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

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FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION
NOVEMBER 2020

AR 17 57—SPECIFICATION, ESTIMATION AND COSTING

(2017 Admissions)

Time : Three Hours

Maximum : 100 Marks

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

Part A

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

1 Discuss the different types of specification in detail.

2 What are the methods of taking out estimates ?

3 Describe centre line method.

4 What are the factors to be considered while preparing detailed estimate ?

5 What is analysis of rates ? Briefly illustrate the schedule of rates.

6 What are the important factors influencing the value of building ?

7 Explain Floor area and Carpet area.

8 An approach road 2 Km. long is to be constructed. Work out the quantity of materials required i.e. stone metal and bricks. Data is given below. Length = 2 Km. Metalled width = 3.60 m. Soiling of bricks = 10 cm. Wearing coat of stone metal = 12 cm.

(8 × 5 = 40 marks)

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

9 Write down the general Specifications of 1st class Building.

Or

10 Prepare an approximate Estimate of a proposed building from the following :

Given Data :

* Plinth area of the building = 226 sqm.

* Cost of the structure = 2500 per sqm

* Water supply and sanitary arrangements = 12½ %.

* Electrification = 7 %.

* Fluctuation of rates = 5 %.

* Petty supervision charges = 3 %.

Turn over

11. Calculate the Quantity of material for the following items :

    (a) R.C.C (1 : 2 : 4) for 10m^3 of work.

    (b) Lime Concrete in foundation with 25 mm. down brick chips (or jhama chips) with lime surki mortar (1 : 2 : 5½) 10 m^3 of work.

                                            Or

12. Write the detailed estimate for the following items using long walls and short walls method. Assume the necessary data. (Refer the building plan and section figure 1 on 3rd Page).

    Given Data :

    • Concrete B.B. in mud mortar in foundations and plinth.

    • B.B. in mud mortar in superstructure.

    • Flooring 4 cm. thick over 10 cm. thick cement concrete over 10 cm. thick sand.

13. Examine in detail about various methods of calculations Depreciation.

                                            Or

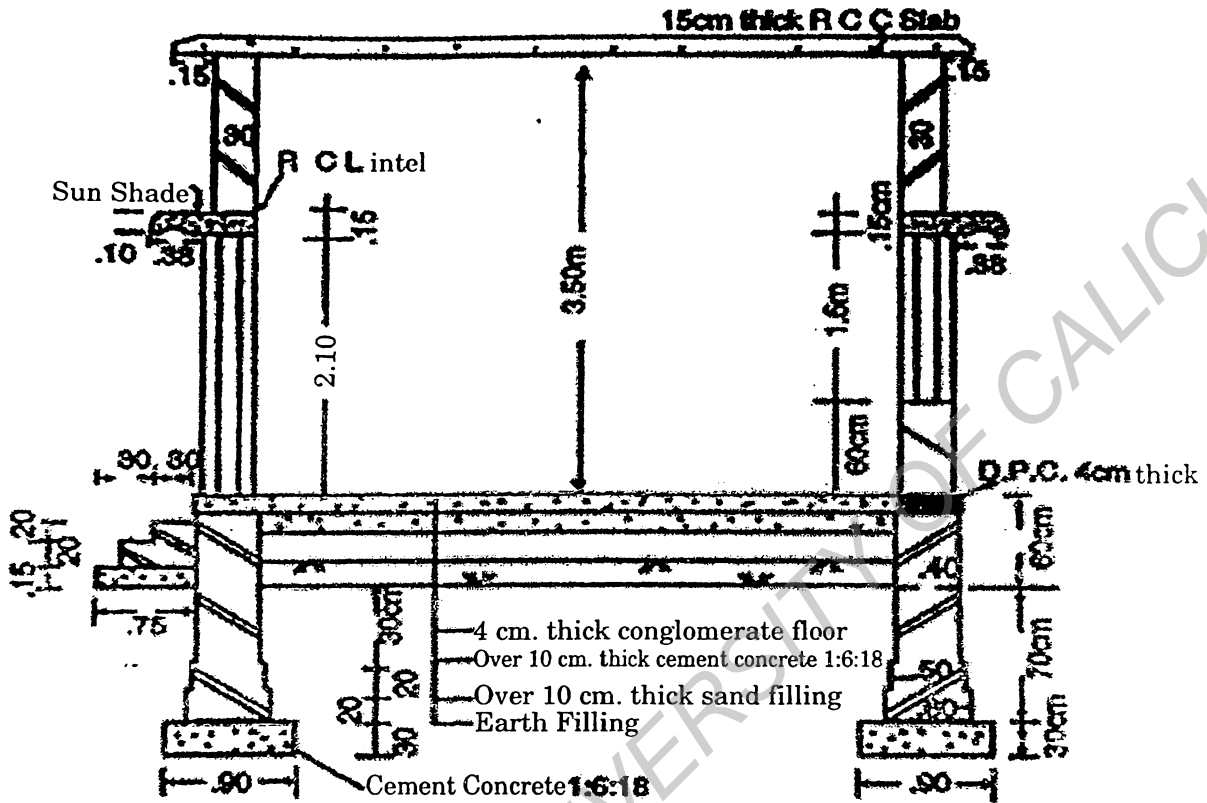14. Explain in detail about various methods of Valuation ?

15. Explain the roles and responsibilities of architect in construction industry.
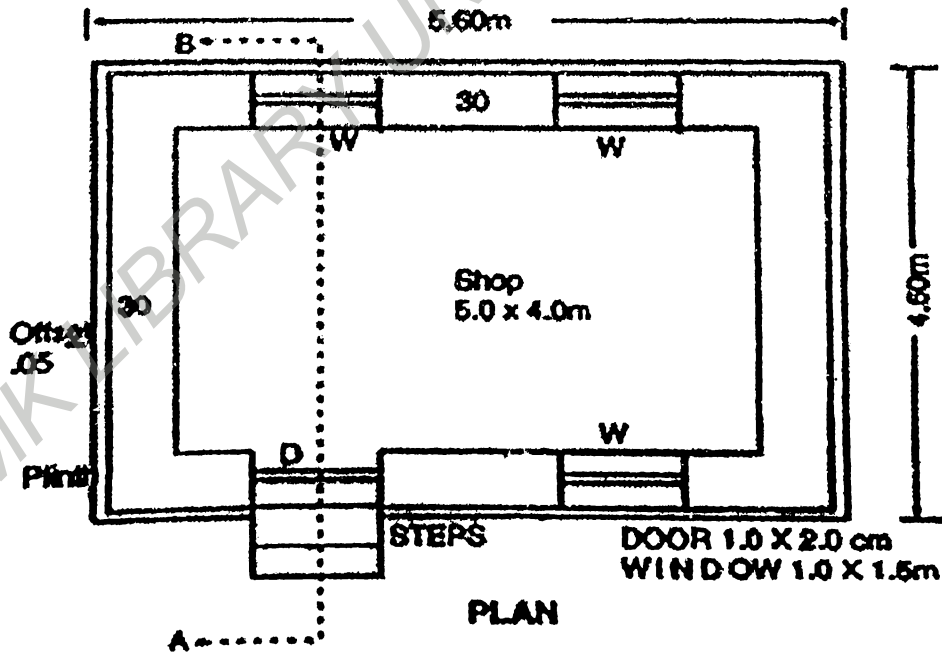
                                            Or

16. Discuss the approaches to Cost Estimation in a project.

                                                              (4 × 15 = 60 marks)

SECTION ON AB

15cm thick R C C Slab

Sun Shade

R C L intel

3.50m

2.10

1.5m

15cm

60cm

D.P.C. 4cm thick

60cm

70cm

30cm

4 cm. thick conglomerate floor
Over 10 cm. thick cement concrete 1:6:18
Over 10 cm. thick sand filling
Earth Filling

Cement Concrete 1:6:18

.90   .90

PLAN

5.60m

4.60m

Shop
5.0 x 4.0m

W

W

W

D

STEPS

Plinth

DOOR 1.0 X 2.0 cm
WINDOW 1.0 X 1.5m

Figure 1

(Pages : 2)

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FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION
NOVEMBER 2020

AR 17 56—HISTORY OF ARCHITECTURE—IV

(2017 Admissions)

Time : Three Hours

Maximum : 100 Marks

Assume suitable data wherever necessary.

Substantiate with suitable sketches wherever required.

