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

Seat No.	

[5357]-301

T.Y. B. Arch. EXAMINATION, 2018

BUILDING, TECHNOLOGY AND MATERIALS

Paper III

(BRIDGE 2008 PATTERN)

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

N.B. :— (*i*) Answers to Section I & Section II should be written in separate answer-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. An Aluminium Partition is to be provided between the open office and Conference.

Required size of the Partition is 4000 (length) × 2400 mm (height).

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

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

Draw any *two* enlarged detail of the above [10]

P.T.O.

Or

A residential building having floor height of 3.0 mts. is to be provided with RCC staircase. Draw an appropriate type of staircase with necessary finishes and detailing.

Draw plan at 1:20 scale of staircase showing reinforcement detail. [10]

Draw section at l:20 scale through staircase flight showing reinforcement detail. [10]

Draw railing detail and tread and riser finishes detail at 1:10. [10]

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

(*a*) Counterfort and buttress retaining wall.

(*b*) Draw details showing fixing of T.W. leg to the frame and corner joinery between two framing members in a T.W. center table.

(*c*) Draw a section through hydraulic elevator for a show room to suitable scale.

(*d*) Single Basement construction with internal tanking.

(*e*) Plan and cross-section through RCC cantilever balcony

Section-II

3. Attempt any *five* of the following : [40]

(*a*) Explain the process of curing of concrete for RCC slabs and columns.

(*b*) Explain any *two* types of piles foundations.

(*c*) Explain with sketches Reinforces brick work.

(*d*) Explain with sketches natural stone cladding to building.

(*e*) Explain with sketch the process of setting out of structures.

(*f*) What are the ingredients of ready mix concrete ? Explain advantages and application of the same.

(*g*) Explain with sketches assembly of steel stanchion and steel beams for deck construction.

(*h*) Explain the process of polishing of new wood work.

Total No. of Questions—8] [Total No. of Printed Pages—5

Seat No.	

[5357]-302

T.Y. B. Arch. EXAMINATION, 2018

THEORY OF STRUCTURES—III

(BRIDGE 2008 PATTERN)

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

N.B. :— (*i*) Answer any **3** 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*) Stresses in an eccentrically loaded column and I.S. provisions for the same.

(*b*) Combined Footing - Strip Foundation

(*c*) Weep Holes in a Retaining wall

P.T.O.

(*d*) Rankine's Theory of Earth Pressures

(*e*) Reinforcement detailing of a folded plate staircase

(*f*) S.B.C of soil, List of Different Types of Soil and their S.B.C.

2. A rectangular column of size 250 × 600 is subjected to a load of 1075 kN and rests on a soil of S.B.C. of 260 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 oneway 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 office building for the following data : [16]

(*a*) Width of the flight - 1450

(*b*) Floor to floor height - 3400

(*c*) Tread - 290 mm, Number of treads-9 in each flight

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

4. A Cantilever R.C.C. Retaining wall is as follows : [17]

Retained earth is on the vertical face of the stem.

Density of retained earth 16 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 - 300 mm

Bottom width of stem - 660 mm

Height of stem - 5100 mm

Width of base - 3200 mm

Toe Projection - 700 mm

Depth of Base - 600 mm

(*a*) Check the stability of the Retaining wall with respect to sliding and Over-Turning. Comment on same. [10]

(*b*) Design the Stem Reinforcement. Draw sketch of same. [7]

Section-II

5. (*a*) Explain the concept of prestressing the process of pre Tensioning. [6]

(*b*) A prestressed concrete beam of overall size 300 × 750 is simply supported over a span of 11 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 300 from the base and provides a prestressing force of 2200 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 1300 kN respectively and are spaced 2.2 m apart centre to centre and rest in a soil of S.B.C. of 225 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]

1. Partial Factors of safety for load and Stresses in Limit State Method
2. Plate Girder
3. Castellated Girder
4. Piles - Types and Application

7. A compound Stanchion is made of 2 number ISMC 300 placed back to back and these are to be laced.

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 Lacing 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*) Basic Concept of Portal Frame.

(*b*) Reinforcement Detailing for Beams and Columns in Earthquake Resistant Structures.

