

Total No. of Questions—4]

[Total No. of Printed Pages—3

Seat No.	
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[5157]-31

T.Y. B.Arch EXAMINATION, 2017

BUILDING, TECHNOLOGY AND MATERIALS—III

(2008 Bridge PATTERN)

Time : Three Hours

Maximum Marks : 100

- N.B. :—**
- (i) Answers to Section I and Section II should be written in separate books.
 - (ii) Use drawing sheets for Section I and answer-sheets for Section II.
 - (iii) Solve any *two* questions from Section I and Question No. 4 is compulsory.
 - (iv) Neat diagrams must be drawn wherever necessary.
 - (v) Figures to the right indicate full marks.
 - (vi) Assume suitable data, if necessary.

SECTION I

1. A factory shed 12 m × 18 m is to be provided with steel truss and sheet roofing :
- Draw a part plan to the scale of 1 : 20. [10]
- Draw part section to the scale of 1 : 20. [10]
- Draw enlarged detail of fixing sheet roofing to the truss and fixing of steel stanchion to the RCC base column. [10]

P.T.O.

2. Paneling is to be provided for a Conference room 6 m × 4 m is to be using timber.

Draw an appropriate Paneling with necessary finishes and detailing.

Draw plan at 1 : 20 scale. [10]

Draw elevation of the longer side with door opening at centre at 1 : 20 scale showing the framing behind. [10]

Draw detail at the corner of the room and at the top of the door opening to scale 1 : 5. [10]

3. Draw sketches of any *three* of the following : [30]

(a) Draw a section through cavity wall at foundation and terrace levels.

(b) What is modular ceiling ? Draw section showing fixing of nodular tiles in framing and fixing of framing to ceiling and wall.

(c) Counterfort retaining wall and buttress retaining wall.

(d) Single Basement construction with external tanking.

(e) Enlarged section through cantilever balcony along longer side of room.

SECTION II

4. Answer any *five* of the following : [40]

(a) Explain the process guniting.

- (b) Explain with sketches Raft foundation and its types.
- (c) Explain with sketches decorative brickwork.
- (d) Explain the process of painting of new steelwork.
- (e) Explain with sketch the process of setting out of structures.
- (f) Explain with sketch RCC pile cap and column.
- (g) Use of steel in building industry.
- (h) Describe any *four* types of glass and their use in building industry.

Total No. of Questions—5]

[Total No. of Printed Pages—2

Seat No.	
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[5157]-33

**T.Y. B.Arch EXAMINATION, 2017
BUILDING SERVICES—I
(2008 Bridge PATTERN)**

Time : Three Hours

Maximum Marks : 100

- N.B. :—** (i) Answers to the two sections should be written in separate answer books.
(ii) Neat diagrams must be drawn wherever necessary.
(iii) All questions are compulsory.
(iv) Figures to the right indicate full marks.

SECTION I

1. What is Mechanical ventilation ? Explain different systems of mechanical ventilation in detail with appropriate sketches. [15]

Or

Explain Direct Stack Effect and Reverse Stack Effect in Natural Ventilation with the help of neat sketches.

2. Explain refrigeration cycle process, components with neat and appropriate sketches. [15]

Or

Explain the components and functioning of Split Air Conditioning System.

3. Write short notes on any *four* of the following : [20]
(a) Any *two* types of filter
(b) Cooling Tower

P.T.O.

- (c) Air Handling Unit
- (d) Refrigerants in Air Conditioning
- (e) Window A.C. unit
- (f) Wind Catcher.

SECTION II

4. Explain the properties of sound absorption material and give its classification according to the use with neat sketches. [20]

Or

Explain different types of fire extinguishers used in Fire Fighting System with the help of neat sketches.

5. Write short notes on any *six* of the following : [30]

- (a) Structure Borne Noise
- (b) Fire escape Staircase
- (c) Reverberation Time
- (d) Sound Echo
- (e) Panel Absorber in Acoustics
- (f) Fire Sprinkler
- (g) External noise control
- (h) Refuge Area.

Total No. of Questions—5]

[Total No. of Printed Pages—5

Seat No.	
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[5157]-34

T.Y. B.Arch EXAMINATION, 2017

QUANTITY SURVEYING AND ESTIMATING

(2008 Bridge PATTERN)

Time : Three Hours

Maximum Marks : 100

- N.B. :—**
- (i) All questions are compulsory.
 - (ii) Answers to the two sections should be written in separate books.
 - (iii) Neat sketches must be drawn wherever necessary.
 - (iv) Figures to the right indicate full marks.
 - (v) Assume suitable data, if necessary.
 - (vi) Use of logarithmic table, slide rules, mollier chart, electronic pocket calculator and steel table is allowed.

SECTION I

1. (a) Work out quantities for the following items of work (any *five*) for the structure shown in the accompanying diagram based on the details and data given : [40]
- (i) Excavation of soil in Soft Murum for the coloumn footing.
 - (ii) R.C.C. (1 : ½ : 3) col. Footing.

P.T.O.

- (iii) R.C.C. ($1\frac{1}{2}$: 3) chajjas.
 - (iv) Polished kota flooring (excluding toilet).
 - (v) Nirooplaster (1 : 4) to Wall (living room only).
 - (vi) Ceramic tile dado in toilet (Ht = 2.10 m).
 - (vii) B.B. Masonry (1 : 6) 230 thick in Ground floor only.
 - (viii) C.C.T.W. door frame (out of 125 × 65 mm).
 - (ix) M.S. Window and Ventilators.
- (b) State the unit of measurement as per I.S. 1200 for the following items of work : [10]
- (i) M 20 floor slab.
 - (ii) 30 mm Commercial flush door shutters.
 - (iii) P.O.P. false ceiling.
 - (iv) 100 mm High Kotah skirting.
 - (v) P.V.C. Overhead Water Tank.
 - (vi) Murum filling in plinth.
 - (vii) Corrugated G.I. Roofing.
 - (viii) Internal Plaster.
 - (ix) Wash Hand Basin.
 - (x) Steel reinforcement.