Part A

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

1 What is meant by Neo-classicism ?

2 Discuss the origin of Art Nouveau.

3 State the prominent characteristics of Cubism.

4 What is Constructivism ? Name any *one* architect from this movement.

5 Define Critical Regionalism.

6 Discuss the philosophy of Paulo Soleri.

7 Name the architect and explain any two features of 2012 Olympics and Zaragoza Bridge Pavilion.

8 Who designed World trade Centre, New York ?

(8 × 5 = 40 marks)

Part B

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

1 Discuss the industrial revolution and its impact on emergence of new architectural era.

Or

2 Explain the advent of new materials - steel, glass, concrete during the origin of modernity.

Turn over

3. What were the ideologies of Richard Neutra ? How are they revealed in the Kaufmann Desert House at California.

Or

4. Who designed the Finlandia Hall ? Explain the architectural philosophies of that architect.

5. Discourse on Post Modernism and International Style.

Or

6. Describe the architecture of Paul Rudolph through his buildings.

7. Define Deconstructivism. Explain any *two* architects and their project demonstrating this style.

Or

8. Explain the architecture of Jorn Utzon through Sydney Opera House.

(4 × 15 = 60 marks)

FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 17 55—DESIGN OF STRUCTURES

(2017 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   What is under reinforced section and over reinforced section ?

2   What is singly reinforced section and doubly reinforced section ?

3   Write short notes on Cracking in structural members.

4   What are the important factors affecting the shear resistance of a reinforced concrete member without shear reinforcement ?

5   Why is secondary reinforcement provided in one way RC slab ?

6   Name the two types of two-way slabs. Explain their difference in the design of slabs.

7   Write about percentage of reinforcement for columns and List out the IS recommendations regarding longitudinal reinforcements in Columns.

8   What is punching shear in a RCC footing ?

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

Part B

I. Answer *all* questions :

1 (A) Design a RC beam 350 × 700mm effective section, subjected to a bending moment of 300kNm. Adopt M20 concrete and Fe415 steel.

Or

(B) Calculate the area of steel of grade Fe 415 required for section of 250mm wide and overall depth 500mm with effective cover 40mm in M20, if the limit state of moment be carried by the section is : a) 100 KN ; b) 146 KN ; c) 200KN.

Turn over

2 (A) Determine the moment of resistance of an existing beam having the following data :
       b = 350 mm ; d = 900mm ; d' = 50mm. Tension reinforcement : 5-20mm HYSD bars (Fe
       415) ; compression reinforcement 2-20 HYSD bars (Fe 415) ; grade of concrete M15.

Or

 (B) A reinforced concrete beam 250 mm wide and 400 mm effective depth is subjected to
      ultimate design shear of 150KN at the critical section near the supports. The tensile
      reinforcement at the section near the supports is 0.5%. Design the shear stirrups near the
      supports. Also design the minimum shear reinforcement at the mid span. Use M20 concrete
      and Fe 250.

3 (A) Design a simply supported one -way slab over a clear span of 3.5 m. It carries a live load of
       4 kN/m² and floor finish of 1.5 kN/m². The width of supporting wall is 230 mm. Adopt
       M-20 concrete & Fe-415 steel.

Or

 (B) Design the slab panel of 4m × 6m subjected to factored live load of 8 kN/m² in addition to
      its dead load using M 20 and Fe 415. The load of floor finish is 1 kN/m². The corners of the
      slab are prevented from lifting.

4 (A) A braced reinforced concrete column of circular cross-section of 500mm diameter is to
       support a factored axial load of 2250 kN along with a factored moment of 160 kNm. The
       unsupported length of the column is 6.3m effective length of 5.5m. Design the column
       when it is to be provided with : Lateral ties and Spiral reinforcement. The M25 grade of
       concrete and HYSD steel bars of grade Fe415.

Or

 (B) Design an isolated footing of uniform thickness of a RC column bearing a vertical load of
      600 KN and having a base of size 500 × 500 mm. The safe bearing capacity of soil may be
      taken as 120 KN/m². Use M20 concrete and Fe 415 steel.

                                                              (4 × 15 = 60 marks)

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FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 17 54—BUILDING SERVICES—II

(LIGHTING AND ELECTRICAL SERVICES)

(2017 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   Explain the significance of studying electrical services.

2   What are the commonly used terminologies in electrical services ?

3   What is meant by distribution system ?

4   Define Panel boards.

5   What are the commonly used terminologies in illumination ?

6   State the measurement of luminous flux.

7   What is point source ?

8   Explain row lighting.

(8 × 5 = 40 marks)

Part B

II.   Answer *all* the questions :

1   Elucidate the components of a sub-station.

Or

2   Elucidate the electrical system in high rise buildings.

3   Provide a detailed description on underground and overhead-cabling systems.

Or

4   Differentiate between surface and concealed wiring systems.

Turn over

5   Explain the laws of illumination.

Or

6   Explicate direct luminary systems.

7   Explain the sources of illumination-point source and row lighting.

Or

8   Discuss area illumination and evaluation of total flux.

(4 × 15 = 60 marks)

FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 17 53—BUILDING MATERIALS AND CONSTRUCTION—IV

(2017 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   What is gypsum plaster ?

   2   Explain the process of varnishing.

   3   State the methods for furnishing of floors with mosaic.

   4   What is meant by parquet flooring ?

   5   Define lamina-boards.

   6   What are cement particle boards ?

   7   Explain heat strengthened glass.

   8   Discuss the applications of toughened glass.

                                                        (8 × 5 = 40 marks)

Part B

II.   Answer *all* the questions :

   1   Describe the methods and processes for plastering over masonry and ceiling.

Or

   2   Provide details for wooden cladding in a conference room.

   3   Explicate the classification and properties of tiles used in flooring.

Or

   4   Describe the material Linoleum and its utility in building industry.

Turn over

5   Explain in detail the areas of applications for boards.

Or

6   What is Glulam ? State their properties and uses.

7   What is Glazing ? Explain single, double and triple glazing of curtain walls.

Or

8   Discuss the properties of fire resistant glass.

(4 × 15 = 60 marks)

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

FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION NOVEMBER 2020

AR 17 52—LANDSCAPE DESIGN

(2017 Admissions)

Time : Three Hours

Maximum : 100 Marks

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

Part A

Answer all questions.
Each question carries 5 marks.

1. Define Landscape Architecture.

2. Provide a comparison of landscape design and architecture.

3. Give a brief on history of gardening from the past.

4. Explicate the principle of Texture & Color in landscape design.

5. State the classifications of plant materials.

6. Define bio-swale.

7. What is urban avenue ?

8. Describe the purpose of green walls.

(8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

1. Explain the design of English gardens.

Or

2. Elucidate on the Gardens of Suzhou and Katsura Imperial Villa.

3. Enumerate with sketches the role of plants in landscape design.

Or

4. Describe the significance of landscape lighting.

Turn over

5. Establish the relationship between climate, landscape and architecture.

Or

6. Illustrate landscape as environmental modifier against water logging.

7. Explain, how land form design can affect the micro-climate ?

Or

8. Discuss, how landscaping elements supports a pollution free environment ?

(4 × 15 = 60 marks)

FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 12 56—STRUCTURAL DESIGN—I

(2012 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   Draw the stress-strain curve for concrete, mild steel bars and HYSD bars.

    2   List out the advantages and disadvantages of reinforced cement concrete when compared with other building materials.

    3   What is the necessity of doubly reinforced sections ?

    4   Discuss on brittle and ductile failure.

    5   Sketch the edge and middle strips of a two way slab.

    6   List out the types of stair cases in detail.

    7   Briefly explain about Beam stability factor (CL).

    8   Discuss on design procedure for timber beam and Joist.

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

Part B

II. Answer *all* questions :

    1 (A)   A reinforced concrete rectangular section 300 mm wide and 600 mm overall depth is reinforced with 4 bars of 25 mm diameter at an effective cover of 50 mm on the tension side. The beam is designed with M_{20} grade concrete and Fe415 grade steel. Determine the allowable bending moment and the stresses developed in steel and concrete under this moment. Use working stress method.

Or

    (B)   Differentiate between working stress method and limit state method.

Turn over

2 (A)   Find the moment of resistance of a singly reinforced concrete beam of 200 mm width 400 mm effective depth, reinforced with 3-16 mm diameter bars of Fe 415 steel. Take M_{20} grade of concrete.