(*c*) Reinforcement Detailing for a Cylinderical Walled Water Tank.

(*d*) Different Shapes of Compound Stanchions.

(*e*) Reinforcement Detailing For a combined Footing.

(*f*) Types of Retaining Walls and their Applications.

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

Seat No.	

[5357]-303

T.Y. B. Arch. EXAMINATION, 2018

BUILDING SERVICES—I

(BRIDGE 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* qaestions are compulsory.

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

Section-I

1. Calculate the no. of exhaust fans required for a community kitchen, measuring 8 m × 12 m × 4 m. Show the positions of the fans in plan and section. [15]

Assume the appropriate air cycles required for a kitchen.

You may choose fans from the following :

	Diameter of fan	**Air handling capacity of fan in cu.m/hr**
(*a*)	305 mm	1900
(*b*)	380 mm	4000
(*c*)	457 mm	6800
(*d*)	610 mm	7900

P.T.O.

Or

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

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

Or

Explain with neat sketches the various methods of mechanical ventilation.

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

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

(*b*) Stack effect

(*c*) Compressor

(*d*) Natural ventilation

(*e*) Conditions of human thermal comfort

(*f*) Split AC Unit.

Section-II

4. State Sabine's formula and explain the importance of the time of reverberation in achieving good hearing conditions in an enclosed space. [20]

Or

Explain with neat sketches the principles of auditorium acoustics.

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

(*a*) Masking Effect of Sound

(*b*) Smoke Detector

(*c*) Fire hydrants

(*d*) Defects of Sound

(*e*) Types of sprinklers

(*f*) Acoustical Material

(*g*) Fire extinguishers

(*h*) Methods of cutting off Air Borne Noise.

Total No. of Questions : 6]

SEAT No. :

P3943

[Total No. of Pages : 3

[5357]-304
T.Y. B. Arch (Theory)
QUANTITY SURVEY AND ESTIMATING
(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

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

SECTION - I

Q1) Work out quantities for the following items of work based on the details given in the accompanying diagram (Fig.1) (Any eight - 8) **[40]**

i) P.C.C. 1:4:8 below footing
ii) R.C.C. Columns, from footing top to plinth level, in 1:2:4
iii) Flooring and Dado, up to 2.10M height for Bath only
iv) Windows and Ventilators
v) RCC Footings – 1:2:4
vi) Skirting in Bed – 100 wide
vii) Internal Plaster for walls and ceiling - Bed only
viii) Doors
ix) RCC beams, only for external wialls (1:2:4)
x) Flooring in Living

Q2) State the unit of measurement as per IS Code 1200 (Any 10 - Ten)

i) Excavation in black cotton soil
ii) Plastering to ceiling
iii) R.C.C. Coping in 1:3:6
iv) M. S. Windows
v) Kotah Stone Flooring
vi) M.S Grill
vii) WC Pan
viii) G. I. Pipe 50mm dia.

P.T.O.

ix) Dry Distemper
x) 5 Amp. Electrical Point
xi) Barbed wire Fencing
xii) Stop-Cock

SECTION - II

Q3) Write short notes on. (Any 2 - Two) **[10]**

i) Bill of Quantities
ii) DSR
iii) Rate Analysis

Q4) Prepare rate analysis for unit quantity. (Any 3 - Three) **[15]**

i) 1:3:6 PCC Below Foundation
ii) 1:2:4 R.C.C. work in Beams
iii) 230 mm Brick Masonry in 1:3 cement mortar
iv) 12 mm thick Cement Plaster in 1:4 cement mortar