SECTION II

- 2.** Write short notes on any *two* of the following : [10]
- (a) Work Order
 - (b) Unit Rate
 - (c) Uses of Detailed Estimate
 - (d) Schedule of Quantities
 - (e) Characteristics of Approximate Estimate.
- 3.** Describe the items of work, as described in Bill of Quantities for the following items of work (any *two*) : [10]
- (a) B.B. Masonry (1 : 4) 110 mm thick
 - (b) P/F 20 mm dia. Concealed G.I. Pipe
 - (c) Excavation in soil in S.M. (0-1.5 m)
 - (d) P/F. M.S. Tor Steel Reinforcement.
- 4.** Analyse rate for the following items based on the material and labour cost as indicated below (any *two*) : [15]
- (a) R.C.C. beam (1 : 2 : 4)
 - (b) 230 mm brick masonry
 - (c) Sand faced plaster
 - (d) P.C.C. in foundation (1 : 4 : 8)

Material Rate	Labour Rate
Cement : Rs. 300/Bag	RCC : Rs. 2,800/cum
Sand : Rs. 1,600/cum	Brick Masonry : Rs. 4,200/cum
Aggregate : Rs. 1,800/cum	Plaster : Rs. 1,200/sq.m
Bricks : Rs. 9/brick	P.C.C. : Rs. 2,000/cum

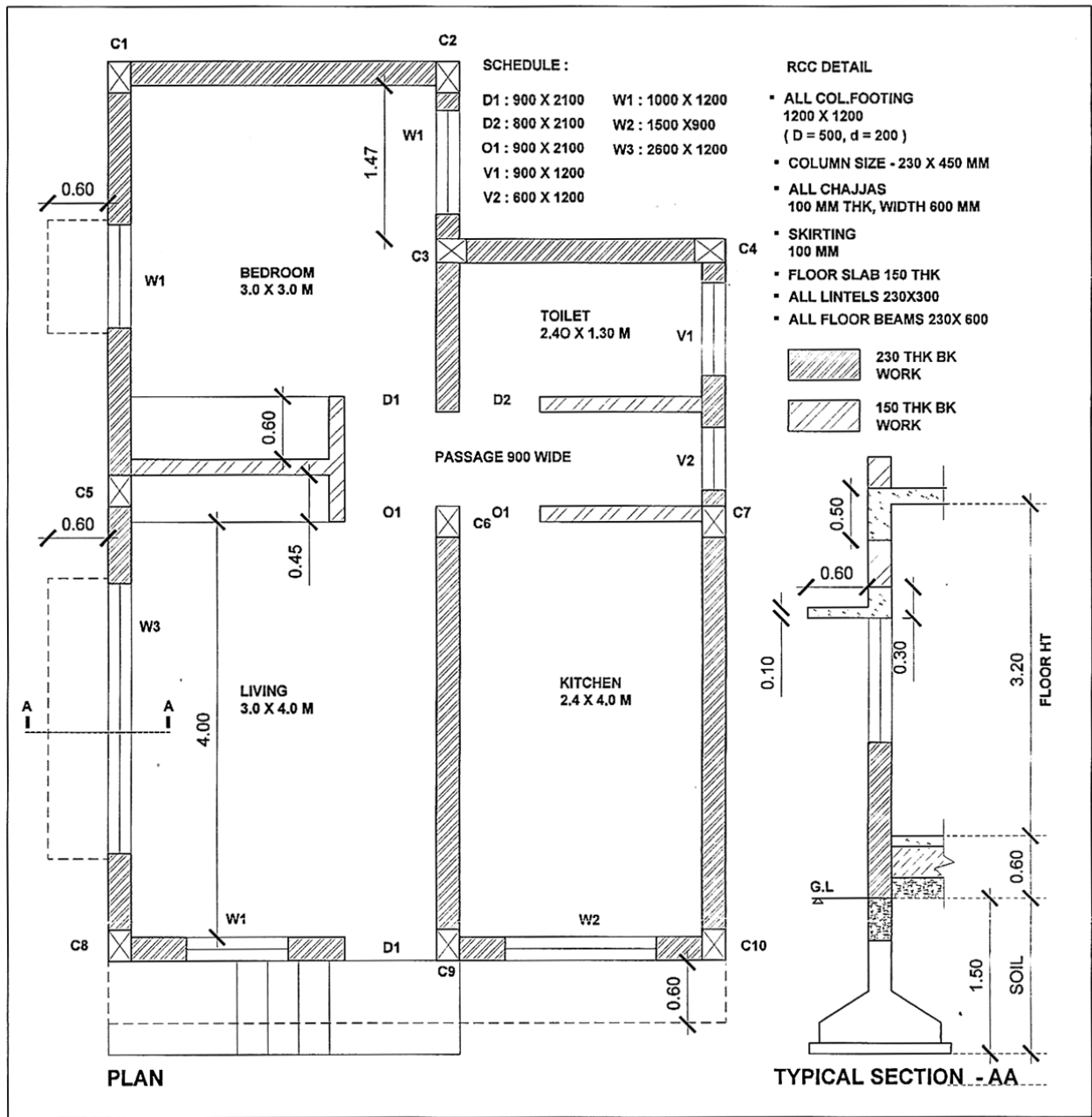
5. Prepare indent of Material for (any *three*) : [15]

(a) R.C.C. 1 : 2 : 4 for quantity of 117 cum.

(b) U.C.R. Masonry in CM 1 : 5 for quantity of 210 cum.

(c) Internal Niroo finish plaster in CM 1 : 6 of 285 sqm.

(d) Brick Masonry 230 mm thick in CM 1 : 4 of 440 cum.



Total No. of Questions—7]

[Total No. of Printed Pages—3

Seat No.	
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[5157]-35

T.Y. B.Arch EXAMINATION, 2017

SPECIFICATION WRITING

(2008 Bridge PATTERN)

Time : Three Hours

Maximum Marks : 100

N.B. :— (i) *All questions are compulsory.*

(ii) *Figures to the right indicate full marks.*

SECTION I

1. Define Specification writing. Discuss necessity of Specifications in Tenders and Contracts. [10]

Or

Write a detailed specifications for R.C.C. Slab.

2. Discuss the method of writing specifications for Masonry Works. [10]

Or

Discuss the relationship between Working Drawings and Specification writing. [10]

3. Write brief specifications for (any *three*) [15]

- (a) External Brick Wall
(b) R.C.C. Columns
(c) Vitrified tile flooring
(d) Aluminium Window.

P.T.O.

4. Write Material specifications for (any *three*) [15]
- (a) Glass
 - (b) Sand
 - (c) Aggregate
 - (d) Cement
 - (e) Reinforcement.

SECTION II

5. Write short notes on (any *three*) [15]
- (a) Necessity of Septic Tanks
 - (b) Ferrule Connection
 - (c) Requirement for good Acoustics
 - (d) Fixed Fire Extinguishers.
6. Explain the function of (any *three*) [15]
- (a) Nahani Trap
 - (b) Earthing
 - (c) Compressors
 - (d) Disconnecting chamber
 - (e) Transformers.
7. Write names of the manufacturer for the materials (any *ten*) : [20]
- (a) Bath Tub
 - (b) Coloured Glass

- (c) Cement Paint
- (d) Drainage pipes
- (e) Cement
- (f) Flooring tiles
- (g) Wash basin
- (h) G.I. Sheets
- (i) Air-Conditioner
- (j) Water Storage Tank
- (k) Roofing tiles
- (l) Aluminium windows.