<div align="center">*Or*</div>

  (B)   A reinforced concrete beam is supported on two walls 250 mm thick, spaced at a clear distance of 6 m. The beam carries a super-imposed load of 9.8 KN/m. design the beam using M_{20} concrete and HYSD bars of Fe 415 grade.

3 (A)   A hall has clear dimensions 3 m × 9 m with wall thickness 230 mm the live load on the slab is 3 kN/m^2 and a finishing load of 1 kN/m^2 may be assumed. Using M_{20} concrete and Fe 415 steel, design the slab.

<div align="center">*Or*</div>

  (B)   Design a straight flight staircase in a residential building that is supported on reinforced concrete walls 1.5 m apart (center-to-center) on both sides and carries a live load of 300 kg/m^2. The risers are 16 cm and goings are 30 cm. Goings are provided with 3 cm thick marble finish while 2 cm thick plaster is applied to both the risers and bottom surfaces of the slab.

Use $f^1c = 250 kg/cm^2$, $fy = 4200 kg/cm^2$, $\gamma plaster = 2.2\ t/m^3$, and $\gamma marble = 2.6\ t/m^3$.

4 (A)   Figure shows a portion of a ceiling tie in a roof truss subjected to a UDL of 0.5 kN/m and axial tension of 22k N. The loading is long term and no load sharing. Determine a suitable size of timber for timber in SG3 (wet, common).
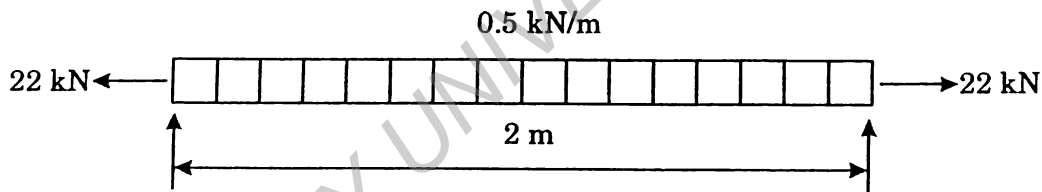
<div align="center">*Or*</div>

  (B)   Design of 3-3 × 12 Timber Beam with Southern Pine from the following data :

    a)   Length of beam : L = 16 ft

    b)   Tributary width : s = 8 ft

    c)   Top of beam supported by floor joists at 16 in O.C.

  Design load :

        Floor live load : W_L = 40 psf,

        Floor dead load : WD = 10 psf,

        Superimposed dead load including mechanical and electric load,

        WSD = 8 psf

        Timber : Southern pine, moisture less than 19%, used in normal room temperature.

<div align="right">(4 × 15 = 60 marks)</div>

FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 12.55—BUILDING SERVICES-II

(Acoustics and Fire Fighting)

[2012 Admissions]

Time : Three Hours   Maximum : 100 Marks

Assume suitable data wherever necessary.

Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* of the questions :

   i) What is meant by reverberation ?

   ii) Write short notes on diffraction of sound and reflection of sound.

   iii) List five essentials of good room Acoustics.

   iv) Write about the significance of reverberation time.

   v) Discuss the effects of noise on human being.

   vi) Discuss the equipment used in firefighting.

   vii) Name any five membrane protection system for fire safety.

   viii) Write about any two means of exit in response to fire defense.

(8 × 5 = 40 marks)

Part B

II. Answer the following :

   1 (A) Describe the hearing mechanism in human being.

Or

   (B) What is the measure of sound ? Discuss the application of sound measurements.

   2 (A) What is meant by absorption of sound ? How is it relevant in architecture ?

Or

   (B) Write a detailed note on space absorbers and its uses.

Turn over

3 (A)   Give a detailed understanding of the measures taken in noise control of an auditorium.

Or

(B)   List out the source of noise in a school campus. How do you combat in design ?

4 (A)   Describe transmission loss.

Or

(B)   Elucidate on Fire rating and assessment.

(4 × 15 = 60 marks)

(Pages : 2)

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

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FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION
NOVEMBER 2020

AR 12 54—ESTIMATION, COSTING AND SPECIFICATION

(2012 Admissions)

Time : Three Hours

Maximum : 100 Marks

Part A

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

1. Write a note on work charged establishments.

2. Mention any *five* factors to be considered in detailed estimate.

3. Differentiate long and short wall method.

4. Write a note on centre line method.

5. Write a note on sinking fund.

6. Write a note on cost modeling.

7. Mention any *five* elements to be considered for cost parameter.

8. Write a note on depreciation value in cost estimation.

(8 × 5 = 40 marks)

Part B

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

1. Write the specification for the following :

   (a) Timber doors and windows.

   (b) 1st class brick work in cm (1 : 6).

   (c) 12 mm. thick cement plaster in cm (1 : 4).

Or

2. Discuss the types of estimate.

Turn over

3. Discuss the factors to be considered for calculation of quantities of material for any building ?

Or

4. Prepare the detailed estimate for 0.23 thick brick compound wall of 3 m. × 4 m. assume the following for estimation.

   (a) Height of the compound wall is 2.1 m. above the finished ground level.

   (b) Rcc foundation of depth is about 1.2 m. below the finished ground level.

   The specification to be considered for preparation of estimation as follows :

   (a) The found of concrete in (1 : 6 : 12)

   (b) The cement plaster is to be 10 mm. thick and proportion (1 : 4).

5. Explain the procedures to be adopted in working out the value of a property by rental method of valuation ?

Or

6. Workout the rate analysis of the following items by PWD schedule of rates

   (a) Rcc works for beams proportions 1 : 2 : 4 with steel reinforcement.

   (b) 2nd class brickwork in cm (1 : 6) up to plinth.

   (c) 115 mm. thick brick partition in ground floor in (1 : 3).

7. Discuss the classification of cost models ?

Or

8. In what way Architectural features are affect the cost of the building -illustrate with suitable examples ?

(4 × 15 = 60 marks)

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(Pages : 2)

Name..

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

FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 12 53—HISTORY OF ARCHITECTURE—IV

(2012 Admissions)

Time : Three Hours

Maximum : 100 Marks

Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* of the following :

    i)   What were the contributions of Robert Venturi to Modernism ?

    ii)   Explain the contribution of Christopher Alexander during Modern Era.

    iii)   Name any *five* architects and one of their works each from Post modernism era.

    iv)   Discuss the works of Peter Eisenman and Zaha Hadid.

    v)   What were the architecture styles and trends brought to India during colonization ?

    vi)   Describe the adaptation of English architecture to Indian conditions.

    vii)   Give a thorough understanding of Louis Kahn's design philosophy through his works.

    viii)   Who is referred to as the "poor man's architect" ? Discuss his philosophies with supporting sketches.

(8 × 5 = 40 marks)

Part B

II. Answer the following :

    1 (A) Describe the architecture of Alvar Alto and Eero Saarinen through their works.

Or

        (B) What is meant by Pop Architecture ? What were the contributions of Paulo Soleri ?

    2 (A) What is your perception of "Architecture without Architects" ?

Or

        (B) What is meant by High-Tech Architecture ? Explain the works of Richard Rogers and Norman Foster.

Turn over

3   (A)   Who colonized Tamil Nadu ? Discuss the architecture of Pondicherry.

Or

     (B)   With example, elaborate the confluence of Indo-Islamic architecture that evolved during the British raj.

4   (A)   What are the influences of Le Corbusier on B V Doshi ? Explain with suitable examples.

Or

     (B)   Bring out the differences in the architecture of Aditya Prakash and Hafeez Contrator.

(4 × 15 = 60 marks)

FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION NOVEMBER 2020

AR 12 52—BUILDING CONSTRUCTION MATERIALS AND STRUCTURAL SYSTEMS

(2012 Admissions)

Time : Three Hours   Maximum : 100 Marks

Part A

Answer **all** *questions.*

Each question carries 5 marks.

1. Mention any *five* commercial forms of floor finishes available in the market ?

2. Mention any *five* commercial forms of plasters available in the market ?

3. What do you mean by term striking of form work ?

4. Write a note on pneumatic structures.

5. Mention any *five* types of cladding systems.

6. Write a note on lift slab and slip form of constructions ?

7. Mention any *five* damp preventive measures ?

8. Sketch the roof tank and label its parts.

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*

Each question carries 15 marks.

1. Describe the laying techniques and maintenance of expansion joints.

Or

2. Describe the laying techniques of damp proofing for solid and cavity walls with suitable sketches.

Turn over

3. Describe the types of roofing systems with suitable sketches.

Or

4. Describe the use of steels and factors to be considered for partitions and ceilings.

5. Draw the plan and section of reinforcement details of beam and column details for residential building. Assume the size of column, beam and thickness of bar.