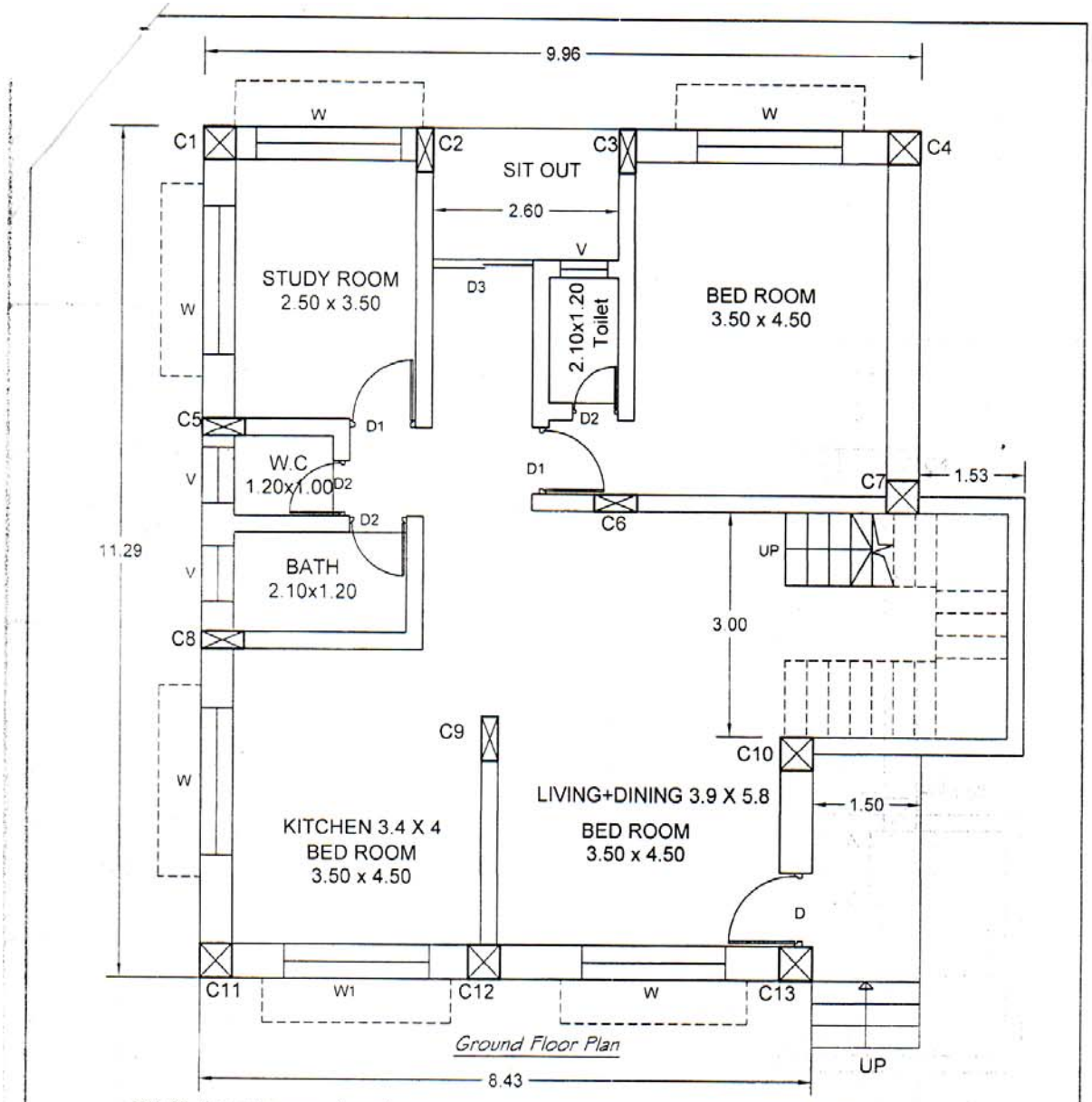
Materi & rates:
Cement - 400/- per bag
Sand - 4000/- per cu m
Aggregate - 610/- per cu m
Bricks - 9/- per Number
Labour rates:
P.C.C. Work - 3,500/- per cu m
R.C.C. Work - 8,500/- per cu m
Brick Masonry Work 6,000/- per cum
Cement Plaster - 600/- per sq m

Q5) Prepare indent of material for following. (Any 3 - Three) **[15]**

i) P.C.C. under foundation in 1:4:8 for 240.0 cum
ii) 12 mm thick cement plaster in 1:4 mortar for 290.0 sq.m
iii) 230mm thk. BB Masonry in 1:3 cement mortar for 245,0 cum
iv) R.C.C. Beams in 1:2:4 for 175.0 cum

Q6) Explain in detail the following. (Any 2 - Two) **[10]**

i) Describe any two items as Bill of Quantities for Q. 1 A
ii) Explain types of estimates (any two)
iii) Explain the long wall & short wall method in quantity calculation?



