Total No. of Questions—**3**] [Total No. of Printed Pages—**2**

Seat No.	

[5564]-11

T.Y. B.Arch. EXAMINATION, 2019

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 books.

(*ii*) Use drawing sheets for section I and answer sheets for Section II.

(*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. Solve any *one* : [30]

Provide a partition to divide the area equally between an air-conditioned conference room and open office along the shorter side. Size of hall is 8 m × 5 m.

Draw plan showing framing and skin of partition. (Scale 1 : 20)

Draw section to a scale 1 : 20 and

Draw details to a suitable scale for :

(*a*) Joinery between the stud and nogging

(*b*) Fixing of shutter in the partition.

P.T.O.

Or

A RCC canilever 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 detail.

Draw railing detail to 1 : 20.

2. Draw details of the following (any *three*) : [30]

(*a*) Detail plan of aluminium sliding Window for Opening size 1.2 M × 1.2 M (H).

(*b*) Modular co-ordination.

(*c*) Single basement construction with internal tanking.

(*d*) Cantilever retaining wall showing reinforcement detail.

(*e*) Fixing of steel truss to steel stanchion.

SECTION II

3. Write short notes with sketches any *five* of the following : [40]

(*a*) Guniting

(*b*) Use of metal in building industry.

(*c*) Cavity walls

(*d*) Explain with sketch end bearing and friction piles.

(*e*) Types of safety glass and its application in building industry

(*f*) Castellated beam

(*g*) Raft Foundation.

Total No. of Questions—**8**] [Total No. of Printed Pages—**4**

Seat No.	

[5564]-12

T.Y. B.Arch. EXAMINATION, 2019

THEORY OF STRUCTURES

(2008 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-programmable calculators and steel tables allowed.

(*vi*) Assume suitable data, if necessary.

(*vii*) Use Fe415 steel and M20 grade concrete.

SECTION I

1. Write short notes on any *four* : [16]

(*a*) Angle of Repose

(*b*) Shear Key

(*c*) S.B.C of Soil. List of Various Soil and Their S.B.C.

(*d*) Reasons for eccentricity in a Column and I.S. Provisions.

(*e*) Reinforcement detailing of a Folded Plate Staircase.

(*f*) Cantilever Retaining Wall without Toe Projection.

2. A rectangular column of size 300 × 600 is subjected to a load of 1250 kN and rests on a soil of S.B.C of 250 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]

P.T.O.

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

Check for one way shear. τc against percentage of steel as follows. [4]

Ast/bd	**Shear Stress in N/mm^2 τc**
0.15	0.28
0.25	0.36
0.50	0.48
0.75	0.56

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

(*a*) Width of the light - 1600

(*b*) Floor to floor height - 3200

(*c*) Tread - 300 mm No of treads 9 in each flight

(*d*) The staircase is supported on 230 mm wide beams on outer edges of landings.

4. A Retaining wall is proportioned as follows : [17]

Retained earth is on the vertical face of the stem.

Density of retained earth 18 Kn/m^3

Angle of repose - 30°

Coefficient of friction - 0.6

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

Density of Concrete - 25 kN/m^3

Top Width of stem - 270 mm

Bottom width of stem - 540 mm

Height of stem - 5100 mm

Width of base - 3300mm

Toe Projection - 800 mm

Depth of Base - 550 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 process of Post-Tensioning and Pre-Tensioning. [6]

(*b*) A prestressed concrete beam of overall size 300 × 800 is simply supported over a span of 7.0 m. The beam carries an udl of 25 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 1300 kN.

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

6. (*a*) Two column of size 250 × 250 and 400 × 400 carry loads of 700 and 1200 kN respectively and are spaced 1.6 m apart centre to centre and rest in a soil of S.B.C of 180 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* :

(1) Describe Limit State Method

(2) Stress Block Diagram for a Flexural Member in Ultimate Load Method

(3) Crane Girder

(4) Different Pressure Conditions in an underground Water Tank.

7. A Compound Stanchion is made of 2 number ISMC 350 placed back to back and these are to be battened. [3]

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

Explain the reasons for the above.

Find the maximum load it can carry if the stanchion hinged at both ends and has a height of 4.7 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*) Advantages of a Portal Frame.

(*b*) Discuss the Structural Elements to make the structure Earthquake Resistant.

(*c*) Reinforcement Detailing for a Circular Over Head Water Tank

(*d*) Piles - Types and Applications

(*e*) Lacing System in a Compound Stanchion.

(*f*) Foundations in soil of Low. S.B.C.

Total No. of Questions—**5**] [Total No. of Printed Pages—**2**

Seat No.	

[5564]-13

T.Y. B. Arch. EXAMINATION, 2019

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. 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 different types of fans used in mechanical ventilation in detail with appropriate sketches.

P.T.O.

3. Write short notes on any *four* of the following : [20]

(*a*) Any one type of compressor

(*b*) Cooling Tower

(*c*) Air Handling Unit

(*d*) Refrigerants in air-conditioning

(*e*) Window A.C unit

(*f*) Wind Catcher.

Section II

4. Explain in detail wet and dry riser systems in fire fighting with the help of neat sketches. [20]

Or

Explain with neat sketches methods of controlling structure and air borne noise in buildings

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

(*a*) Air Borne Noise

(*b*) Fire escape Staircase

(*c*) Any *four* Defects of sound

(*d*) Fire Triangle

(*e*) Any *one* type of fire extinguisher

(*f*) Fire Sprinkler

(*g*) External noise control

(*h*) Refuse Area.

Total No. of Questions—1] [Total No. of Printed Pages—4

Seat No.	

[5564]-14

T.Y. B.Arch. EXAMINATION, 2019
ARCHITECTURAL DESIGN—III
(2008 PATTERN)

Time : 12 Hours (Enlodge 6 hours) **Maximum Marks : 100**

1. ***Your design will be valued as a whole.***
2. ***Assume suitable date, if necessary.***
3. ***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 & Concept) submitted on the first day.***
4. ***The drawings should be self-explanatory with requisite graphics, nomenclature, dimensions, levels and structural concept clarity.***

DESIGN TOPIC: PILGRIMS' RESORT, ALANDI, PUNE

Site:

Situated on the outskirts of the densely packed Pune city, at the junction of the highway & a secondary access road. A sloping site located close to Alandi temple & its adjacent settlement with mostly green fields around.

Objectives:

To design quality accommodation facility & amenities for short duration stay of pilgrims & related tourists.

Catering to a wide section of pilgrims right from a budget traveler to an N.R.I tourist, single backpacker to families & groups, semi-urban middle class to global affluent class, but limited to those wanting to spend a little more for a better stay facility & resort style environment as against the compact & sometimes extremely poor city hotels.