Or

6. Explain the applications and method of construction of space frames with suitable examples and sketches ?

7. Discuss the properties, laying techniques and maintenance of any *four* types of wall finish ?

Or

8. Draw the plan, section of timber floor for the office room if size 3.2 m. × 4.8 m. Fixing details of timber. Assume the necessary data.

(4 × 15 = 60 marks)

FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 04 506—BUILDING SERVICES—I

(Water Supply and Drainage)

(2004 Admissions)

Time : Three Hours   Maximum : 100 Marks

All missing data, if any may suitably be assumed.

Part A

*Answer **eight** questions.*

Each question carries 5 marks.

1. (a) What are the sources of water ?

   (b) Write a short note on purification of water.

   (c) Explain the transmission of water.

   (d) Mention few materials for conduits.

   (e) What is the process of collection of waste from buildings ?

   (f) Brief about classification of waste.

   (g) Explain the process of waste water treatment.

   (h) What are the principles of solid waste management ?

(8 × 5 = 40 marks)

Part B

*Answer **all** questions.*

Each question carries 15 marks.

2. (a) Explain in detail the yield of water from different sources with examples.

Or

   (b) Explain the quality of water required for different purposes.

Turn over

3. (a) Elaborate on the testing of distribution system.

Or

(b) Give detailed design guidelines for buildings to equip with fire fighting facilities with a case example.

4. (a) Explain in detail the design of waste carrying pipes from buildings.

Or

(b) Write a detailed note on environmental aspects.

5. (a) Explain in detail the design of septic tanks as per B.J.S. specifications with sketches.

Or

(b) Give a brief account on water supply management in cities.

(4 × 15 = 60 marks)

(Pages : 2)

Name...

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FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 04 504—HISTORY OF ARCHITECTURE—IV

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

Part A

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

1. Write short notes on :

    (a) Portland building.

    (b) Philp Johnson.

    (c) Architecture without Architects.

    (d) Nicholas Grimshaw's architecture.

    (e) French Colonial style.

    (f) Example of a Colonial tomb.

    (g) Uttam Jain.

    (h) Rajput architecture.

(8 × 5 = 40 marks)

Part B

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

1. (a) Describe the architectural characteristics of Post Modernism.

Or

    (b) Deconstructivism in architecture is characterised by fragmentation and an absence of harmony and symmetry. Substantiate this statement.

Turn over

2. (a) Explain Habitat Architecture.

Or

(b) What are the influences that led to the architecture characterised as Critical Regionalism Give examples.

3. (a) Describe the origin and characteristics of Colonial bungalows.

Or

(b) Describe the features of English Colonial architecture.

4. (a) Describe the influence of Indian art and architecture on later Colonial buildings.

Or

(b) Describe the philosophy and works of Hasmukh Patel.

(4 × 15 = 60 marks)

FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 04 503—BUILDING CONSTRUCTION-III

(2004 Admissions)

Time : Three Hours   Maximum : 100 Marks

Note : Assume the Data wherever necessary.

Part A

Answer all questions.
Each question carries 5 marks.

1. a) What are the different types of staircase & sketch the helical staircase & mention its components ?

   b) Mention the components of hydraulic staircase.

   c) What are different types of cladding systems ?

   d) Sketch the sandwich panels & mention its components.

   e) Mention the types of test to determine the strength of concrete.

   f) What are different types of structural systems adopted in present construction method ?

   g) Write a short note on excavation.

   h) In what way new equipments are advanced in building industry ?

   (8 × 5 = 40 marks)

Part B

Answer all questions.
Each question carries 15 marks.

2. a) Explain the operation process & uses of Hauling & hoisting equipments.

   Or

   b) Explain the process to be followed in the fixing the scaffolding for high rise buildings.

3. a) Draw plan & isometric cut systems showing the reinforcement details of RCC Beam of thickness 450mm for the span of 6m × 6m. Wall thickness 300mm. assume the necessary data.

   Or

   b) Explain the various safety measurements are to be adopted while dismantling & assemble the prefabrication structures.

Turn over

4. a) Sketch the different types of cladding systems. Sate its advantage & disadvantage.

Or

b) Draw to suitable scale. Design a room with pitched roof of size 3m x 4m. Thickness of the wall is about 300mm. Plan, Section & Fixing details 2 nos.

5. a) Explain the situation in which fire escape elements required for the high rise buildings. Illustrate with suitable examples.

Or

b) Draw to suitable scale - Design a wooden staircase for 2.4hign mezzanine floor in retail outlet. Plan, Section & Fixing details 2 nos.

(4 × 15 = 60 marks)

FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 04 502—SPECIFICATIONS-I

(2004 Admissions)

Time : Three Hours   Maximum : 100 Marks

Part A

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

1. What is the need to study about specification in Architecture ?

2. In what way impact of specification in scope of any kind of projects ?

3. Write a note on ambiguity in specification.

4. What do you mean by term correct form of specification ?

5. Write a short note on second class building material for specification.

6. What are the basic criteria need to consider writing specification for brick building ?

7. Differentiate centring and shuttering in specification ?

8. List down the different types of finishes you observed in building to write the specification.

(8 × 5 = 40 marks)

Part B

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

1. Describe the need to study about specification in Architecture with suitable examples.

Or

2. Write the detailed specification for stone work foundation for residential building in hilly areas.

3. Describe the sequencing order of specification.

Or

4. Explain the principles of specification writing.

Turn over

5. Write the detailed specification for third class building materials.

Or

6. Write the detailed specification for lime plastering work as per CPWD.

7. Write the detailed specification for painting work for different types of surface.

Or

8. Write the detailed specification for different types of timber works.

(4 × 15 = 60 marks)

FIFTH SEMESTER B.ARCH. DEGREE EXAMINATION, NOVEMBER 2020

AR 04 501—STRUCTURAL DESIGN—I

(2004 Admissions)

Time : Three Hours   Maximum : 100 Marks

Part A

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

1. Discuss the basic properties of concrete as a structural material ?

2. Write down the step-by-step procedure followed for design of two-way simply supported slabs ?

3. Explain the concept of slenderness ratio of masonry wall ?

4. What is permissible stress ? List any *three* factors which affect the permissible stress of masonry ?

5. Describe the modes of failure of riveted joints ?

6. How will you grade the timbers ?

7. Write short notes on tension splices ?

8. What is Lug angle ?

(8 × 5 = 40 marks)

Part B

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

1. Design a singly reinforced concrete beam to suit the following data :

   Clear span = 4 m

   Width of supports = 300 mm

   Service load = 5 kN/m.

   Use M20 grade Concrete and Fe-415 grade steel.

Or

2. Explain with neat sketches the different types of staircases.

Turn over

3. Briefly explain the various classifications of masonry walls.

Or

4. A masonry wall is subjected to an axial load of 180 kN. The height of the wall is 3.6 m. Design the wall.

5. Design timber beams and girders for the roof of a room having 5 m × 10 m clear dimensions. The timber is teak. The roof covering consists of timber planks with earth and brick tiles over them, so that the dead load of the roofing is 3 KN/m^2. The live load on the roof is 2 KN/m^2.

Or

6. Write in steps the procedure of design of timber beams ?

7. Design a fillet welded joint between two plates of size 220 × 10 mm and 280 × 10 mm.

Or

8. Explain the code provisions regarding the limiting deflection of a beam.

    Write short notes on effective lengths and end supports of columns with neat diagrams ?

(4 × 15 = 60 marks)

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

B.Arch.

AR 17 57—SPECIFICATION, ESTIMATION AND COSTING

Time : Three Hours   Maximum : 100 Marks

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

Part A

I. Answer *all* questions :

  1   What is specification ? State the different types of specification.

  2   Show the contents of abstract estimate.

  3   Briefly explain Long wall method and short wall method.

  4   Calculate the quality of earthwork for the construction of an approach road Length = 1 km. Width of formation = 10 m. Height of embankment = 60 cm. Side slope = 1 : 2.

  5   What are the types of penalties that are imposed on a contract and why are they imposed ?

  6   What is the purpose of valuations ?

  7   List the factors involved in locating a site.

  8   What are the principles of report preparation ?

(8 × 5 = 40 marks)

Part B

II. Answer *all* questions :

  9   Write down the detailed Specifications of PCC.

Or

  10   The plinth area and plinth area rate of a residential building are 100 sqm and Rs. 5,000 respectively. Determine the total cost of building assuming suitable data.