**** All dimensions are in meter.

1. Bearing for lintels is 0.3m on each side
2. Floor to floor height 3.150 m
3. RCC column sizes are 0.45m x 0.45m and 0.23m x 0.45m
4. RCC slab 110mm thick
5. External 450 mm thick Stone Masonry work
6. Internal 230 mm thick Brick Masonry work
7. PCC thickness below flooring 100 mm thick
8. PCC thickness below footing 150 mm thick
9. Window sill level is 0.9 m for all except W1 & V
10. For W1 & V sill level is 1.2 m
11. Lintel level is 2.1 m from finished floor level
12. Size of Lintels are 0.45m x 0.15m & 0.23m x 0.15m
13. PCC below all columns 1.5m x 1.5m
14. Plinth level is 0.6m
15 Excavation depth for columns from ground level is 1.2m
16. Frame size for "D" = 75mm x 125mm

Schedule of Openings

W - 2.0 x 1.2
W1 - 2.0 x 0.9
V - 0.6 x 0.9
D - 1.2 x 2.1
D1 - 0.9 x 2.1
D2 - 0.75 x 2.1
D3 - 1.17 x 2.1

Q no. 1 DWG.

⊖⊖⊖

Total No. of Questions—**7**] [Total No. of Printed Pages—**3**

Seat No.	

[5357]-305

T.Y. B. Arch. EXAMINATION, 2018

SPECIFICATION WRITING

(BRIDGE 2008 PATTERN)

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

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

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

(*iii*) Answers to two sections to be written in two different answer books.

SECTION I

1. Explain the principles of writing specifications. Discuss the advantages and disadvantages of open specifications. [10]

Or

What is specifications ? Explain necessity of writing specifications. Discuss importance of Specifications in Contracts and Tenders.

2. Discuss the detailed specifications for Coursed Rubble Masonry. [10]

Or

Explain signification of specifications for arbitration.

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

(*a*) External Brick Wall

(*b*) R.C.C. Columns

(*c*) Ceramic Tile Flooring

(*d*) Internal Plaster.

P.T.O.

4. Write Material Specifications for (any *three*) : [15]

(*a*) Lime

(*b*) Aggregate

(*c*) Bricks

(*d*) MS Reinforcement

(*e*) Cement.

SECTION II

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

(*a*) Escalators

(*b*) Concrete Roads

(*c*) Types of Air-conditioning Systems

(*d*) Acoustic Ceilings

(*e*) Portable fire extinguishers

(*f*) Flooring in toilets for Differently abled persons

(*g*) Solar Energy & applications

(*h*) Types of stone Compound walls.

6. Explain in detail the function of (any *four*) : [20]

(*a*) Septic Tank

(*b*) Conduit Wiring system

(*c*) Switchboards

(*d*) Hose reel Installations

(*e*) Windmills

7. Write names of manufacturer for the building products (any *ten*) : [10]

(*a*) Wash Basin

(*b*) Portland Cement

(*c*) Granamite tiles

(*d*) Plywood

(*e*) Lightweight Doors

(*f*) Solar Cookers

(*g*) Elevators

(*h*) AC sheets

(*i*) Interlocking paving Blocks

(*j*) Water pipes

(*k*) Shower rose.

Total No. of Questions—**4**] [Total No. of Printed Pages—**3**

Seat No.	

[5357]-31

T.Y. B. Arch. EXAMINATION, 2018

BUILDING, TECHNOLOGY AND MATERIALS

Paper III

(2008 PATTERN)

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

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

(*ii*) Answers to Section I & Section II should be written in separate answer-books.

(*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*) A cantilevered balcony 1200 mm wide is to be provided for room having size of 3500 × 5000 mm along the longer side.

Draw plan at 1:50 scale of balcony showing reinforcement detail. [10]

Draw section through balcony showing reinforcement detail. [10]

P.T.O.

(*b*) Draw a section through passenger lift for a multi storied building showing lift pit and machine room to a suitable scale indicating the first and last stop clearly. [15]

Or

A gypsum board partition is to be provided to divide a room having size of 4500 × 3500 mm. A door having width of 750 mm is to be provided in the partition. Room height is 3200 mm.