Total No. of Questions—10]

[Total No. of Printed Pages—2

Seat No.	
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[5157]-41

**Fourth Year B.Arch EXAMINATION, 2017
TOWN PLANNING
(2008 PATTERN)**

Time : Three Hours

Maximum Marks : 100

- N.B. :—**
- (i) Question Nos. 1 and 6 are compulsory.
 - (ii) Answer any *three* questions from each Section from the remaining.
 - (iii) Answers to the two sections should be written in separate books.
 - (iv) Draw neat diagrams or sketches wherever necessary.
 - (v) Assume suitable data, if necessary.

SECTION I

1. What are the principles and necessity of Town Planning. [14]
2. Explain with sketches any *three* types of towns given in Manasara Shilpa Shastra. [12]
3. Write notes on (any *three*) : [12]
 - (a) Mohenjo-Daro
 - (b) Stages of Planning in India
 - (c) Satellite Growth
 - (d) Le Corbusier.
4. Describe *six* stages of Town Development suggested by Lewis Mumford. [12]
5. Explain three Magnet theory. [12]

P.T.O.

SECTION II

6. State the agencies responsible for Housing. Explain the terms Row Houses, Twin Bungalows, Semi detached and Detached Houses with sketches. [14]

7. Write short notes on (any *three*) : [12]
 - (a) Aspects of Zoning
 - (b) Any *two* types of Road Junctions
 - (c) Urban Land Ceiling Act, 1976
 - (d) Cul-De-Sac.

8. Write a note on M.R. and T.P. Act, 1966. [12]

9. What is Development Plan and Regional Plan ? [12]

10. What is the role of Urban Designer in Town Planning Process ? [12]

Total No. of Questions—10]

[Total No. of Printed Pages—3

Seat No.	
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[5157]-42

FOURTH YEAR B.Arch EXAMINATION, 2017

PROFESSIONAL PRACTICE

(2008 Bridge PATTERN)

Time : Three Hours

Maximum Marks : 100

- N.B. :—**
- (i) Answers to the two sections—I and II must be written on separate answer-books.
 - (ii) Answers to Question No. 1 from Section I and Question No. 6 from Section II are compulsory.
 - (iii) Attempt any *two* out of the remaining questions in each Section.
 - (iv) Figures in brackets to the right of each question indicate full marks.

SECTION I

1. Write a detailed note on the Architects Act, of 1972. What is the major contribution of the Architects Act ? What is its impact on the profession of architecture ? [20]

Answer any *two* of the following :

2. What is the Indian Institute of Architects ? When and how was this institution formed ? What are its general activities as an institution of Architects ? [15]

P.T.O.

3. Write a comprehensive note on Council of Architecture. What is its composition ? What is its impact on Architectural Education in India ? [15]
4. Write short notes on any *three* of the following : [15]
- (a) Layout planning of an Architects Office [5]
 - (b) Professional Responsibilities of Architects [5]
 - (c) Stages of Architects work from Design to Completion [5]
 - (d) Periodic Architectural supervision [5]
 - (e) Professional Fees for Architectural Services [5]
 - (f) Architects Agreements with Clients. [5]
5. Define any *three* of the following : [15]
- (a) Arbitration [5]
 - (b) Easements [5]
 - (c) Contract [5]
 - (d) Distress sale [5]
 - (e) Power of Attorney [5]
 - (f) Market value. [5]

SECTION II

6. Write a detailed note on the process of tendering for selection of a contractor for construction. What are the advantages and disadvantages in tendering ? [20]

Answer any *two* of the following :

7. What are the Professional Fees prescribed by the Council of Architecture for comprehensive professional architectural services ? [15]

Or

8. What is the status and function of an architect on the project site in respect of a building under construction ? [15]

9. Compare and contrast any *three* of the following : [15]

(a) Open Tenders and Invited Tenders [5]

(b) Dominant Heritage and Servient Heritage [5]

(c) Earnest Money Deposit and Security Deposit [5]

(d) Freehold and Leasehold Land Tenure [5]

(e) Proprietary and Partnership Practice [5]

(f) Cost, Price and Value. [5]

10. Write short notes on any *three* of the following : [15]

(a) Running Account Bills [5]

(b) Pre-Bid Conference [5]

(c) Site Visit Reports [5]

(d) Sentimental Value [5]

(e) Extra Items of Work [5]

(f) Tender Scrutiny Report. [5]

Total No. of Questions—1]

[Total No. of Printed Pages—4

Seat No.	
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[5157]-43

FOURTH YEAR B. Arch. EXAMINATION, 2017

ARCHITECTURAL DESIGN—IV

(2008 BRIDGE COURSE)

Time : 18 Hours

Maximum Marks : 100

- N.B. :—**
- (i) Your answers will be valued as a whole.
 - (ii) Assume suitable data, if necessary.
 - (iii) The candidates shall submit single line plans of the entire scheme with the layout plan to the required scale at the end of the first day. These drawings shall not be returned to the candidates, therefore due record of the same should be kept for subsequent days. The candidate shall not make any considerable departure from the design submitted on the first day.
 - (iv) The drawings should be self-explanatory with structural scheme, should have clarity in all plans and sections. Skill of drafting should have language of architecture.

COMMERCIAL COMPLEX AT AURANGABAD

A commercial complex is to be designed at a prime location plot in Aurangabad city. The plot is 5,525 sq. meter in area. Aurangabad is a fast growing city and a city with strong historical and architectural significance. It experiences hot and dry climate in summer and cold and dry climate in winter. It receives moderate rainfall during monsoon season.

P.T.O.

The proposed plot is rectangular, with its east and west sides as 85 meters, and the north and south sides as 65 meters. Plot has 1 : 80 slope from west to east, with the higher side on the west and lower side on the east. The plot is surrounded by mixed land-use area and has 18 meter wide road on west side. The Commercial Complex is to be designed for the following requirements.

THE SPACE REQUIREMENTS

Built-up areas of various Commercial Units is as follows :

Unit	Area (Sq. Mts.)	No. of Units
A-type shops	30	24
B-type shops	45	12
Showrooms	150	2
A-type offices	30	24
B-type offices	45	12
Restaurants	60	2
Exhibition Halls	150	2

PARKING

Four Wheelers	60
Two wheelers	150

DESIGN REQUIREMENTS

1. 10% of the area is to be reserved as open space. This open space will be used for various promotional activities and events. Floor Space of open space is not available for construction. Floor space of area of internal roads, if any; is available for construction.