  11   Calculate the Quantity of material for the following items :

   a) R.C.C. (1 : 2 : 4) for 20 m^3 of work.

   b) R.C.C. (1 : 3 : 6) for 15 m^3 of work.

   c) C.M. (1 : 4) for 1 m^3 of work.

Or

Turn over

12 Estimate the Quantities of the following items of a two roomed building from the given plan and section by Centre Line method. (Refer the building plan and section Figure 1).

Given Data :

- Earthwork in excavation in Foundation.
- Lime concrete in Foundation.
- 1st class Brick work in foundation and Plinth (1 : 6).
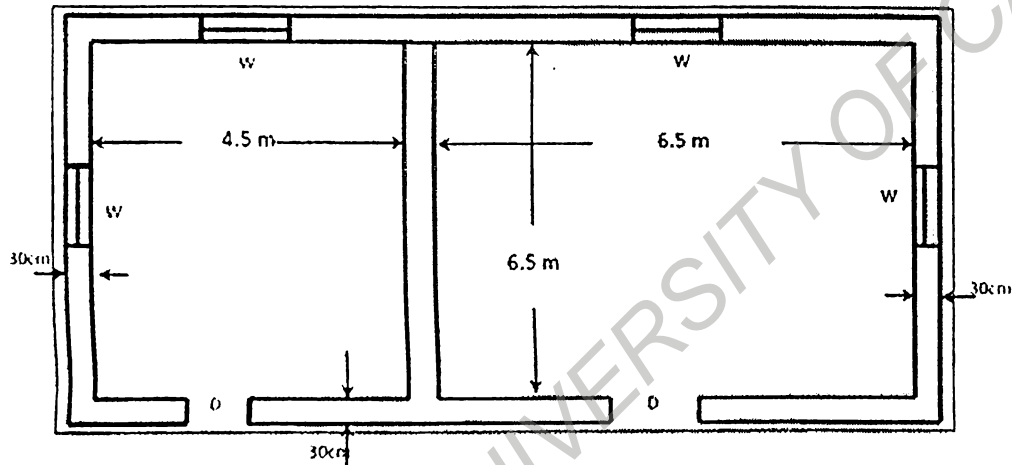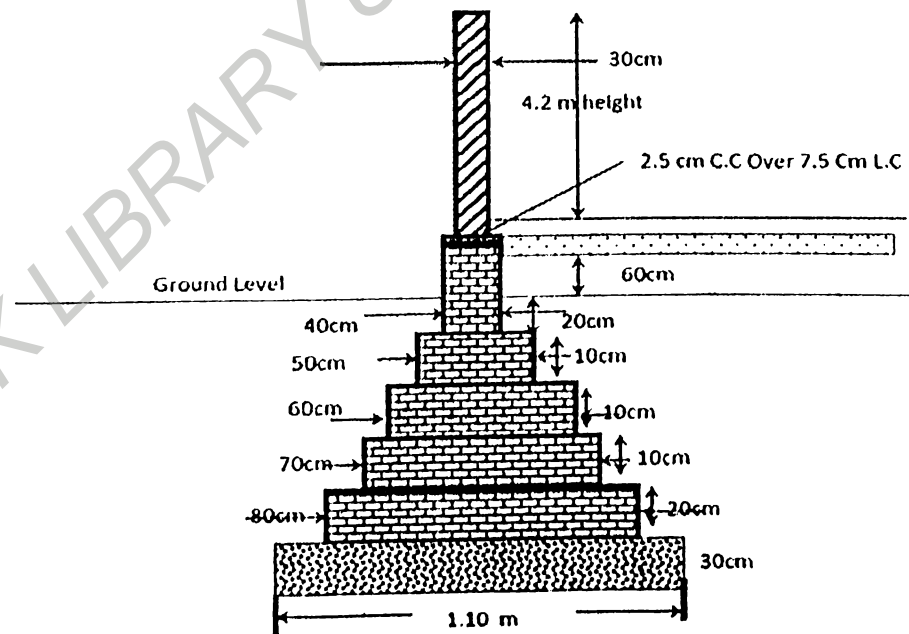- 1st class Brickwork in Lime Mortar in Superstructure.

Figure – 1

13 Explain the types of leases, in detail.

Or

14 A Government, accommodation is built at the cost of Rs. 60,000. The water supply and Sanitary and electrical installation expenditure is Rs. 15,000. Calculate the standard rent of the building if the following rate of return are fixed :

  i)   6% on construction cost.

  ii)   1 1/2 % towards maintenance of building work.

  iii) 4 1/2 % on installation expenditure.

  iv)   4% on maintenance of installation.

  v)   Rs. 120 as property tax per year.

  vi)   Cost of land is to be neglected.

15 Discuss in details about the three types of Cost Estimation in Projects.

Or

16 Explain the role of architects in cost estimation of construction project.

(4 × 15 = 60 marks)

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

B.Arch.

AR 17 56—HISTORY OF ARCHITECTURE—IV

Time : Three Hours Maximum : 100 Marks

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

Part A

I. Answer *all* questions :

1 What are the highlights of Art Deco ?

2 Mention any five works of Louis Sullivan.

3 Sketch the F.L. Wright - Guggenheim museum at New York.

4 Who is the architect of Museu Oscar Niemeyer, Brazil ? What is its specialty ?

5 Emphasize any five features of Pompidou Centre.

6 State five design principles of Richard Rogers.

7 Who is the architect of Milwaukee Art Museum, U.S. ? Mention any four of his design ideologies.

8 Who designed Stansted Airport, London ? Highlight on any four of its features.

(8 × 5 = 40 marks)

Part B

II. Answer *all* questions :

1 Describe the works of Mendelsohn and Taut.

Or

2 Explain the characteristic features of Destijl movement.

3 Explain the architecture of Philip Johnson through any two of his projects.

Or

4 Sketch and provide details on the Barcelona Pavilion designed by Mies Vander Rohe.

Turn over

5 Explicate on the works and ideas of Hassan Fathy with examples.

Or

6 Elaborate on the architecture of Geoffrey Bawa.

7 Explain the architectural features of Peter Eisenman's Cardinal Stadium, Arizona.

Or

8 Discourse the design perception of Frank Gehry in his Guggenheim Museum, Bilbao.

(4 × 15 = 60 marks)

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

B.Arch.

AR 17 55—DESIGN OF STRUCTURES-I

Time : Three Hours   Maximum : 100 Marks

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

Part A

I. Answer *all* questions :

   1 What is anchorage length and anchorage bond ?

   2 Define torsion. What is compatibility torsion ?

   3 List the different types of shear reinforcement of beam and sketch them.

   4 Write down the effect of torsion in RC beams.

   5 What are the classifications of slabs ?

   6 Write short note on behaviour of two way slab.

   7 State the loads on columns.

   8 Define stair case. List the various types of stair cases.

                                                        (8 × 5 = 40 marks)

Part B

II. Answer *all* questions :

   1 (A) Find the moment of resistance of a singly reinforced concrete beam of 200 mm width 400 mm effective depth, reinforced with 3-16 mm diameter bars of Fe 415 steel. Take M20 grade of concrete.

   *Or*

   (B) A simply supported beam, 300 mm wide and 500 mm effective depth carries a uniformly distributed load of 50 KN/m, including its own weight over an effective span of 6 m. Design the shear reinforcement in the form of vertical stirrups. Assume that the beam contains 0.75% of reinforcement throughout the length. The concrete is of M20 grade and steel for stirrups is of Fe 250 grade. Take width of support as 400 mm.

                                                        Turn over

2 (A) Find out the factored moment of resistance of a beam section 300mm wide X 450mm effective depth reinforced with 2 X 20mm diameter bars as compression reinforcement at an effective cover of 50mm and 4 X 25mm diameter bars as tension reinforcement. The materials are M20 grade concrete and Fe 415 HYSD bars.