Draw a plan at 1:20 scale through door opening and showing framing detail. [10]

Draw an elevation at 1:20 scale showing the finishing material with framing detail in dotted lines [15]

Draw a section at 1:20 scale through the door opening and shutter. [10]

2. Explain with neat sketches the following (any *three*) : [15]

(*a*) Cast in situ cantilever retaining wall showing reinforcement detail.

(*b*) Fixing of steel Stanchion to RCC stub column.

(*c*) Cutter detail for medium span steel truss with sheet roofing.

(*d*) Section through RCC End Bearing pile showing reinforcement detail.

(*e*) Any **2** plywood joints used in residential furniture items.

Section-II

3. Answer the following (any *six*) : [30]

(*a*) Explain the process of preparation and transportation of ready mix concrete.

(*b*) What is modular co-ordination ? Explain advantages of the same.

(*c*) Explain any *one* external rendering technique.

(*d*) Explain the process of painting of new wood work.

(*e*) Explain various types of glasses used for building envelop.

(*f*) Write a short note on decorative brickwork. Draw sketches.

(*g*) Explain use of stainless steel in building industry.

4. Explain with neat sketches any *two* of the following : [20]

(*a*) Any 2 types of RCC canopies.

(*b*) Any *two* methods used for basement waterproofing.

(*c*) Any *two* roofing systems developed by CBRI.

(*d*) Aluminum extruded sections for sliding window.

Total No. of Questions—8] [Total No. of Printed Pages—5

Seat No.	

[5357]-32

T.Y. B. Arch. EXAMINATION, 2018

THEORY OF STRUCTURES

Paper III

(2008 PATTERN)

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

N.B. :— (*i*) Answer any **3** 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*) Shear Key

(*b*) Conditions of Stability for a Retaining wall

(*c*) Soil Mechanics—Definition and Applications of the Study

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

P.T.O.

(*e*) Reinforcement detailing of a Central Spine Beam with cantilevering Treads in a Staircase

(*f*) Angle of Repose.

2. A rectangular column of size 230 × 650 is subjected to a load of 1350 kN and rests on a soil of S.B.C. of 220 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 oneway 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 office building for the following data : [16]

(*a*) Width of the flight - 1500

(*b*) Floor to floor height - 3400

(*c*) Tread - 280 mm, Number of treads is 9 in each flight

(*d*) The staircase is supported on 200 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 18 kN/m^3

Angle of repose - 30^o

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 - 510 mm

Height of stem - 5200 mm

Width of base - 3400 mm

Toe Projection - 700 mm

Depth of Base - 510 mm

(*a*) Check the stability of the Retaining wall with respect to sliding and Over-Turning. [12]

(*b*) Find Max and Minimum pressure at base. [5]

Section-II

5. (*a*) Explain the concept of prestressing. Explain the process of post 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 26 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 1400 kN. Calculate the extreme fibre stresses at Mid Span and at End Span. [10]

6. (*a*) Two columns of size 250 × 250 and 400 × 400 carry loads of 800 and 1400 kN respectively and are spaced 1.8 m apart centre to centre and rest in a soil of S.B.C. of 170 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]

1. Various Limit States.
2. Ultimate Load Method and its Disadvantages over other Design philosophies
3. Castellated Girder — Need and Construction
4. Piles — Need and Different Types with their Structural Action.

7. A compound Stanchion is made of 2 number TSMC 400 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 hinged at both ends and has a height of 4.9 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
20	210
30	204
40	198
50	183
60	168
70	152

8. Write short notes on any *four* with neat sketches : [16]

(*a*) Concept of portal frame and B.M.D. of a 3 hinged portal frame

(*b*) Discuss the structural elements to make the structure earthquake resistant.

(*c*) Plate Girder and its parts

(*d*) Measures to be taken to make Water Tank Walls Crack Free

(*e*) Connection details in a Steel Portal Frame

(*f*) A Rectangular Water Tank — Reinforcement Detailing and Structural Action Envisaged.

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

Seat No.	

[5357]-33

T.Y. B. Arch. EXAMINATION, 2018

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* qaestions are compulsory.