2. Margins :
 - (a) Front margin min 6.0 m from internal and external roads.
 - (b) Side margins min 4.5 m from plot boundary.
 - (c) Distance between two buildings/wings min 6.0 m and $(H/2)-3$ m. H = Height of building. It can be maximum 15.0 m.
3. Permissible FSI is one.
4. Basement to the extent of Ground Coverage of the building is allowed.
5. U.G. Tank, Security Cabin, D.G. Set, compost plant should be provided at convenient locations.
6. Areas free of FSI
 - (a) Balconies : to the extent of 10% of floor area
 - (b) Staircase : width of flight should be 1.5 m
 - (c) Stilt Floor
 - (d) Passages to the extent of 5% of floor area
 - (e) Basement constructed within the built-up area of the building.
7. All other requirements of 'National Building Code' should be followed.

DESIGN PARAMETERS :

1. Outdoor activity spaces should be integrated with Indoor activity spaces.

2. Necessary toilets, passages, corridors, staircases, lobbies should be provided.
3. Interesting Landscape should be provided.

DRAWINGS REQUIRED :

First Day :	Scale
1. Single line Layout plans showing site, buildings, parking, driveways, pathways, landscaping etc.	1:250
2. Single line plans at all levels.	
Final Day :	
1. Layout plan showing site, buildings parking, driveways, pathways, landscaping etc.	1:250
2. Plans at all levels	1:200
Internal Layout should be shown.	
3. Minimum 2 sections to explain the scheme	1:200
4. Minimum 2 elevations	1:200
5. A sketch perspective or bird's eye-view.	

Total No. of Questions—4]

[Total No. of Printed Pages—3

Seat No.	
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[5157]-301

T.Y. B.Arch EXAMINATION, 2017

BUILDING, TECHNOLOGY AND MATERIALS—III

(2008 PATTERN)

Time : Three Hours

Maximum Marks : 100

- N.B. :—**
- (i) Answers to Section I and Section II should be written in separate answer-books.
 - (ii) Solve any *two* questions from Section I and Question No. 4 is compulsory.
 - (iii) Neat diagrams must be drawn wherever necessary.
 - (iv) Figures to the right indicate full marks.
 - (v) Assume suitable data, if necessary.

SECTION I

1. A office space is to be provided with sandwiched partition in an opening between the general office and conference hall. Opening size is 2400 × 2100 mm (height).

Draw a plan to the scale of 1 : 20. [10]

Draw elevation and section to the scale of 1 : 20. [10]

Draw enlarged detail of joinery between stud and nogging and fixing of door shutter. [10]

P.T.O.

2. A RCC cantilever balcony is to be provided along the longer side of the room having one way floor slab. Balcony projection is 1.2 m. Draw plan and section at 1 : 20 scale of balcony showing reinforcement in detail. [20]
- Draw railing detail showing reinforcement at 1 : 20. [10]
3. Draw sketches of any *three* of the following : [30]
- (a) Cantilever retaining wall showing reinforcement detail.
 - (b) A dining table is to be assembled with solid wood sections for framing and provided with glass top. Draw sketch showing fixing of wooden leg to frame and fixing of glass top.
 - (c) Draw a section through escalator for a mall building showing installation provisions in civil work to a suitable scale.
 - (d) Single Basement construction with drain cavities.
 - (e) Explain with sketches fixing of steel truss to steel stanchion.

SECTION II

4. Answer any *five* of the following : [40]
- (a) What is Ready Mix Concrete ? Explain its relevance of in today's building construction activities.
 - (b) Explain with sketches the difference between End bearing pile and Friction pile.

- (c) Explain with sketches construction of decorative brickwork.
- (d) Explain the advantages of aluminium doors and windows.
- (e) Explain the use of stainless steel in building industry.
- (f) Explain the process of guniting and its application for plumb correction of column.
- (g) What is a raft foundation ? What are the types of rafts ?
- (h) What are the ingredients of Light Weight Concrete ? Explain advantages and application of the same.

Total No. of Questions—8]

[Total No. of Printed Pages—6

Seat No.	
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[5157]-302

T.Y. B.Arch EXAMINATION, 2017

THEORY OF STRUCTURES—III

(2008 BRIDGE PATTERN)

Time : Three Hours

Maximum Marks : 100

- N.B. :—**
- (i) Answer any *three* questions from each Section.
 - (ii) Answer should be written in separate answer-books.
 - (iii) Neat diagrams must be drawn wherever necessary.
 - (iv) Figures to the right indicate full marks.
 - (v) Use of non-programable calculator and steel tables is allowed.
 - (vi) Assume suitable data, if necessary.
 - (vii) Use Fe 415 steel and M20 grade concrete.

SECTION I

1. Write short notes on any *four* : [16]
- (a) SBC-Definition, use and values for different types of soils
 - (b) Combined footings
 - (c) Rankine's theory of earth pressure
 - (d) Stresses in an eccentrically loaded column and I.S. provisions
 - (e) Reinforcement detailing of a Central Spine Staircase
 - (f) Counterfort Type Retaining Wall.

P.T.O.

2. A rectangular column of size 280×560 is subjected to a load of 1200 kN and rests on a soil of S.B.C. of 275 kN/m^2 .

Design the base of the footing [3]

Find the depth of the footing and calculate area of steel in both directions. [6]

Draw a sketch of the reinforcement in plan and section and make a schedule of the footing. [4]

Check for one way shear. τ_c against percentage of steel is as follows : [4]

A_{st}/bd	Shear Stress in N/mm^2 τ_c
0.15	0.28
0.25	0.36
0.50	0.48
0.75	0.56

3. Design a RCC doglegged staircase for an School building for the following data : [16]

(a) Width of the flight—1800

(b) Floor to floor height—3800

(c) Tread-250 mm No. of treads-9 in each flight

(d) The staircase is supported on 250 mm wide beams on outer edges of landings.

4. A Retaining wall is proportioned as follows :

Retained earth is on the vertical face of the stem.

Density of retained earth 20 kN/m^3

Angle of repose 30°

Coefficient of friction 0.8

S.B.C. of soil 250 kN/m^2

Density of concrete 25 kN/m^3

Top width of stem 300 mm

Bottom width of stem 580 mm

Height of stem 6000 mm

Width of base 3800 mm

Toe projection 950 mm

Depth of base 600 mm

(a) Check the stability of the retaining wall with respect to sliding and over-turning. [10]

(b) Design the stem reinforcement. [7]

SECTION II

5. (a) Explain the concept of prestressing and state its advantages over conventional R.C.C. construction. [6]

(b) A prestressed concrete beam of overall size 450×950 is simply supported over a span of 10.5 m. The beam carries an udl of 32 kN/m over its entire span exclusive of its self weight. The prestressing tendons are located at a distance of 150 from the neutral axis and provides a prestressing force of 1600 kN.