Idea of combining pilgrimage with a vacation in a better quality environment can result in extended stay as against the typical short stay.

Landscape will play a key role in establishing the environment & improving the stay.

Aims at avoiding the typical stratification of classes while protecting the privacy & exclusivity of individuals. Stay & Dining options cater to budgets

P.T.O.

but do not have restrictions to anyone who would respect the decorum. Access to amenities & landscape is completely unrestricted.

DESIGN BRIEF:	**CARPET AREA**
1. Entrance porch :Good enough for 2 cars at a time with a overtaking lane (free of built up area)	
2. Entrance Lobby, reception and waiting (for about 50 people)	100 sq m
3. Cloak room	15 sqm
4. Administration office and records room (For two tables)	15 sq m
5. Manager's cabin with attached toilet	15 sqm
6. Store	10sqm
7. Ladies Toilet with Hadicap toilet	- as per standards
8. Gent's toilet with handicap toilet	- as per standards
ACCOMODATION FACILITIES	
9. Single Economy :10 Nos.- 20 sq m each	- 200 sq.m
10.Deluxe room: 10 Nos.- 30 Sq.m each	- 300 sq.m
11.Dormitories : 2 Nos. -70 sq. m.each(6 ppl each)	- 140 sq.m
DINING AREAS	
12. Economised buffet meal dining hall: For 50 people at a time	- 250 sq.m
13. Kitchen area with store	- 100 sq.m
14. Loading unloading areas	
HOUSE KEEPING AND MAINTANENANCE	
15.Soiled Linen room	- 10 sq.m
16.Fresh linen room	- 10 sq.m
17.Store manager goods receiving and inventory	- 10 sq.m
18. Maintenance store	- 50 sqm

SERVICES

a. Generator room -covered
b. Sewage treatment plant-(only area to be allocated)
c. Solid waste sorting , disposal-(only area to be allocated)
d. Transformer -(only area to be allocated)

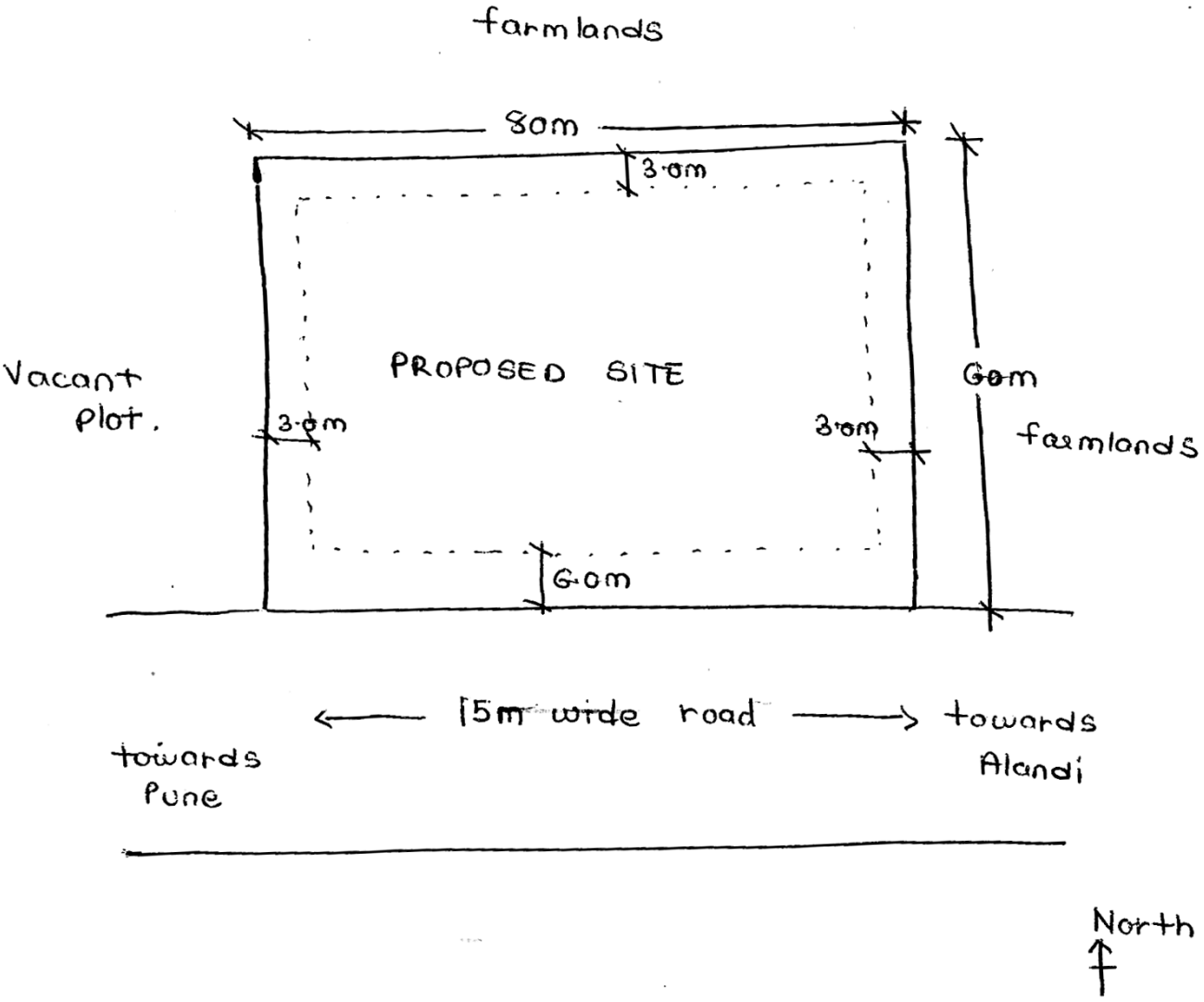
Students should use area figures only as a guideline and ascertain actual areas as per furniture sizes and layout.
Primary circulation area (corridors) should be coloured yellow.
A.C. refers to air conditioned spaces

AREA CALCULATION

Approximate carpet area: 1225 sq. m
15% circulation on basic carpet +20 % walls on net carpet: 400 sq. m
Total built up area : **1625 sq.m**

DRAWING REQUIREMENTS:

1. Design criteria and concept
2. Location plan with building outline on site 1:200
3. Site plan cum ground floor plan showing site development and interior layout respectively. Structural grid to be shown 1:100
4. Sections(minimum 2) 1: 100
5. Elevation(roadside) 1:100
6. Sketch view


farmlands
80m
3·0m
PROPOSED SITE
Vacant plot.
3·0m
3·0m
60m
farmlands
6·0m
15m wide road
towards Pune
towards Alandi
North

Total No. of Questions—**10**] [Total No. of Printed Pages—**2**

Seat No.	