Or

(B) Determine the moment of resistance of the beam of Fig. when Ast = 2,591 mm^2 (4 - 25 T and 2 - 20 T). Bf = 1,000 mm, Df = 100 mm, bw = 300 mm, cover = 50 mm and d = 450 mm. Use M 20 and Fe 415.
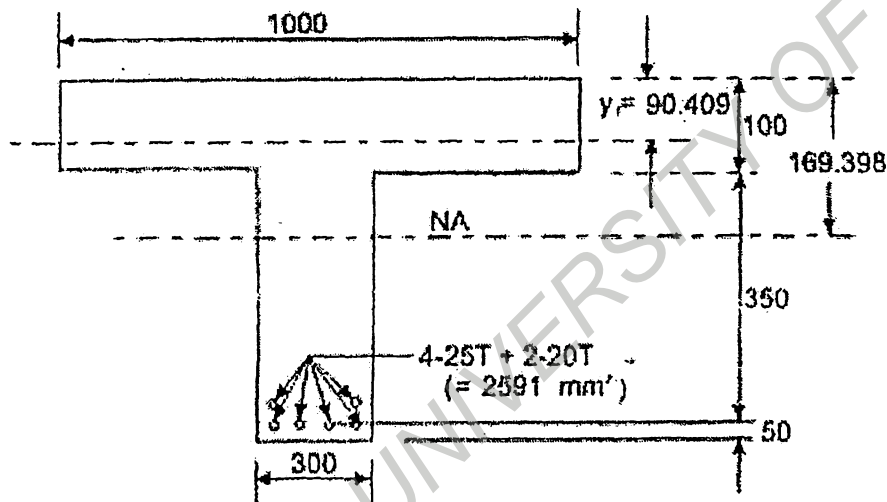
3 (A) A hall has clear dimensions 3 m × 9m with wall thickness 230 mm the live load on the slab is 3kN/m^2 and a finishing load of lkN/m^2 may be assumed. Using M20 concrete and Fe415 steel, design the slab.

Or

(B) Design a R.C Slab for a room measuring 6.5m × 5m. The slab is cast monolithically over the beams with corners held down. The width of the supporting beam is 230 mm. The slab carries superimposed load of 4.5kN/m^2. Use M-20 concrete and Fe-500 Steel.

4 (A) Design a square column to carry a working load of 980kN. The grade of concrete and steel are M20 and Fe 415 respectively. Assume that the column is short.

Or

(B) Design an isolated footing for an R.C. column of size 230 mm × 230 mm which carries a vertical load of 500 kN. The safe bearing capacity of soil is 200 kN/m^2. Use M20 concrete and Fe 415 steel.

(4 × 15 = 60 marks)

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

B.Arch.

AR 17 54—BUILDING SERVICES—II

(Lighting and Electrical Services)

Time : Three Hours   Maximum : 100 Marks

Assume suitable data wherever necessary.

Substantiate with suitable sketches wherever required.

Part A

I.   Answer *all* questions :

1   What are the components of sub-stations ?

2   What are high tension panels ?

3   Define Switches.

4   Where are distribution boards used ?

5   Define lux meter.

6   What is ambient lighting ?

7   What are the surfaces of illumination ?

8   Define - CFL, HID's, MV, SV lamps.

(8 × 5 = 40 marks)

Part B

II.   Answer *all* questions :

1   Explain the supply and distribution of electricity to buildings.

Or

2   Explicate the electrical system in multi-storied buildings.

Turn over

3   State the advantages and disadvantages of PVC and metal conduits.

Or

4   Discuss in detail the casing and capping system.

5   Explain indirect luminary systems.

Or

6   Provide details on the concept of day light factor.

7   State the linear and surface coloring aspects of lamps.

Or

8   Explain the common luminaries-incandescent and fluorescent.

(4 × 15 = 60 marks)

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

B.Arch.

AR 17 53—BUILDING MATERIALS AND CONSTRUCTION IV

Time : Three Hours   Maximum : 100 Marks

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

Part A

I. Answer *all* questions :

   1   Explain the process of painting.

   2   What is meant by metal cladding ?

   3   Describe the furnishing of floors with colored cement.

   4   How are floors furnished with stones ?

   5   State the properties of fiberboard.

   6   Discuss the utility of block boards.

   7   State the market forms of laminated glass.

   8   Give the context where glass building blocks can be used.

                                            (8 × 5 = 40 marks)

Part B

II. Answer *all* questions :

   1   Provide the classifications of various types of paints.

                     Or

   2   Where do you come across acoustic plaster ? What are their compositions and properties ?

   3   Explain the methods of laying any 3 different types of flooring.

                     Or

   4   Where is Rubber flooring used ? Discuss the methods of laying the same.

Turn over

5 State the characteristics and physical properties of boards used for cladding.

Or

6 Mention the applications of particle board stating their qualities.

7 Discuss the properties and uses of glass blocks in building.

Or

8 Explain the utility of variable transmission glasses with specifications.

(4 × 15 = 60 marks)

D 13767   (Pages : 2)   Name...

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

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

B.Arch.

AR 17 52—LANDSCAPE DESIGN

Time : Three Hours   Maximum : 100 Marks

Assume suitable data wherever necessary.

Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* questions :

1 Discuss the importance of landscaping in architecture.

2 Enumerate the role of landscape and garden design in history.

3 Demonstrate the principles of Scale and Balance in landscape design.

4 Discuss the characteristics of plant materials.

5 Explain the role of ponds in micro ecosystem.

6 Define an urban forest and mention its uses.

7 Define cascade in landscaping.

8 Explain Xeriscaping with sketches.

(8 × 5 = 40 marks)

Part B

II. Answer *all* questions :

1 Demonstrate a Chinese garden with its salient features.

Or

2 Illustrate the Chateau Villandry and Stowe House.

3 Enumerate the landscape components and mention their role.

Or

4 What is avenue planting ? Give details on its selection criteria and methods of doing.

Turn over

5   Explain how landscape can act as environmental modifier against noise.

Or

6   In what way can landscape be a modifier against depletion of water resource ?

7   Explain the need for landscape water elements. Mention the aspects to be considered in designing a swimming pool.

Or

8   Provide the constructional details of drainage design.

(4 × 15 = 60 marks)

FIFTH SEMESTER B.ARCH. DEGREE [2012 SCHEME] EXAMINATION NOVEMBER 2021

B.Arch.

AR 12 56—STRUCTURAL DESIGN—I

Time : Three Hours   Maximum : 100 Marks

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

Part A

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

1. Discuss the advantages and disadvantages of working stress method.

2. What is under reinforced section and over reinforced section ?

3. What are the assumptions made in limit state of collapse in flexure ?

4. Define anchorage length and anchorage bond.

5. Explain the check for deflection control in the design of slabs.

6. What are the important factors affecting the shear resistance of a Reinforced concrete member without shear reinforcement.

7. Explain briefly on the members subjected to axial tension in wood.

8. What are the advantages of using timber as a structural material ?

(8 × 5 = 40 marks)

Part B

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

1. (A) Explain briefly how to reduce deflection of reinforced concrete Beams.

Or

(B) A reinforced concrete rectangular section 300 mm wide and 600 mm. overall depth is reinforced with 4 bars of 25 mm. diameter at an effective cover of 50 mm. on the tension side. The beam is designed with M 20 grade concrete and Fe 415 grade steel. Determine the allowable bending moment and the stresses developed in steel and concrete under this moment. Use working stress method.

Turn over

2. (A) Design a simply supported RC beam having an effective span of 5 m. The beam has to carry a load of 25 kN/m.

Or

(B) Find out the factored moment of resistance of a beam section 300 mm. wide × 450 mm. effective depth reinforced with 2 × 20 mm. diameter bars as compression reinforcement at an effective cover of 50 mm. and 4 × 25 mm. diameter bars as tension reinforcement. The materials are M 20 grade concrete and Fe 415 HYSD bars.

3. (A) Design a one way slab for a clear span 4 m. simply supported on 230 mm. thick wall. Subjected to a live load of 4 kN/m² and floor finish of 1 kN/m². Use M_{20} concrete and F 415 steel.

Or

(B) Design the staircase for the following data. The risers are 15 cm. and goings are 25 cm, and story height is 3.3 m. Goings are provided with 3 cm-thick marble finish on cement mortar that weighs 120 kg/m², while 2 cm. thick plaster is applied to both the risers and bottom surfaces of the slab. The landings are surface finished with terrazzo tiles on sand filling that weighs 160 kg./m². The stair is to be designed for a live load of 300 kg/m². Use $f^1{}_C$ = 250 kg /cm², f_y = 4200 kg / cm², and $y_{plaster}$ = 2.2 t /m³.

4. (A) Check the adequacy of 5.0 m. long of timber column for long term loading if a column section of 150 mm. × 150 mm. (dressed size) is subjected to an axial load of 80 kN (including self weight of column). The timber used is in SG4 (standard, wet) and the column is not restrained about both axes but restrained at both ends in position.