Calculate the extreme fibre stresses at Mid Span and at End Span. [10]

6. (a) Two column of size 400×400 and 500×500 carry loads of 1000 and 1350 kN respectively and are spaced 2.0 m apart centre to centre and rest in a soil of S.B.C. of 200 kN/m^2 . Find the plan dimensions of the combined footing. Draw a sketch of the plan. [9]

(b) Write short notes on any *two* : [8]

(i) Basic concepts in Ultimate Load Method and its Failings

- (ii) Stress block diagram for a flexural member in limit state method
- (iii) Gantry Girder
- (iv) Piles—need and structural Action.

7. A compound stanchion is made of 2 number ISMC 450 placed back to back and these are to be battened.

Find the distance between the two so that they take maximum load. [3]

Explain the reasons for the above. [3]

Find the maximum load it can carry if the stanchion is hinged at both ends and has a height of 5.5 m.

Multiply the S.R. by 1.1 for battened connections and by 1.05 for laced connections. [4]

Design the Battening system and draw a sketch of the same. [7]

S.R. (λ)	Stresses in N/mm^2
40	198
50	183
60	168
70	152

8. Write short notes on any *four* with neat sketches : [16]
- (a) Details in a R.C.C. Portal Frame with Hinged Base Connections
 - (b) Reinforcement detailing for beams and columns in Earthquake resistant structure
 - (c) Reinforcement detailing for a circular water tank
 - (d) Foundations in soils of Low S.B.C.
 - (e) Different shapes of compound stanchions
 - (f) Different pressure conditions in an underground water tank.

Total No. of Questions—4]

[Total No. of Printed Pages—2

Seat No.	
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[5157]-303

**T.Y. B. Arch EXAMINATION, 2017
BUILDING SERVICES—II
(2008 PATTERN)**

Time : Three Hours

Maximum Marks : 100

- N.B. :—**
- (i) Answers to the two sections should be written in separate answer-books.
 - (ii) Neat diagrams must be drawn wherever necessary.
 - (iii) *All* questions are compulsory.
 - (iv) Figures to the right indicate full marks.

SECTION I

1. Answer any *two* questions from the following : [2×15=30]
- (a) Explain with neat sketches the different systems used for mechanical ventilation.
 - (b) Explain with sketches the air and refrigerant cycles in an air conditioning system.
 - (c) Explain with sketches the various ways in which natural ventilation can be achieved in buildings.
2. Write short notes on any *four* of the following : [4×5=20]
- (a) Stack effect
 - (b) Air cooled condenser
 - (c) Air handling unit
 - (d) Wind catchers
 - (e) Conditions of human thermal comfort
 - (f) Split air conditioner.

P.T.O.

SECTION II

3. Answer any *two* questions from the following : [2×15=30]
- (a) Explain with sketches various methods of controlling the structure borne noise in construction of walls and partitions.
 - (b) State Sabine's formula for finding reverberation time. Discuss about various types of acoustical materials used for sound insulation in a building.
 - (c) Explain with sketches water supply scheme in a high rise building for fire fighting.
4. Write short notes on any *four* of the following : [4×5=20]
- (a) Defects of sound
 - (b) Fire hydrants
 - (c) Storage tanks for fire fighting
 - (d) Types of sprinklers
 - (e) Fire load
 - (f) Fire escape staircase.

Total No. of Questions—1]

[Total No. of Printed Pages—8

Seat No.	
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[5157]-304

T.Y. B.Arch EXAMINATION, 2017

ARCHITECTURAL DESIGN—III

(2008 PATTERN)

Time : 12 Hours (Day 1-Enlodge 6 hours) Maximum Marks : 100

(Day 2-6 hours)

- N.B. :—**
- (i) Your design will be valued as a whole.
 - (ii) Assume suitable standard data, wherever necessary.
 - (iii) The candidate must submit Layout plan to 1 : 200 scale and schematic floor plans and sections to 1 : 100 scale at the end of the first day. These sketches will not be returned to the candidates therefore due record of the same should be kept for reference on the subsequent day. Candidates should avoid serious and abrupt deviations from the sketches (Planning scheme and Concept) submitted on the first day.
 - (iv) The drawings should be self-explanatory with requisite graphics, nomenclature, dimensions, levels, furniture layout and structural clarity.
 - (v) Read the paper completely before attempting.

P.T.O.

DESIGN TOPIC : VILLAGE HANDICRAFTS CENTRE

DESIGN PROGRAMME AND CONTEXT INTRODUCTION :

A group of neighbouring villages on the outskirts of Pune, with the help of government funding and expertise have collectively decided to set up a co-operative society to help their people with their traditional small scale business. The setup will co-ordinate with the village households in collection, display, marketing and sale of local arts and crafts in return for subsidized supply of raw material. It will also train and provide free infrastructure for new individuals within its premises in pilot workshop spaces, which will serve as live display exhibits for visitors and demonstration areas for enthusiasts.

The campus will be strategically located in one of the villages, near a frequently visited tourist spot-a lake, to provide exposure and commerce. It would also aim to provide a cultural platform for the villagers to interact with their urban counterparts with an informal performance area and an ethnic restaurant specializing in local cuisine. The set-up will be run and managed entirely by the villagers. It should be able to comfortably cater to about 75 visitors at one time. The maximum number of staff will be 35 including shop workers.