[5564]-21

Fourth Year B. Arch. EXAMINATION, 2019

TOWN PLANNING

(2008 PATTERN)

Time : Three Hours **Maximum Marks : 100**

Instructions to the candidates:

1. *Question 1 and Question 6 are COMPULSORY*
2. *Answer ANY THREE questions from EACH SECTION from the remaining*
3. *Answers to the TWO SECTIONS should be written in separate books*
4. *Draw neat diagrams or sketches wherever necessary*
5. *Assume suitable data if required*
6. *Figures to the right indicate marks*

SECTION I

Q1) What is the necessity of a Development Plan. Elaborate the method of execution of a Development Plan [14]

Q2) What is the relation of Urban Design with respect to Urban Planning and Architecture? [12]

Q3) What are the different types of housing? Describe with sketches stating the advantages and disadvantages of each type. [12]

Q4) Write a note on Maharashtra Regional and Town Planning Act 1966. [12]

Q5) Explain the concepts of Neighbourhood by Clarence Perry and its characteristics [12]

SECTION II

Q6) What do you mean by the term Town Planning and explain its importance of learning for an architect. Support your answer with appropriate examples. [14]

Q7) What is the concept of a New Town? Elaborate with sketches and name such towns developed in India [12]

Q8) What are the importance of Bye laws? [12]

P.T.O.

Q9) Describe the different types of surveys used in the process of planning. [12]

Q10) Write short notes (Any 2) [12]

a. Regional Planning

b. Patrick Geddes

c. Kevin Lynch

d. Town Planning Schemes

Total No. of Questions—**10**] [Total No. of Printed Pages—**3**

Seat No.	

[5564]-22

Fourth Year B. Arch. EXAMINATION, 2019

PROFESSIONAL PRACTICE

(2008 PATTERN)

Time : Three Hours **Maximum Marks : 100**

INSTRUCTIONS TO CANDIDATES :

i. Answers to the two Sections – I & II – must be written on SEPARATE Answer Books.
ii. Answers to **Q.1** from Section-**I**, and **Q.6** from Section **II** are **COMPULSORY**.
iii. Attempt **ANY TWO** out of the remaining Questions in EACH section
iv. Figures to the right of each Question indicate Full Marks.

SECTION – I

Q-1 **Write a comprehensive note on ARCHITECTURAL SERVICES. Describe a typical Administrative structure and Layout of an Architects OFFICE.** (20)

Answer any TWO of the following :

Q-2 What is the **Council of Architecture** ? What is ts composition, and what is its function and role in the Architectural Profession in India ? (15)

Q-3 Write a detailed note on **The Indian Institute of Architects**, its History in brief, and its Role and Activities as an Institution of Architects in India. (15)

Q-4 Define **ANY THREE** of the following : (5 Marks Each) (15)

a) Power of Attorney (5)
b) Arbitrator. (5)

P.T.O.

c) Sinking Fund (5)
d) Contract (5)
e) Easements. (5)
f) Market Value (5)

Q-5 Write short Notes on **ANY THREE** of the following : (5 Marks Each) (15)

a) Professional Liabilities of Architects (5)
b) Architects Agreements with allied Consultants (5)
c) Stages of Architects work from Design to Completion (5)
d) Architectural supervision of construction work (5)
e) Professional Fees for Architectural services (5)
f) Composition and Layout of an Architects Office (5)

SECTION – II

Q-6 Write a **comprehensive note** on **ARCHITECTURAL COMPETITIONS,** (20)
giving the types and procedures with advantages and disadvantages if any.

Answer ANY TWO of the following :

Q-7 Write a comprehensive note on **TENDERING,** highlighting various types of Tenders, Systems of Tendering and their advantages and disadvantages. (15)

Q-8 The Council of Architecture has prescribed a **CODE OF CONDUCT** for Architects. (15)
What are the provisions of the Architects (Professional Conduct) Regulations ?

Q-9 Write **short Notes** on ANY THREE of the following (5 marks each) : (15)

i. Distress Sale (5)
ii. Defects Liability Period (5)
iii. Running Account Bills (5)
iv. Tender Scrutiny Report (5)
v. Virtual Completion (5)
vi. Professional Negligence (5)

Q-10 **Compare and Contrast** ANY THREE of the following (5 marks each) : (15)

i.	Earnest Money Deposit and Security Deposit	(5)
ii.	Cost, Price and Value	(5)
iii.	Open and Invited Tender	(5)
iv.	Bonus Clause and Penalty Clause in Tenders	(5)
v.	Proprietory and Partnership Practice	(5)
vi.	Freehold and Leasehold Land Tenures	(5)

Total No. of Questions—**5**] [Total No. of Printed Pages—**3**

Seat No.	

[5564]-23

Fourth Year B. Arch. EXAMINATION, 2019

QUANTITY SURVEYING AND ESTIMATING

(2008 PATTERN)

Time : Three Hours **Maximum Marks : 100**

Instructions to the candidates:

1) All questions are compulsory.
2) Answers to the two sections should be written in separate books.
3) Neat sketches must be drawn wherever necessary.
4) Figures to the right indicate full marks.

Section I

Q.1 A Work out quantities for the following items of work based on the details given in the accompanying diagram (Fig. 1) **(Any eight -8)** **40**

1. 150mm thick P.C.C. below footing
2. R.C.C. footing
3. 12mm Internal Plaster to bed room 1 & 2
4. **Vitrified tile flooring in drawing hall & dinning**
5. Excavation in foundation
6. 150mm ht. skirting in drawing hall & dinning
7. Aluminum sliding folding Windows
8. P.C.C. below flooring **100 mm th**
9. T. W. door Frame for D -1 **(Frame size 100 mm × 65 mm)**
10. R.C.C. Chajja for windows

Data :

*RCC Footings 1200 x 1500, D:500, d: 200
*Floor to Floor height – 3.24M
*RCC Columns – 230 x 450
*Lintel Level – 2100
*RCC Slab thickness – 150
* Assume suitable data as required
* Sketch attached
*RCC Beams – 230 x 500
*Cill Level – 1000
*Hard Strata at 1500
* D – 1.2 x 2.1, D1 – 1.0 x 2.1 , D2 – 0.75 x 2.1
* W1 – 1.5 x 1.2 , W2 – 1.2 x 1.2, W3 – 0.9 x 1.2

P.T.O.

