marks.*

1. Explain the Castigliano's theorem of deflation.

Or

2. Describe the Muller Bre Stan's principle.

3. A beam ABCD is fixed at A and D and simply supported at B and C.

The span lengths AB = 4m, BC = 6m, and CD = 6m. The beam AB carries a uniformly distributed load of 1.2 kN/m on its full length, span BC carries a concentrated load of 8 kN at its mid span and the span CD carries a concentrated load of 9 kN at a distance of 2m from C. Assuming uniform section over the entire length, determine the moments at the supports by moment distribution method and sketch the bending moment diagram. Also find the reaction at the support C.

Or

Turn over

4. Analyze by Force method and draw the shear force and bending moment diagram for the beam shown in figure below :
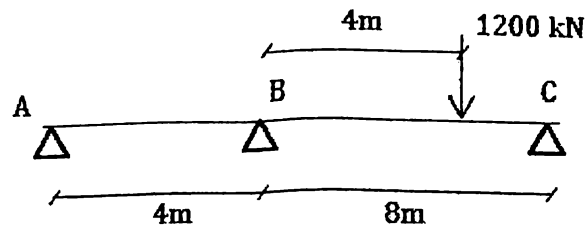
5. A continuous beam ABC is fixed at A and C and simply supported at B. It consists of spans AB and BC of lengths 3m and 5m respectively. The span carries a uniformly distributed load of 8kN/m over its whole length while the span BC carries a uniformly distributed load of 6 kN/m over its whole length.

   Use slope deflection method and draw the B.M. and S.F. diagrams for the beam, indicating the values at the salient points.

Or

6. A two-span continuous beam is fixed at A and C while simply supported over B. The lengths of span AB and BC are 6 m and 4 m respectively. The span AB carries as u.d.l. of 20 kN/m and the span BC carries a point load of 80 kN at its mid-point. Using Kani's method, Calculate the moments at the supports. Assume uniform flexural rigidity of the beam.

7. A suspension bridge cable of span 80 m and central dip 8 m is suspended from the same level at two towers. The bridge cable is stiffened by a three-hinged stiffened girder which carries a single concentrated load of 10 kN at a point 20 m from the left end. Sketch the S.F. Diagram for the girder.

Or

8. A light flexible cable shown in the figure below is supported at two ends at the same level and 20 m apart. The cable is subjected to a load of 100kN at a distance of 5m from A. If the dip under the load is 4.5 m, then determine the horizontal component of tension in the cable. Also determine maximum tension in the cable.

(4 × 15 = 60 marks)