DESIGN BRIEF :

ACTIVITY	CARPET AREA
	(in sq m)

A. VISITOR AREA

(1) Entrance porch/verandah (not for vehicles)	25
(2) Entrance lobby (for max 40 people at one time)	40
(3) Lounge (with seating for 30 people)	60
(4) Office-cum-records room with table for :	15
(a) Manager	
(b) Accountant	
(5) Exhibition/Display spaces with one sales counter :	
(a) Covered lockable space	150
(b) Semi-covered space (pergola cover etc.)	50
(c) Open to sky	as suited
(d) Store (not accessible to visitor)	25
(6) Ethnic Restuarant :	
(a) Dining (for max. 40 people)	80

(b) Kitchen	40
(c) Pantry	15
(d) Store	10
(7) Visitors Toilets (Ladies, Gents)	as per standards

B. SERVICE AREAS :

(8) Goods loading/unloading area (covered) for all purpose with accessibility to service vehicle	25
(9) Raw material distribution area with counter and space for queue	25
(10) Raw material store	20
(11) Finished goods collection area with counter and space for queue	25
(12) Finished goods store	20
(13) Staff toilets (Ladies, Gents)	as per standards

C. WORKSHOP AREAS :

(14) Pottery and Clay workshop (for 5 people)	80
--	----

- | | |
|-----------------------------------|----|
| (15) Wood and Bamboo workshop | |
| (for 5 people) | 80 |
| (16) Clothing and Fabric workshop | |
| (for 5 people) | 80 |
| (17) Smithy and metal workshop | |
| (for 5 people) | 80 |
| (18) Stone carving workshop | |
| (for 5 people) | 80 |

Each workshop to have a connected open yard of at least 40 sq m with its own wet point, wash area and raw material storage area. Workshop areas to be visible to visitors but with controlled access. A common kiln using waste wood fuel to be located. Only an area of 10 × 10 m to be demarcated for kiln.

D. AMENITIES :

- | | |
|--|----|
| (19) Amphitheatre : | |
| (a) Stage with seating for 75 people | |
| (b) Green room (covered) | 10 |
| (c) Store (covered) | 10 |
| (20) Children's play area | |
| (Shielded from service and workshop areas) | |

TOTAL CARPET AREA :

1045

NOTE :

- (1) Students have to design adhering to the brief with a permitted 5% variation in carpet area or as justified by a specific furniture layout. Add optimum circulation and wall areas for total built up area figure.
- (2) The facility should be strictly planned on ground floor only.
- (3) No existing trees can be cut, replanted or repositioned.
- (4) Front setback-6.0 m, side setback-3.0 m.
- (5) Parking is done a distance away and out of the site to preserve the natural setting. Parking not a part of the design.
- (6) Use of local materials, contemporary expressions of traditional techniques and concepts climatological concerns and minimum use of monolithics R.C.C. is expected. Use of structural steel is permitted.
- (7) Follow the colour code in rendering :

Primary covered circulation areas (corridors, passages)—Yellow

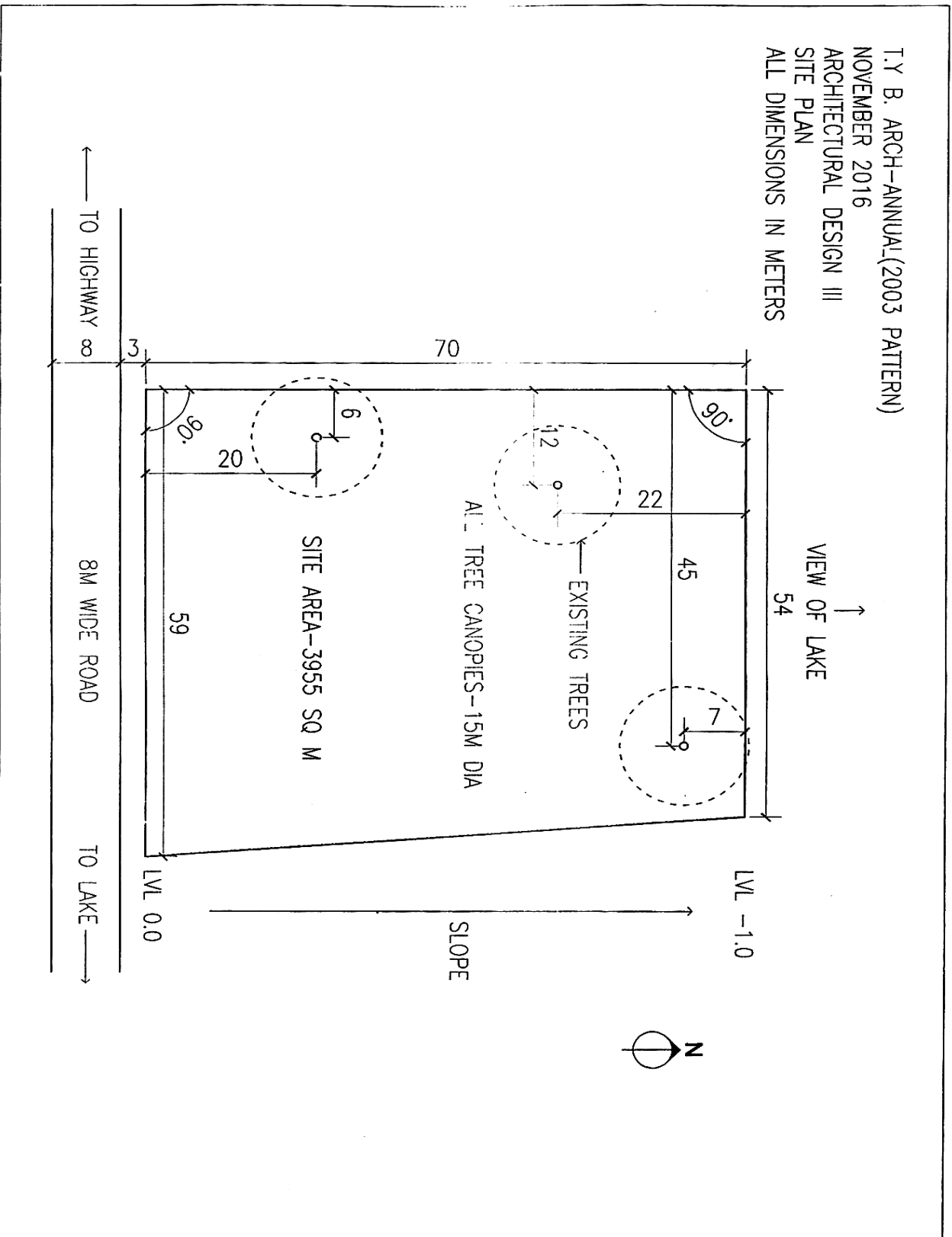
Paved open to sky pathways—Brown

Tar road—Grey.

DRAWING REQUIREMENTS :

- (1) Design criteria and concept with sketches as suited
- (2) Location plan with building outline, approach road and immediate surroundings 1 : 200
- (3) Site plan cum ground floor plan showing site development and interior layout respectively. 1 : 100
- (4) Sections (minimum 2-perpendicular to each other) 1 : 100
- (5) Elevation (minimum 1-roadside) 1 : 100
- (6) Sketch views of interior and exterior. as suited

T.Y. B. ARCH-ANNUAL (2003 PATTERN)
 NOVEMBER 2016
 ARCHITECTURAL DESIGN III
 SITE PLAN
 ALL DIMENSIONS IN METERS



Total No. of Questions—10]

[Total No. of Printed Pages—2

Seat No.	
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[5157]-401

FOURTH YEAR B.Arch EXAMINATION, 2017

TOWN PLANNING

(2008 Bridge PATTERN)

Time : Three Hours

Maximum Marks : 100

- N.B. :—**
- (i) Question Nos. 1 and 6 are compulsory.
 - (ii) Answer any *three* questions from each Section from the remaining.
 - (iii) Answers to the *two* sections should be written in separate books.
 - (iv) Draw neat diagrams or sketches wherever necessary.
 - (v) Assume suitable data, if necessary.