Q.1 B State the unit of measurement as per IS Code 1200 **10**

1. Excavation in soft soil
2. 12mm Cement Plaster
3. R.C.C. column in 1:2:4
4. 12mm thick Plywood door panel
5. 100mm ht. skirting in Room
6. G.I. sheet roofing
7. G. I. Pipe 40mm dia.
8. Bk. Bat water proofing
9. D.P.C. in 1:2 cement mortar
10. Marble Staircase Tread

Section II

Q.2 Write short notes on. **(Any two – 2)** **10**

1. Bill of quantities
2. Purpose, Essential & Importance of Rate Analysis
3. Indent of materials
4. Methods of Estimating - service bay, cubic content, plinth area, etc (any 2)

Q.3 Prepare rate analysis for unit quantity. **(Any three-3)** **15**

1. External Sand Faced plaster in 1:6 cement mortor
2. 230mm Bk. Mas. In 1:6 cement mortar
3. PCC 1:3:6 for footing
4. R.C.C. work in column 1:2:4

Material rates:
Brick – 7/- per brick
Cement - 400/- per bag
Sand - 4000/- per cum
Aggregate - 610/- per cu m

Labour rates:
R.C.C. Work - 6,625/- per cu m
Bk. Mas. Work - 2357 /- per cum
Sand Faced Plaster - 547/- per sq m
PCC work - 1500/- per sq m

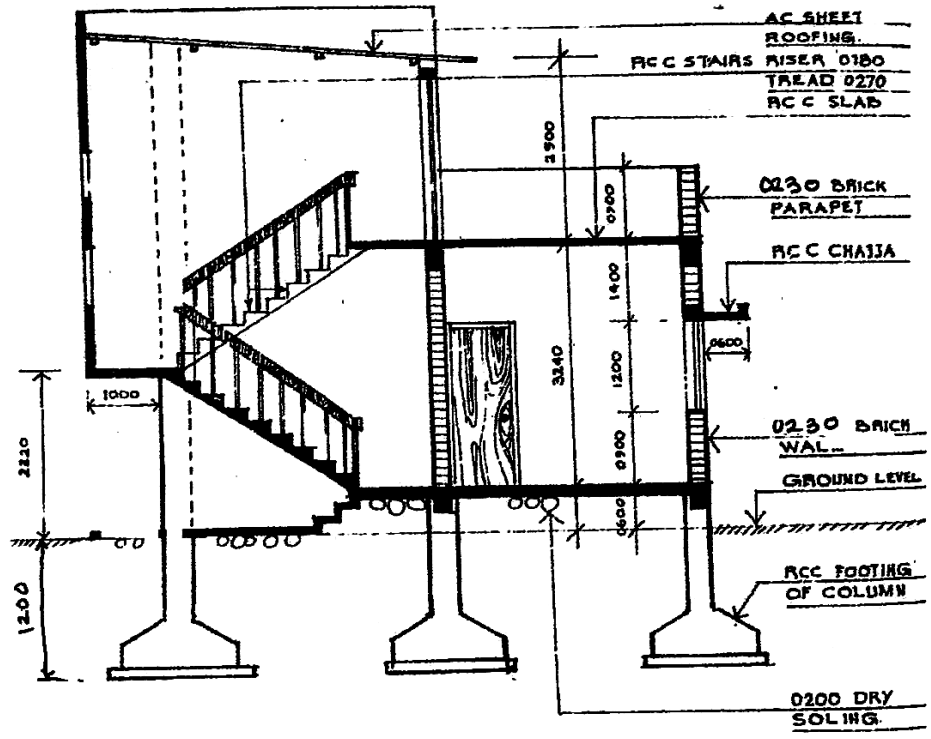
Q.4 Prepare indent of material for following. **(Any three -3)** **15**

1. P.C.C. below foundation in 1:3:6 for 19 cum
2. 12mm cement plaster in 1:6 mortar for 375sqm
3. 100mm th. Bk. Work in 1:4 mortar for 65sqm
4. 100mm th. D.P.C. in 1:1&1/2:3 for 12 cum

Q.5 Explain in detail the following. **(Any two – 2)** **10**

1. Describe the District Schedule of Rate .
2. Write down in detail the mode of measurement for Excavation in any structure.
3. Write down in detail the mode of measurement for R.C.C. beam and column in any structure.

Q.1 A) Drawing- 1



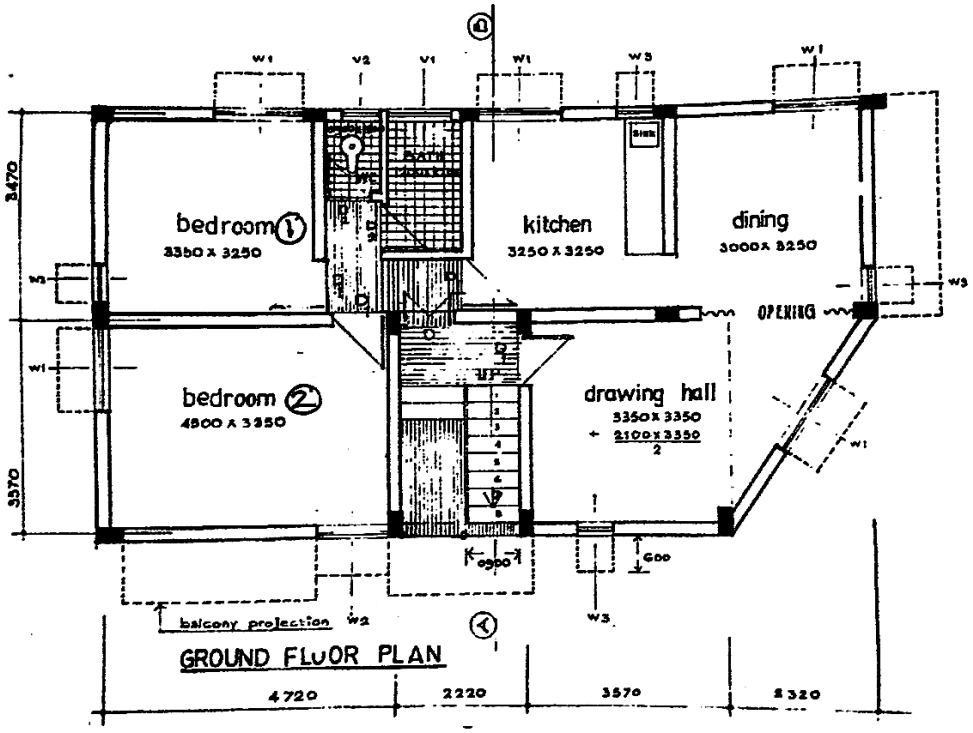


FIG: 1

Total No. of Questions—**7**] [Total No. of Printed Pages—**2**

Seat No.	