Or

(B) A Figure 1 shows main beams of 3250 mm. length span over an opening 3,000 mm. wide and support a flooring system that exerts a long-duration loading of 3.9 kN/m. including its own self-weight over it span. The beam is supported by 125 mm. wide side-walls on either side and have underside notched as in Figure 2. Carry out design checks to show that a 75 mm. × 225 mm. (named size) full swan SG2 (select, wet) timber is suitable to carry the load.
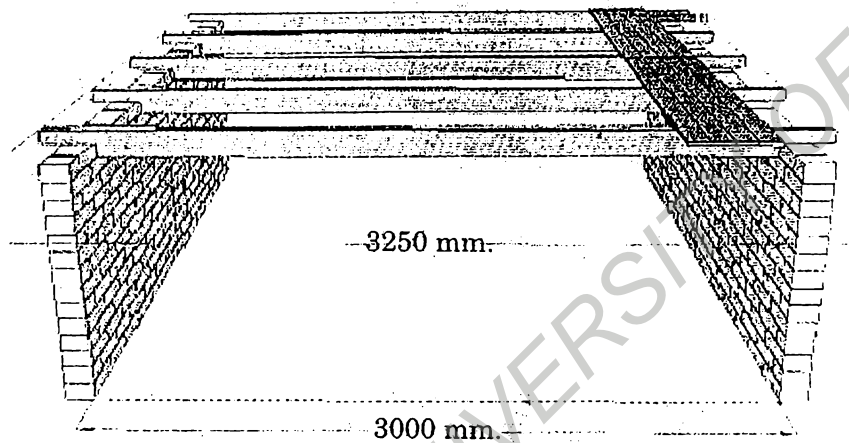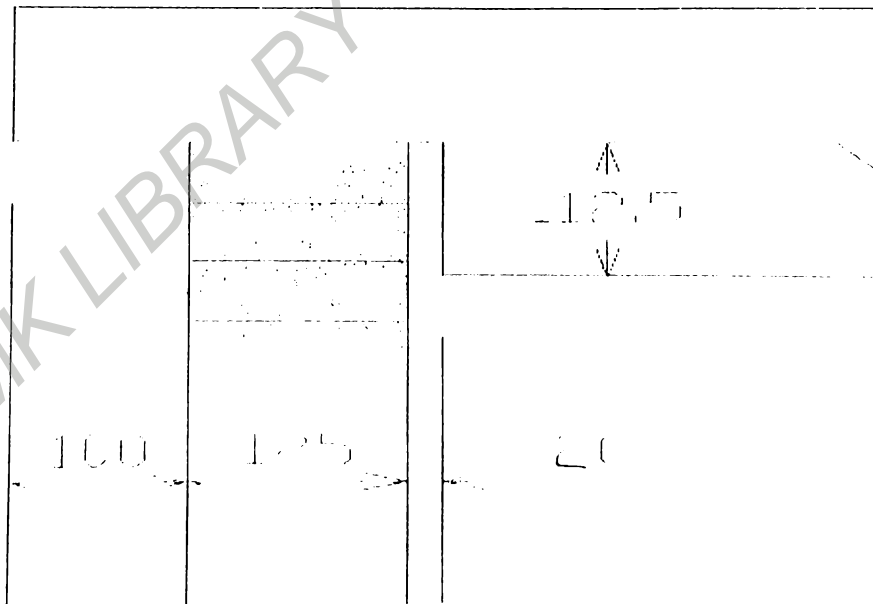

Figure 1 : Timber beams supported by side walls

Figure 2 : Underside notch at beam support

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

B.Arch.

AR 12 55—BUILDING SERVICES II (ACOUSTICS AND FIRE FIGHTING)

Time : Three Hours   Maximum : 100 Marks

Part A

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

1. Write a note on velocity of sound.

2. Write a note on wave length of sound.

3. Differentiate diffusion and diffraction in sound.

4. Write a note on sound resonance.

5. State any five defects of sound in enclosed space.

6. What do you mean by the term reverberation time ?

7. Write a note on transmission of loss in sound.

8. State any five characteristics of human ear.

(8 × 5 = 40 marks)

Part B

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

1. Describe the safety and security provision in any kind of buildings observed from the case studies with respect to fire. Express with in terms of plan, section and sketches.

Or

2. Describe the factors to be considered to control the noise and air pollution for designing meditation centre buildings.

3. Discuss the factors to be considered for acoustic treatment for auditorium.

Or

4. Explain the acoustic materials for applying techniques for lecture hall rooms.

Turn over

5. Express in terms of section and details of fixing acoustic materials for window and ceiling.

Or

6. Explain the following space and variable absorbers.

7. Write a note on the following :

   a) Wave length of sound.

   b) Sound intensity.

   c) Sound pressure.

Or

8. Describe the any four nature of sound its causes and its effects with suitable sketches.

(4 × 15 = 60 marks)

FIFTH SEMESTER B.ARCH. DEGREE [2012 SCHEME] EXAMINATION NOVEMBER 2021

B.Arch.

AR 12 54—ESTIMATION, COSTING AND SPECIFICATION

Time : Three Hours   Maximum : 100 Marks

Part A

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

1. List the building components shall not be included in the plinth area method.

2. Write a note on provisional sum.

3. Measuring the units for the following items Flooring, RR Masonry, damp proof course, sun shade.

4. Write a note on centre line method.

5. Write a note on depreciation value of the property.

6. Mention the three types of labour classification.

7. Write a note on traditional cost models.

8. Write a note on importance of cost analysis in estimation.

(8 × 5 = 40 marks)

Part B

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

1. Explain in detail the general specification for second class building ?

Or

2. (A) Write a note on cubical contents rate :

   (B) Prepare an approximate estimate of building project by plinth area method with total plinth area of building is 1500 sq.m.

   plinth area rate Rs. 1550.

   cost of water supply - 8 % of the cost of the building .

   electrical and sanitary installation - 8 % of the cost of the building.

   Architectural Features - 2.5 % of the cost of the building.

   Land scape - 4.5 % of the cost of the building.

   Determine the total cost of the building.

Turn over

3. Do the detailed estimate of the plan using centre line method represents the plan of super structure wall of a double room building refer figure and sections represents the cross section of the walls with foundation estimate the quantities of :

    (a)   Earth work in excavations.

    (b)   Concrete in foundations.

    (c)   Brick work in foundation and plinth work.