SECTION I

1. Write a note on Indus Valley Civilization. Explain one example with respect to Town Planning aspects. [14]
2. Write a note on Rad burn plan and explain with sketches. [12]
3. Write notes on (any *three*) : [12]
 - (a) National Housing Policy
 - (b) Neighborhood planning
 - (c) Garden city concept
 - (d) Growth of towns.
4. Explain the concept of Satellite town. Also state its characteristics with example. [12]

P.T.O.

5. Describe various types of Surveys in Town planning. Explain importance of surveys in planning process. [12]

SECTION II

6. What is Regional Planning ? Explain role of amenities and transportation network with reference to Regional planning. [14]
7. Write short notes on (any *three*) : [12]
- (a) Development Control Rules
 - (b) Types of Road Junctions
 - (c) FSI and TDR
 - (d) Principles of Urban design.
8. Explain the importance of M.R. and T.P. Act, 1966. [12]
9. Describe the features of Land Acquisition Act. [12]
10. Explain the term Town Planning Scheme and state its importance in town planning. [12]

Total No. of Questions—10]

[Total No. of Printed Pages—3

Seat No.	
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[5157]-402

FOURTH YEAR B.Arch EXAMINATION, 2017

PROFESSIONAL PRACTICE

(2008 PATTERN)

Time : Three Hours

Maximum Marks : 100

- N.B. :—**
- (i) Answer to the two sections—I and II must be written on separate answer-books.
 - (ii) Answers to Question No. 1 from Section I and Question No. 6 from Section II are compulsory.
 - (iii) Attempt any *two* out of the remaining questions in each Section.
 - (iv) Figures in brackets to the right of each question indicate full marks.

SECTION I

1. Write a detailed note on the Indian Institution of Architects. Give its brief history, structure of its organisation and its principal activities and functions. [20]

Answer any *two* of the following :

2. What is the council of architecture ? How and when was it established ? What is its composition, and its role in architectural profession in India. ? [15]

P.T.O.

3. Write a detailed note on the role of a professional architect. Highlighting his specific duties, responsibilities and status in society. [15]
4. Write short notes on any *three* of the following (5 each) : [15]
- (a) Stages of work in a typical architectural project
 - (b) Role of clerk of works in a construction project
 - (c) Professional remuneration of architectural services
 - (d) Structure and composition of an Architects Office
 - (e) Professional conduct regulations for architects
 - (f) Role of allied/specialist consultants in architecture.
5. Define any *three* of the following (5 each) : [15]
- (a) Professional
 - (b) Power of Attorney
 - (c) Sinking Fund
 - (d) Dilapidation
 - (e) Easements
 - (f) Agreement.

SECTION II

6. What are the advantages and disadvantages of the tendering system ? Write a note on different types of tenders, and systems of tendering. [20]

Answer any *two* of the following :

7. What are easements ? Describe different types of Easements, and explain with sketches where necessary. [15]

8. Write a comprehensive note on architectural competitions, giving the types and procedure with advantages and disadvantages if any. [15]
9. Compare and contrast any *three* of the following (5 each) : [15]
- (a) Cost, Price and Value
 - (b) Proprietary and Partnership Practice
 - (c) Defects Liability Period and Extended Period
 - (d) Earnest money deposit and security deposit
 - (e) Open and invited tender
 - (f) Bonus clause and penalty clause in tenders.
10. Write short notes on any *three* of the following (5 each) : [15]
- (a) Sentimental Value
 - (b) Virtual Completion
 - (c) Advertising by Architects
 - (d) Pre-qualification System
 - (e) Tender Notice
 - (f) Running Account Bills.

Total No. of Questions—5]

[Total No. of Printed Pages—5

Seat No.	
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[5157]-403

FOURTH YEAR B.Arch EXAMINATION, 2017

QUANTITY SURVEY AND ESTIMATING

(2008 PATTERN)

Time : Three Hours

Maximum Marks : 100

- N.B. :—**
- (i) All questions are compulsory.
 - (ii) Answers to the *two* sections should be written in separate answer-books.
 - (iii) Neat diagrams must be drawn wherever necessary.
 - (iv) Figures to the right indicate full marks.

SECTION I

1. (A) Work out quantities for the following items of work based on the details given in the accompanying diagram (any *eight*) : [40]
- (i) P.C.C. below footing
 - (ii) R.C.C. Footing for columns
 - (iii) Dado tiles for bathroom and WC
 - (iv) T.W. Windows
 - (v) Excavation for column footings
 - (vi) 150 mm ht. skirting in living room

P.T.O.

- (vii) Internal plaster for bed room
 - (viii) Murum filling in plinth
 - (ix) R.C.C. lintels
 - (x) R.C.C. slab 110 mm thick.
- (B) State the unit of measurement as per IS Code 1200 : [10]
- (i) Rock Excavation
 - (ii) 12 mm Cement Plaster
 - (iii) R.C.C. lintel in 1 : 2 : 4
 - (iv) T.W. door frame
 - (v) Flooring
 - (vi) Rolling shutters
 - (vii) G.I. Pipe 40 mm dia.
 - (viii) Bk. Bat waterproofing on terrace
 - (ix) D.P.C. in 1 : 2 cement mortar
 - (x) Brick Masonry in Super Structure.

SECTION II

2. Write short notes on (any *two*) : [10]

- (a) Interim certificate

- (b) Purpose, essential and importance of rate analysis
- (c) Indent of materials
- (d) Types of estimates.

3. Prepare rate analysis for unit quantity (any *three*) : [15]

- (a) Polished Kotah Stone Flooring
- (b) 230 mm Bk. Mas. in 1 : 6 cement mortar
- (c) 20 mm cement plaster in 1 : 6 cement mortar
- (d) R.C.C. work in column 1 : 1 and 1/2 : 3.