[5564]-24

Fourth Year B.Arch. EXAMINATION, 2019
SPECIFICATION WRITING
(2008 PATTERN)

Time : Three Hours **Maximum Marks : 100**

N.B. :— 1) All questions are compulsory

2) Figures to right hand side indicate marks

3) Answers to two sections should be written in two separate answer books

Section I

1) Define Specification writing. Discuss the principles of specification writing (10)

OR

1) Explain types of Specification (10)
Explain what you mean by Perfomance specifications

2) Explain the difference between Open Specifications & Closed Specifications . (10)

OR

2) Discuss the relationship between Working Drawings & Specification writing (10)

(3) Write brief Specifications for (any Three) (15)

(a) Internal brick wall
(b) External cement plaster
(c) R.C.C. Chajjas
(d) Ceramic tile flooring

(4) Write Material Specifications for (any Three) (15)
(a) Bricks
(b) Sand
(c) Lime
(d) Concrete Blocks

P.T.O.

Section II

(5) Write short notes on (any four) (20)

(a) Air handling Unit
(b) Solar panels
(c) Hospital Lifts
(d) Sound Absorbing Materials
(e) Use of plastic in Building Construction

(6) Explain the function of (any four) (20)

(a) Ferrule connection
(b) Smoke Detectors
(c) Fire Hydrant
(d) Filters in air conditioners
(e) Soak pit
(f) Earthing

(7) Write names of manufacturer for the materials (any ten) (10)

(a) Gypsum board
(b) Lift
(c) Internal paint
(d) Water pipes
(e) Portland Cement
(f) Ceramic tiles
(g) Wash basin
(h) GI Roofing Sheets
(i) Air conditioner
(j) Water storage tank
(k) Roofing tiles
(l) Grills

Total No. of Questions—**3**] [Total No. of Printed Pages—**2**

Seat No.	

[5564]-31

T.Y. B.Arch. EXAMINATION, 2019

BUILDING TECHNOLOGY AND MATERIALS–III

(BRIDGE–2008 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*) Neat diagrams must be drawn wherever necessary.

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

(*v*) Assume suitable data, if necessary.

SECTION I

1. Provide a partition to divide the area equally between an air-conditioned conference room and open office along the shorter side. Size of hall is 8 m × 5 m. [30]

Draw plan showing framing and skin of partition. (Scale 1 : 20)

Draw section to a scale 1 : 20 and

Draw details to a suitable scale for :

(1) Joinery between the stud and nogging

(2) Fixing of shutter in the partition.

P.T.O.

Or

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 detail.

Draw railing detail to 1 : 20

2. Draw detail of the following (any *three*) : [30]

(*a*) Detail plan of aluminium sliding Window for opening size 1.2 M × 1.2 M (H).

(*b*) Modular co-ordination.

(*c*) Single basement construction with internal tanking.

(*d*) Cantilever retaining wall showing reinforcement detail.

(*e*) Fixing of steel truss to steel stanchion.

SECTION II

3. Write short notes with sketches any *five* of the following : [40]

(*a*) Guniting

(*b*) Use of metal in building industry.

(*c*) Cavity walls

(*d*) Explain with sketch end bearing and friction piles.

(*e*) Types of safety glass and its application in building industry

(*f*) Castellated beam

(*g*) Raft Foundation.

Total No. of Questions—**5**] [Total No. of Printed Pages—**3**

Seat No.	

[5564]-33

T.Y. B. Arch. EXAMINATION, 2019

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. Explain with neat sketches the refrigeration cycle in the process of Air Conditioning. [15]

Or

Explain with neat sketches, stack effect, wind towers and cross ventilation.

2. Explain with neat sketches the working of a split type air-conditioner. [15]

Or

Explain with neat sketches, the various ways in which natural ventilation can be achieved in buildings.

P.T.O.

3. Write short notes on any *four* of the following : [20]

(*a*) Types of fans used in mechanical ventilation

(*b*) Stack effect

(*c*) Natural Ventilation

(*d*) Types of compressors

(*e*) Conditions of human thermal comfort

(*f*) Wind catchers

Section II

4. What is Reverberation Time ? State Sabine's formula and the optimum reverberation time for a lecture hall. [20]

Calculate the reverberation time for a lecture hall with length = 15 m, width = 8 m, height = 3.5 m. Seating capacity of the hall = 80.

Item	**Description**	**Nos**	**Size**
Flooring	Polished Kota Stone	—	—
Walls	230 thick brick walls with cement finished plaster	—	—
Ceiling	Concrete slab with cement finished plaster	—	—
Doors	T. W. fully paneled doors	2 Nos	1 m×2.1 m
Windows	Fully glazed windows	6 Nos	1.5 m×1.2 m

Assume full occupancy, all windows open, all doors closed and any other suitable data as required.

Or

List the different types of fire extinguishers used in fire fighting systems with the help of neat sketches.

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

(*a*) Smoke Detector

(*b*) Refuge Area

(*c*) Defects of Sound

(*d*) Sound Amplification Systems

(*e*) Acoustical Material

(*f*) Fire Hydrants

(*g*) Fire extinguishers.

Total No. of Questions—**7**] [Total No. of Printed Pages—**4**

Seat No.	

[5564]-34

T.Y. B.Arch. EXAMINATION, 2019
QUANTITY SURVEYING AND SPECIFICATION WRITING
(2008 BRIDGE PATTERN)

Time : Three Hours **Maximum Marks : 100**

Instructions to the candidates:

1. *Answer to all questions from each section.*
2. *Answers to the two sections should be written in separate answer books.*
3. *Neat diagrams must be drawing wherever necessary.*
4. *Figures to the right indicate full marks.*
5. *Use of logarithmic tables, slide ruels, Mollier charts, electronic pocket calculator & steel tables is allowed.*
6. *Assume suitable data, if necessary.*

SECTION - I

Q1) a) Work out quantities for the following items of work based on the details given in the accompanying diagram (Fig1) (Any five) **(30)**

I. R.C.C. M 20 Column Footings
II. R.C.C. M 20 Plinth Beams
III. Cement plaster to walls & Ceiling (Master Bed only)
IV. R.C.C. m 20 Roof slab for Ground Floor Only.
V. Polished Kota Flooring in Living Room Only
VI. Ceramic Tile Dado (2.1 m high) to Master Bed Toilet only
VII. 100 mm high skirting in Master Bed Only.