    (d)   Brick work in super structure.
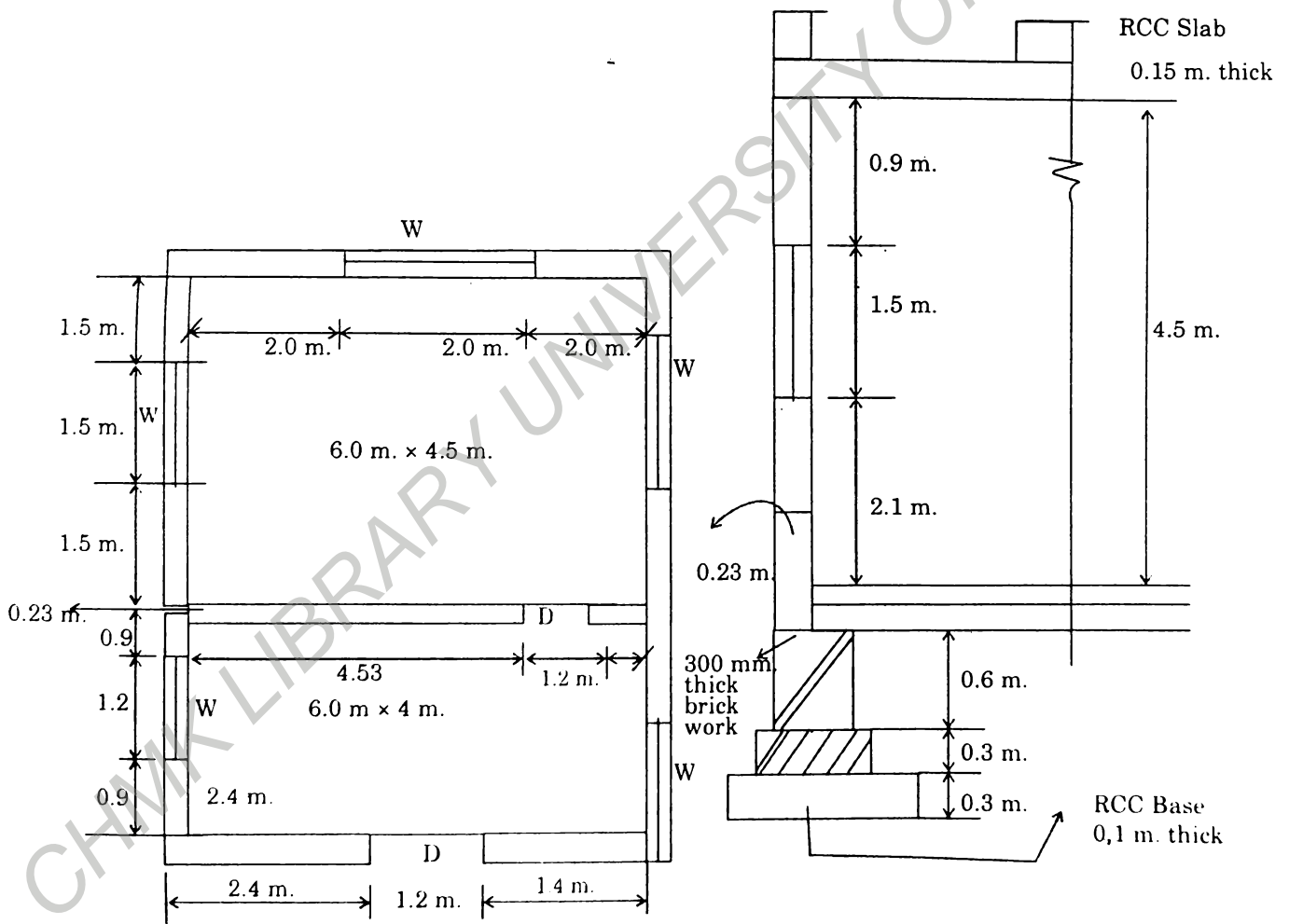
Or

4. Estimate the cost of a masonry plat form 4 m. × 6 m. from the given drawing using long and short wall method

General specification to be considered :

(a) Foundation - lime concrete.

(b) Masonry first class brick work in lime mortar.

(c) Flooring - 2.0 cm. cement concrete over 6.5 cm. lime concrete over wall only 2.0 cm. cement concrete.

(d) Wall finishing - outside the wall 10 mm.

(e) Cement plastered 1 : 4.

Plan

Section
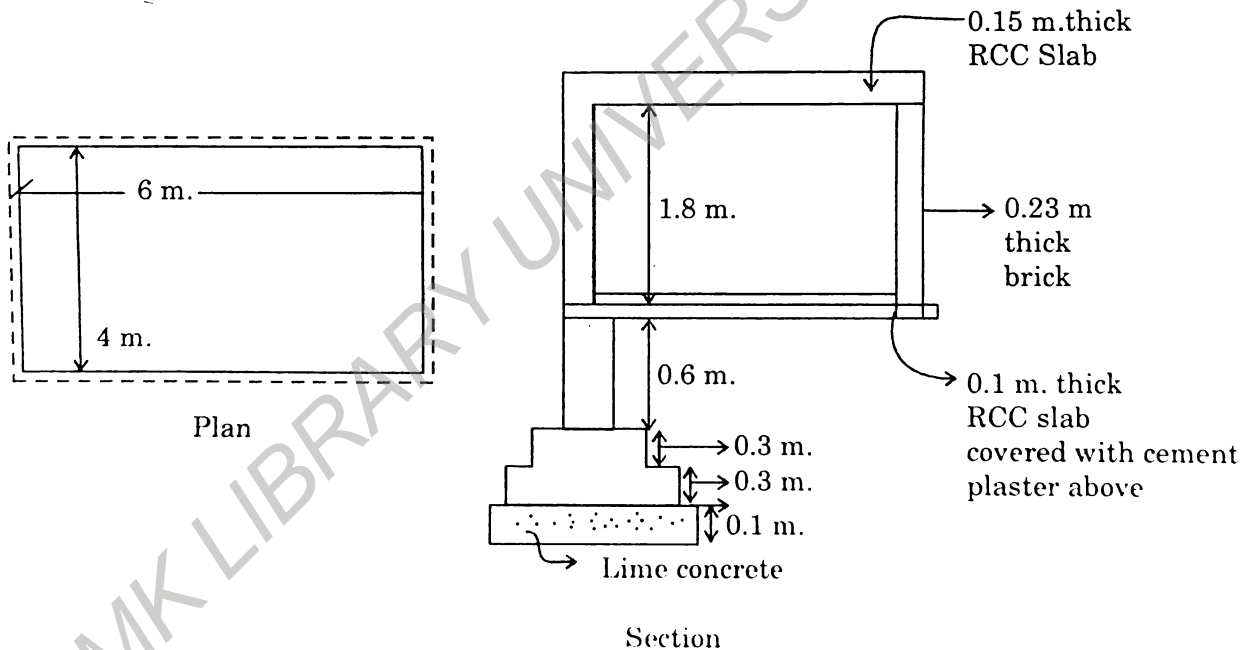
5. Discuss in detail the factors affecting the analysis of rate ?

Or

6. Explain the methods of valuation of land ?

7. Explain in detail types of cost models ?

Or

8. What is the necessary to consider maintenance cost for estimating the building ? Explain the factors to be considered for maintenance cost of the buildings of any type.

(4 × 15 = 60 marks)

Name...

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

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

B.Arch.

AR 12 53—HISTORY OF ARCHITECTURE—IV

Time : Three Hours — Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 5 marks.

1. List any *five* works of Minoru Yamasaki ?

2. List any *five* works of Santiago Calatrava ?

3. Name and sketch the building of Philip Johnson ?

4. Name and sketch the building of Robert Stern ?

5. Mention any *five* building materials used in colonial period observed from your case studies ?

6. Mention any *five* buildings of colonial period observed from your case studies ?

7. State any *two* philosophies of Edwin Lutyens ?

8. State any *two* philosophies of Philip Johnson ?

(8 × 5 = 40 marks)

Part B

Answer all questions.

Each question carries 15 marks.

1. Briefly discuss the implementation of Aldo Rossi's philosophy in his projects ?

Or

2. Briefly discuss your understanding of utopian ideas of Paulo Soleri with suitable Examples ?

3. Briefly discuss your understanding of deconstrutivism by Frank Gehry with suitable Examples ?

Or

4. Briefly discuss your understanding of critical regionalism by Tado Ando with suitable Examples ?

Turn over

5. Briefly discuss the colonial styles in India with suitable Examples ?

Or

6. Bring out the spatial organization and planning features if Dutch Palace with suitable sketches ?

7. Discuss the common features of Charles Correa works observed from your case studies ?

Or

8. Discuss the works of Uttan Jain with suitable sketches ?

(4 × 15 = 60 marks)

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

B.Arch.

AR 12 52—BUILDING CONSTRUCTION MATERIALS AND STRUCTURAL SYSTEMS

Time : Three Hours   Maximum : 100 Marks

Assume suitable data wherever necessary.

Substantiate with suitable sketches wherever required.

Part A

I. Answer *all* of the following :

   i) Explain various types of plaster finishes.

   ii) Write a note on various types of special materials used in plastering.

   iii) State the various temporary structures used for construction and discuss on the economy in form work.

   iv) Write explanatory notes on pre-cast roof construction.

   v) Discuss the utility of concrete floors mentioning its advantages and disadvantages.

   vi) Write short notes on beams and slab construction.

   vii) Explain the term "Damp proofing".

   viii) What are the causes for dampness in building ?

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

Part B

II. Answer the following :

   1 (A) What are the requisites of a good flooring finish ? Describe in brief the construction of a brick pitching.

Or

   (B) Draw to scale and explain the constructional details of timber, rubber and linoleum flooring.

Turn over

2 (A) Draw to scale the pre-cast pre-stressed roof for a span of 14 m × 18 m providing all the details.

Or

(B) Describe the concepts behind portal frames, folded plates and domes with sketches.

3 (A) Assume suitable data and choose suitable cladding system for a multi storeyed MNC company and provide details.

Or

(B) Draw to scale the details of sandwich panels, partitions and ceiling for a restaurant project. Assume suitable data.

4 (A) Why is it necessary to provide joint in structure ? Explain the different types of joints.

Or

(B) What are construction joints ? Describe the method of installation of construction joints in R.C.C. roof slab.

(4 × 15 = 60 marks)