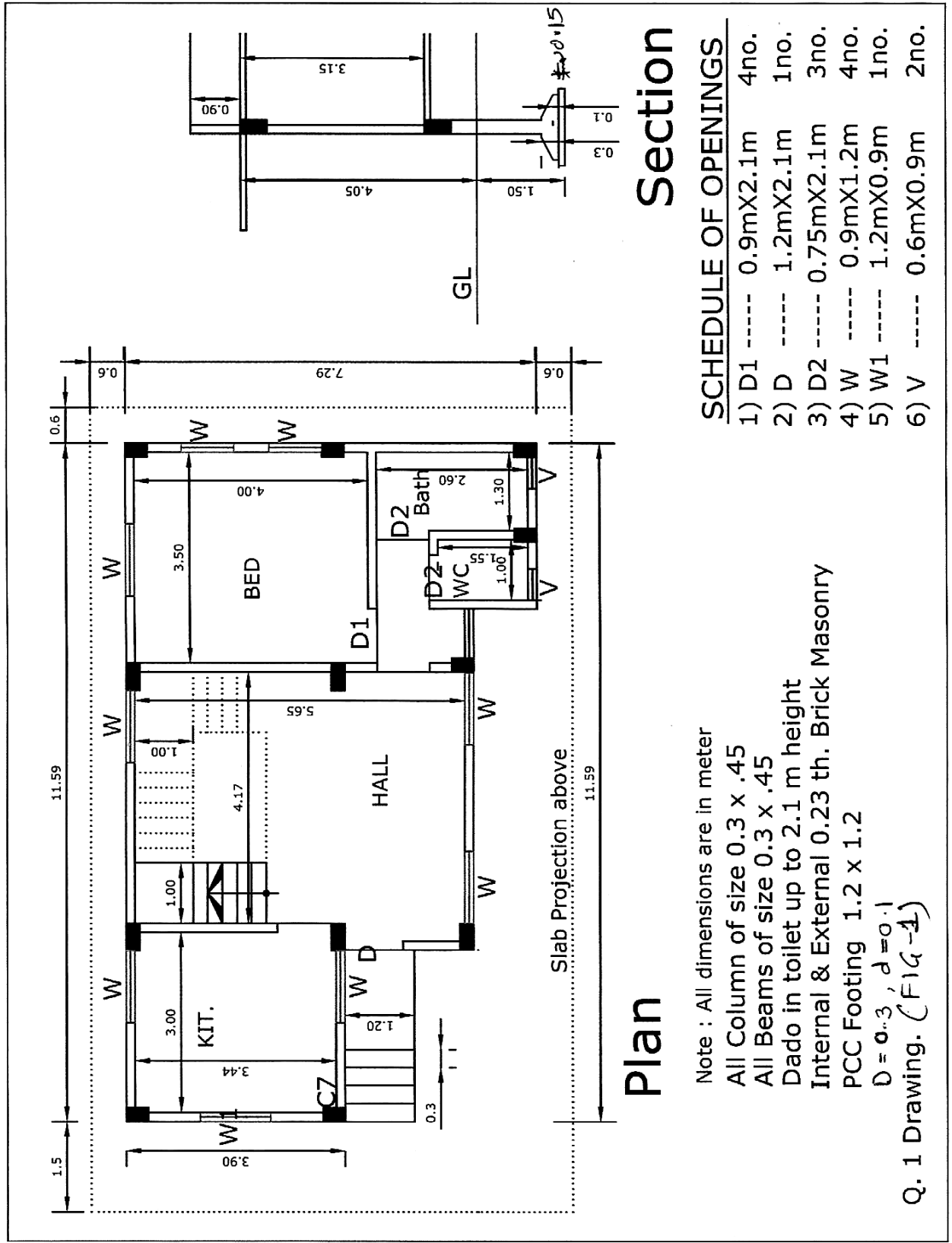
Material Rates :

Brick	—	7 per brick
Cement	—	400 per bag
Sand	—	4000 per cu m
Kotah stone	—	767 per sq m
Aggregate	—	610 per cu m.

Labour Rates :

R.C.C Work	—	6,625 per cu m
Bk. Mas. Work	—	5,357 per cu m
Cement Plaster	—	347 per sq m
Kotah Stone Flooring	—	460 per sq m

4. Prepare indent of material for the following (any *three*) : [15]
- (a) P.C.C. below foundation in 1 : 3 : 6 for 17 cu m
 - (b) 12 mm cement plaster in 1 : 6 mortar for 575 sq m
 - (c) 100 mm th. Bk. work in 1 : 4 mortar for 65 sq m
 - (d) 100 mm th. D.P.C. in 1 : 1 and 1/2 : 3 for 22 sq m.
5. Explain in detail the following (any *two*) : [10]
- (a) Describe any *two* items of work as bill of quantities for Q. 1 A.
 - (b) Write a note on DSR.
 - (c) What is Bill of Quantities ?



Total No. of Questions—6]

[Total No. of Printed Pages—3

Seat No.	
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[5157]-404

FOURTH YEAR B.Arch. (Theory) EXAMINATION, 2017

SPECIFICATION WRITING

(2008 PATTERN)

Time : Three Hours

Maximum Marks : 100

N.B. :— (i) *All questions are compulsory.*

(ii) *Answers to the two sections should be written in separate books.*

(iii) *Figures to the right indicate full marks.*

SECTION I

1. Discuss the methodology for writing detailed specification giving an example. [10]

Or

Explain the necessity of specifications in the contract documents.

Explain what you mean by arbitration.

2. Write material specification on (any *four*) : [20]

(a) Bricks

(b) Cement

(c) Sand

(d) Aggregate

(e) M.S. reinforcement.

3. Write brief specification on (any *four*) : [20]

(a) Stone Masonry

P.T.O.

- (b) Shahabad Flooring
- (c) AC Sheet Roofing
- (d) Oil Bound Distemper
- (e) Internal Plaster.

SECTION II

4. Write short notes on (any *four*) : [20]

- (a) Escalators
- (b) Solar energy
- (c) Soak Pit
- (d) Ramp for disabled person
- (e) Chemical waterproofing methods.

5. Explain functions of (any *four*) : [20]

- (a) Earthing
- (b) Floating Floors
- (c) Disconnecting Chambers
- (d) Ferrule Connection
- (e) False Ceilings in Auditoriums.

6. Write manufacturers' name for the following products (any *ten*) : [10]

- (i) European WC Pan
- (ii) Taps

- (iii) Cement Paint
- (iv) Coloured glass
- (v) Cement
- (vi) Flooring Tiles
- (vii) Wash basin
- (viii) AC sheets
- (ix) Compressors
- (x) Lifts
- (xi) Roofing tiles
- (xii) Aluminium windows
- (xiii) Vitrified Tiles
- (xiv) Orissa pan
- (xv) Lift.