Data : - Footing size = 1500 x 1500 mm , D = 600 mm, d = 200 mm

- **All plinth beams = 230 x 450 mm, All columns = 230 x 450 mm**
- **All Slabs = 110 mm thk,**
- **All walls = 230mm thks except shown.**
- **Schedule of opening : D1 = 1200 x 1200 mm, D2 = 900 x 2100, D3 = 750 x 2100**
  W1 = 1800 x 1200, W2 = 1000 x 1200, W3 = 1200 x 900
  W4 = 750 x 1200 , W5 = 600 x 900

P.T.O.

b) State the Unit of Measurement (as per IS 1200) for the following items of work (10)

I. A.C. Sheet roofing
II. B.B. Masonry 115 mm thick
III. Rubble soling
IV. P.C.C. in foundation
V. Bib cocks
VI. Inspection Chamber
VII. S.W. pipe for Drainage
VIII. R.C.C. in Columns
IX. R.C.C. in Beams
X. Nahani Traps

Q.2) Write Short Notes on : (Any Two) (10)

I. Guess work
II. Supplementary and Revised Estimate
III. Contingencies
IV. Spot Items

Q.3) Rate Analysis for the following items base o the material and labour costs as indicated below : (Any Two) (10)

I. R.C.C. Beam (1:2:4)
II. P.C.C. in flooring (1:3:6)
III. 230mm thick BB masonary in C.M. 1:6
IV. Internal Cement Plaster (1:4)

Material Rates :

Cement – Rs. 300 / per bag , Sand – Rs. 3400 / cum, Aggregate – Rs. 850 /cum

Brick – Rs. 7/ no.

Labor Rates :

Beam = Rs. 3000 / cum, B.B. Masonary – Rs. 800/cum, PCC = Rs. 600/cum

Cem.Plaster = Rs. 250 / sqm.

SECTION II

Q 4) What is specification & describe briefly different types of specifications & elaborate any two types of specification with examples. **(10)**

Q 5) Write Detailed specifications for the following : **(Any Two)** **(10)**

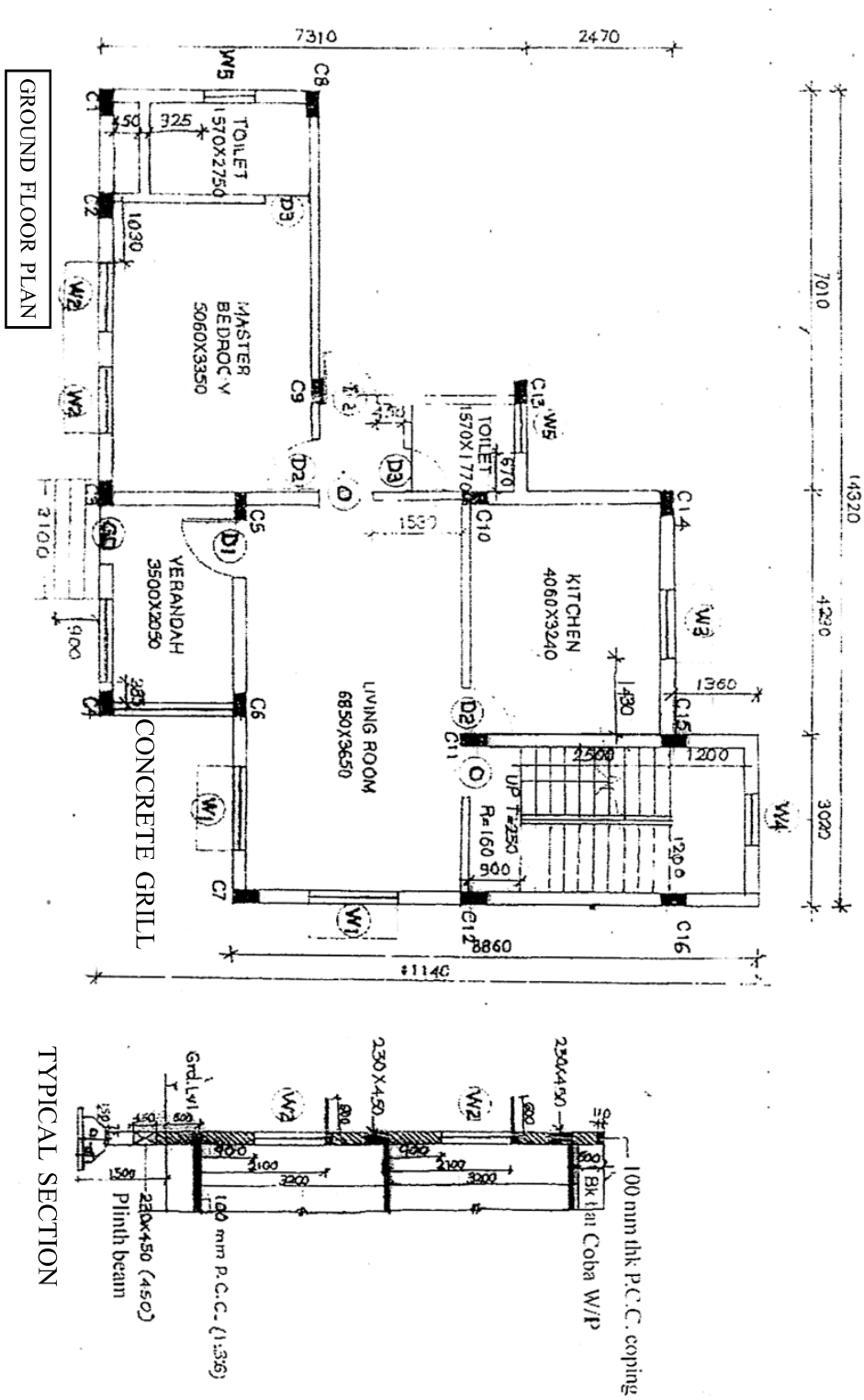
I. Burnt Bricks
II. Reinforcement Steel
III. Water for construction
IV. Cement

Q 6) Write Detailed specifications for the following : **(Any Two)** **(10)**

I. Kota Stone for flooring
II. Teak Wood for Door Frames
III. R.C.C. work in Beams (Concrete only)
IV. Ceramic Tile Dado in toilet.

Q 7) Specify following materials by trade / manufacturer's name : **(Any Ten)** **(10)**

I. Vitrified Tiles
II. Portland Cement (43 grade)
III. PVC water tanks
IV. Electric Switches
V. Ceiling Fans
VI. Glass Films
VII. Cement Paints
VIII. Wash Hand Basins
IX. Ceramic Tiles
X. Bib Cocks
XI. Upvc Rain water Pipes
XII. Passenger lifts



Question no. 1 – Fig 1

Total No. of Questions—**6**] [Total No. of Printed Pages—**2**

Seat No.	

[5564]-35

T.Y. B.Arch. EXAMINATION, 2019

SPECIFICATION WRITING

(2008 BRIDGE COURSE)

Time : Three Hours **Maximum Marks : 100**

Instructions to the candidates:

1) All questions are compulsory.

2) Answers to the two sections should be written in separate books.

Section I

Q.1 **Write Short Notes on** **(Any four – 4) 20**

1. Importance and meaning of Specifications
2. Material testing for construction
3. Relation between working drawing & specifications
4. Arbitration
5. Language of specification writing

Q.2 **Explain the following –** **(Any four 4) 20**

1. Restricted specifications
2. Storage arrangements for Cement
3. Standard specifications 4) Open & Closed Specifications 5) Material specifications for Stone

Q.3 Write Brief Specification for - **(Any two - 2) 10**

1. Murum filing
2. Excavation for Soft Rock
3. RCC beams
4. Aluminium windows

P.T.O.

Section II

Q.4 **Write short notes on –** **(Any four 4)** **20**

1. Methods of Demolition
2. Safety Measures for workers during demolition
3. Concrete Cube Test
4. Propping & Centering
5. Materials for Form work

Q.5 Write Functions of following - **(Any four - 4)** **20**

1. Scaffolding
2. Construction joints
3. Knotting & Stopping 4)Admixtures 5)Punning Rods

Q.6 Write Manufacturers Names for the following products **(Any five -)** **10**

1. AC roofing sheets
2. Vinyl flooring
3. Cement
4. Lift
5. Wooden flooring
6. Glazed Tile dado
7. Float glass
8. Orissa pan

Total No. of Questions—**10**] [Total No. of Printed Pages—**2**

Seat No.	

[5564]-41

Fourth Year B. Arch. EXAMINATION, 2019

TOWN PLANNING

(2008/BRIDGE PATTERN)

Time : Three Hours **Maximum Marks : 100**

Instructions to the candidates:

1. *Question 1 and Question 6 are COMPULSORY*
2. *Answer ANY THREE questions from EACH SECTION from the remaining*
3. *Answers to the TWO SECTIONS should be written in separate books*
4. *Draw neat diagrams or sketches wherever necessary*
5. *Assume suitable data if required*
6. *Figures to the right indicate marks*

SECTION I

Q1) What is the necessity of a Development Plan. Elaborate the method of execution of a Development Plan [14]

Q2) What is the relation of Urban Design with respect to Urban Planning and Architecture? [12]

Q3) What are the different types of housing? Describe with sketches stating the advantages and disadvantages of each type. [12]

Q4) Write a note on Maharashtra Regional and Town Planning Act 1966. [12]

Q5) Explain the concepts of Neighbourhood by Clarence Perry and its characteristics [12]

SECTION II

Q6) What do you mean by the term Town Planning and explain its importance of learning for an architect. Support your answer with appropriate examples. [14]

Q7) What is the concept of a New Town? Elaborate with sketches and name such towns developed in India [12]

Q8) What are the importance of Bye laws? [12]

P.T.O.

Q9) Describe the different types of surveys used in the process of planning. [12]

Q10) Write short notes (Any 2) [12]

a. Regional Planning

b. Patrick Geddes

c. Kevin Lynch

d. Town Planning Schemes

Total No. of Questions—**10**] [Total No. of Printed Pages—**3**

Seat No.	

[5564]-42

Fourth Year B. Arch. EXAMINATION, 2019

PROFESSIONAL PRACTICE

(2008/BRIDUE PATTERN)

Time : Three Hours **Maximum Marks : 100**

INSTRUCTIONS TO CANDIDATES :

i. Answers to the two Sections – I & II – must be written on SEPARATE Answer Books.
ii. Answers to **Q.1** from Section-I, and **Q.6** from Section II are **COMPULSORY**.
iii. Attempt **ANY TWO** out of the remaining Questions in EACH section
iv. Figures to the right of each Question indicate Full Marks.

SECTION – I

Q-1 **Write a comprehensive note on ARCHITECTURAL SERVICES. Describe a typical Administrative structure and Layout of an Architects OFFICE.** (20)

Answer any TWO of the following :

Q-2 What is the **Council of Architecture** ? What is its composition, function and role in the Architectural Profession in India ? (15)

Q-3 Write a detailed note on **The Indian Institute of Architects**, its History in brief, and its Role and Activities as an Institution of Architects in India. (15)

Q-4 Define **ANY THREE** of the following : (5 Marks Each) (15)

a) Power of Attorney (5)
b) Arbitrator. (5)

P.T.O.

c) Sinking Fund (5)
d) Contract (5)
e) Easements. (5)
f) Market Value (5)

Q-5 Write short Notes on **ANY THREE** of the following : (5 Marks Each) (15)

a) Professional Liabilities of Architects (5)
b) Architects Agreements with allied Consultants (5)
c) Stages of Architects work from Design to Completion (5)
d) Architectural supervision of construction work (5)
e) Professional Fees for Architectural services (5)
f) Composition and Layout of an Architects Office (5)

SECTION – II

Q-6 Write a **comprehensive note** on **ARCHITECTURAL COMPETITIONS,** (20)
giving the types and procedures with advantages and disadvantages if any.

Answer ANY TWO of the following :

Q-7 Write a comprehensive note on **TENDERING,** highlighting various types of Tenders, Systems of Tendering and their advantages and disadvantages. (15)

Q-8 The Council of Architecture has prescribed a **CODE OF CONDUCT** for Architects. (15)
What are the provisions of the Architects (Professional Conduct) Regulations ?

Q-9 Write **short Notes** on ANY THREE of the following (5 marks each) : (15)

i. Distress Sale (5)
ii. Defects Liability Period (5)
iii. Running Account Bills (5)
iv. Tender Scrutiny Report (5)
v. Virtual Completion (5)
vi. Professional Negligence (5)

Q-10 **Compare and Contrast** ANY THREE of the following (5 marks each) : (15)

i.	Earnest Money Deposit and Security Deposit	(5)
ii.	Cost, Price and Value	(5)
iii.	Open and Invited Tender	(5)
iv.	Bonus Clause and Penalty Clause in Tenders	(5)
v.	Proprietory and Partnership Practice	(5)
vi.	Freehold and Leasehold Land Tenures	(5)

Total No. of Questions—**1**] [Total No. of Printed Pages—**4**

Seat No.	

[5564]43

Fourth Year B. Arch. EXAMINATION, 2019

ARCHITECTURAL DESIGN—IV

(2008 BRIDGE PATTERN)

Time : 18 Hours **Maximum Marks : 100**

Instructions to Candidates:

1. A complete sketch scheme of the design project explained through site plan, floor plans, section and elevation should be submitted on tracing paper at the end of the first day which will not be returned to the candidate. This is for reference of the examiners.
2. The final design should not vary considerably from the sketch design submitted as above.
3. Assume suitable data wherever necessary.
4. The design will be assessed as a whole.

Title of Project: Department of Sociology, SPPU

Preamble:

The Savitribai Phule Pune University is undergoing an expansion of its facilities and intends to construct a building for the department of Sociology. Though the Department will require a large building, only Phase 1 is to be designed currently. The site identified for the entire department building is part of the University's existing campus in Pune and is as per the drawing given below. The University is a heritage precinct and has a colonial character. It is also thickly planted. The new design should respond appropriately to the existing context.

Codes:

The building should comply with the National Building Code. The other compliances needed are as follows:
Maximum ground Coverage: 50% for the entire building (i.e. including all later phases)
Maximum height: 16m from ground level to the top of the last floor slab.
Parking requirement: 80 two wheelers, 10 cars
Toilets: 1 W/C, 1 urinal, 1 WHB per 25 students. Separate facilities for boys, girls and staff.

P.T.O.

Area Requirements:

Sr. No	Space	Area/Rm	nos	Area (sqm)
1.	Classroom (20 capacity)	40	4	160
2.	Tutorial room (20 capacity)	30	1	30
3.	Rooms for PhD Research Scholars	10	10	100
4.	Computer lab (20 capacity)	40	1	40
5.	Departmental Library	120	1	120
6.	Seminar Room (150 capacity)	150	1	150
7.	Skill Centre	40	1	40
	Ancillary Facilities			
1.	HOD Cabin + Ante chamber	40	1	40
2.	Meeting Room	30	1	30
3.	Professor's Cabin	25	1	25
4.	Associate Professors' Cabins	20	2	40
5.	Assistant Professor's Cabin	15	1	15
6.	Departmental Office	60	1	60
7.	Store / Records room	15	1	15
8.	Visitors' Chamber	30	1	30
9.	Visiting Faculty Common Room	15	1	15
10.	Pantry	5	1	5
11.	Boys' Common Room	40	1	40
12.	Ladies' Room	40	1	40
	TOTAL			995
	@30% circulation, lobbies, toilets, stairs etc.			300

	@20% built up			260
	TOTAL B/U AREA (sqm)			**1555**

A variation of max.10% of areas per room may occur as per design.

Occupant Information for Phase I

1. No. of courses
M.A (2 years full time): 20 students per class
M.Phil (2 years full time): 20 students per class
Ph.D: 10 full time research scholars
2. Faculty Strength:
Core: 5 (including HoD), Visiting: 2
Clerks: 2 Peons: 2

Information about Remaining Phases:

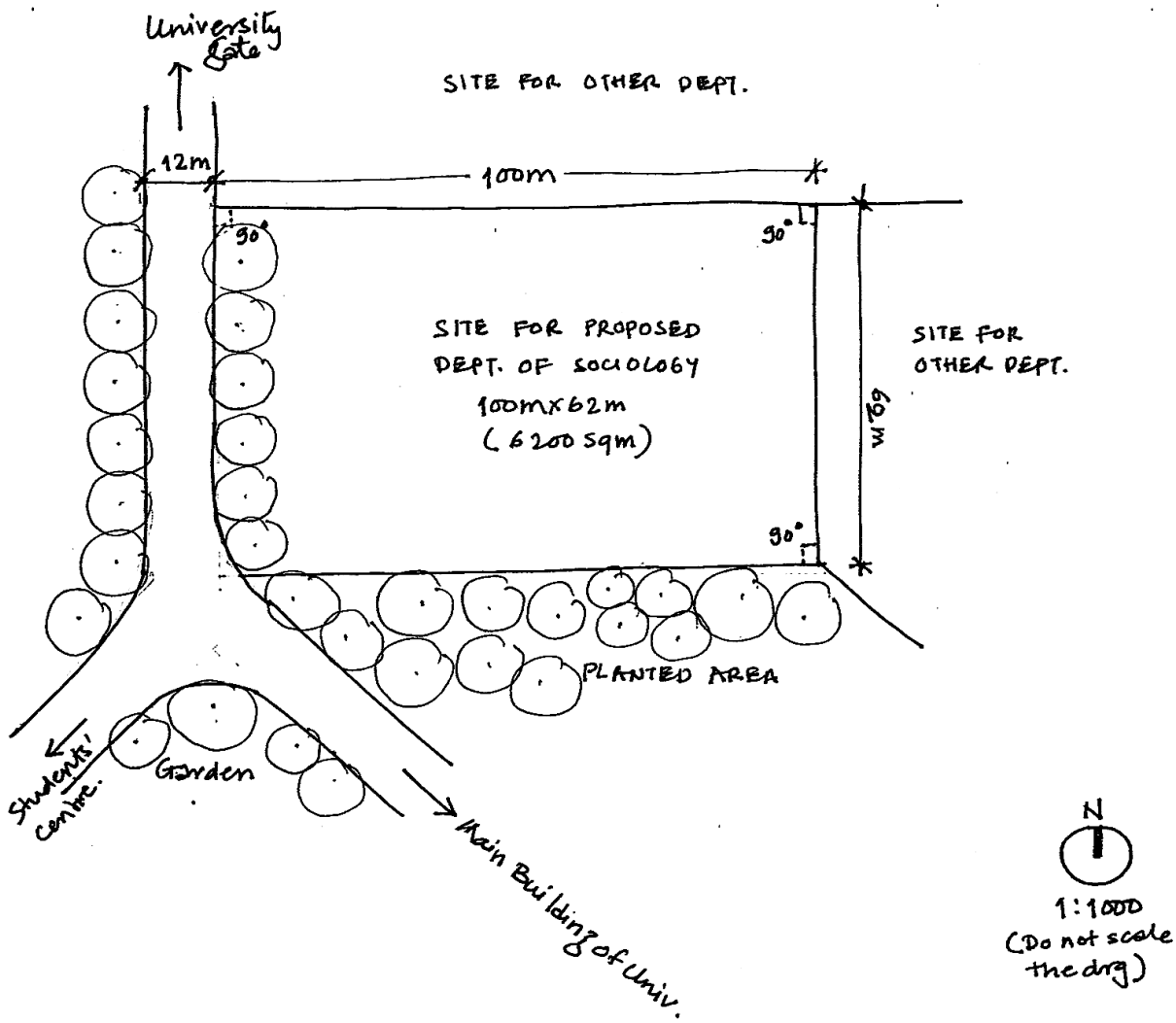
Total B/U area of complete department (all phases included) will be @6000 sqm. The block of an area equivalent to 4500 sqm that will be built in later phases needs to be indicated in the current design.

Site:

Area of Site: 6200 sqm
Minimum margins: 6 m from road, all others 3 m

Drawing Requirements:

1. Site Plan (showing entire site and building of Phase I and later Phases along with access points, parking areas and landscape development): 1: 250
2. All floor plans: 1: 100
3. At least 2 sections showing the important features of the design 1: 100
4. At least 2 elevations 1: 100
5. Bird's eye view of the entire building OR at least 3 views of internal spaces of the building


University Gate
SITE FOR OTHER DEPT.
12m
100m
90°
90°
SITE FOR PROPOSED DEPT. OF SOCIOLOGY
100m x 62m
(6200 sqm)
62m
SITE FOR OTHER DEPT.
90°
PLANTED AREA
Students' centre.
Garden
Main Building of Univ.
N
1:1000
(Do not scale the drg)