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

Section-I

1. Calculate the no. of exhaust fans required for a basement to be used as an office, measuring 8 m × 10 m × 3.5 m. Show the positions of the fans in plan and section. [15]

Assume the appropriate air cycles required.

You may choose fans from the following :

	Diameter of fan	**Air handling capacity of fan in cu.m/hr**
(*a*)	305 mm	1900
(*b*)	380 mm	4000
(*c*)	457 mm	6800
(*d*)	610 mm	7900

P.T.O.

Or

Explain with neat sketches the refrigeration cycle in the process of air-conditioning.

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

Or

Explain with neat sketches the various methods of natural ventilation.

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

(*a*) Evaporator

(*b*) Stack effect

(*c*) Cooling Towers in air-conditioning

(*d*) Cross ventilation

(*e*) Conditions of human thermal comfort

(*f*) Window AC Unit.

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 = 10 m, width = 7 m, height = 3.5 m.

Seating capacity of the hall : 50.

ITEM	DESCRIPTION	NOs.	SIZE
Flooring	Marble mosaic tiles		
Walls	230 thick brick walls with Neeru finished plaster		
Ceiling	Concrete slab with cement finished plaster		
Doors	T. W. fully panelled doors	2 Nos.	1 m × 2.1 m
Windows	Fully glazed windows	6 Nos.	1.8 m × 1.2 m

Assume full occupancy, all windows open and all doors closed.

Or

Explain with neat sketches the principles of auditorium acoustics.

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

(*a*) Masking Effect of Sound

(*b*) Fire Alarm System

(*c*) Fire hydrants

(*d*) Fire escape staircase

(*e*) Types of sprinklers

(*f*) Dry and wet risers

(*g*) Fire extinguishers

(*h*) Methods of cutting-off structure Borne Noise.

[Total No. of Printed Pages—**5**

Seat No.	

[5357]-34

T.Y. B. Arch. EXAMINATION, 2018

ARCHITECTURAL DESIGN—III

(2008 PATTERN)

Time : Twelve Hours **Maximum Marks : 100**

N.B. :— (*i*) Do not write anything on question paper except seat no.

(*ii*) Your Designs will be valued as a whole.

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

(*iv*) At the end of the first day, candidates will submit drawings of the site, floor plans and a schematic section at 1 : 200 scale of the entire scheme. These sketches shall not be returned to the candidates therefore due record of the same should be kept for reference on the subsequent day. Candidates should refrain from making serious deviations from the sketch design submitted on the first day.

(*v*) The drawings should be self-explanatory with structural clarity in the drawings.

P.T.O.

Resort Near Pune

A well known chain of hotels proposes to construct a resort on the outskirts of Pune at a site overlooking a lake. The hotel shall provide staying accommodation along with facilities for organizing family get together or business functions.

The detailed requirements of the building are as follows : (carpet area is mentioned)

A.	INDOOR AREAS	
A1.	Entrance foyer with reception	50.00 sq.m.
A2.	Double occupancy guest rooms with attached toilets and dressing — 10 nos (20 sq. m. each)	200.00 sq.m.
A3.	Linen, Furniture and Maintenance Stares (1 no.)	20.00 sq.m.
A4.	Conference Hall 100 capacity with prefunction lobby	120.00 sq.m.
A5.	Restaurant - 50 capacity	100.00 sq.m.
A6.	Kitchen and stores	50.00 sq.m.
A7.	Admin. office	20.00 sq.m.

A8.	Two room residence for site staff with individual toilets — 3 nos. (30.00 sq.m. each)	90.00 sq.m.
A9.	Manager's office with attached toilet	20.00. sq.m.
B.	RECREATIONAL AREAS :	
B1.	Gymnasium	50.00 sq.m.
C.	OUTDOOR AREAS	
C1.	Party lawn around swimming pool	200.00 sq.m.
C2.	Swimming pool	150.00 sq.m.
C3.	Changing rooms for ladies and gents (can be shared with gymnasium)	
C4.	Parking facilities for 20 cars and 40 two wheelers.	

Design Parameters :

1. Road side setback for building – 6.5 mts

   All other setbacks – 6.00 mts

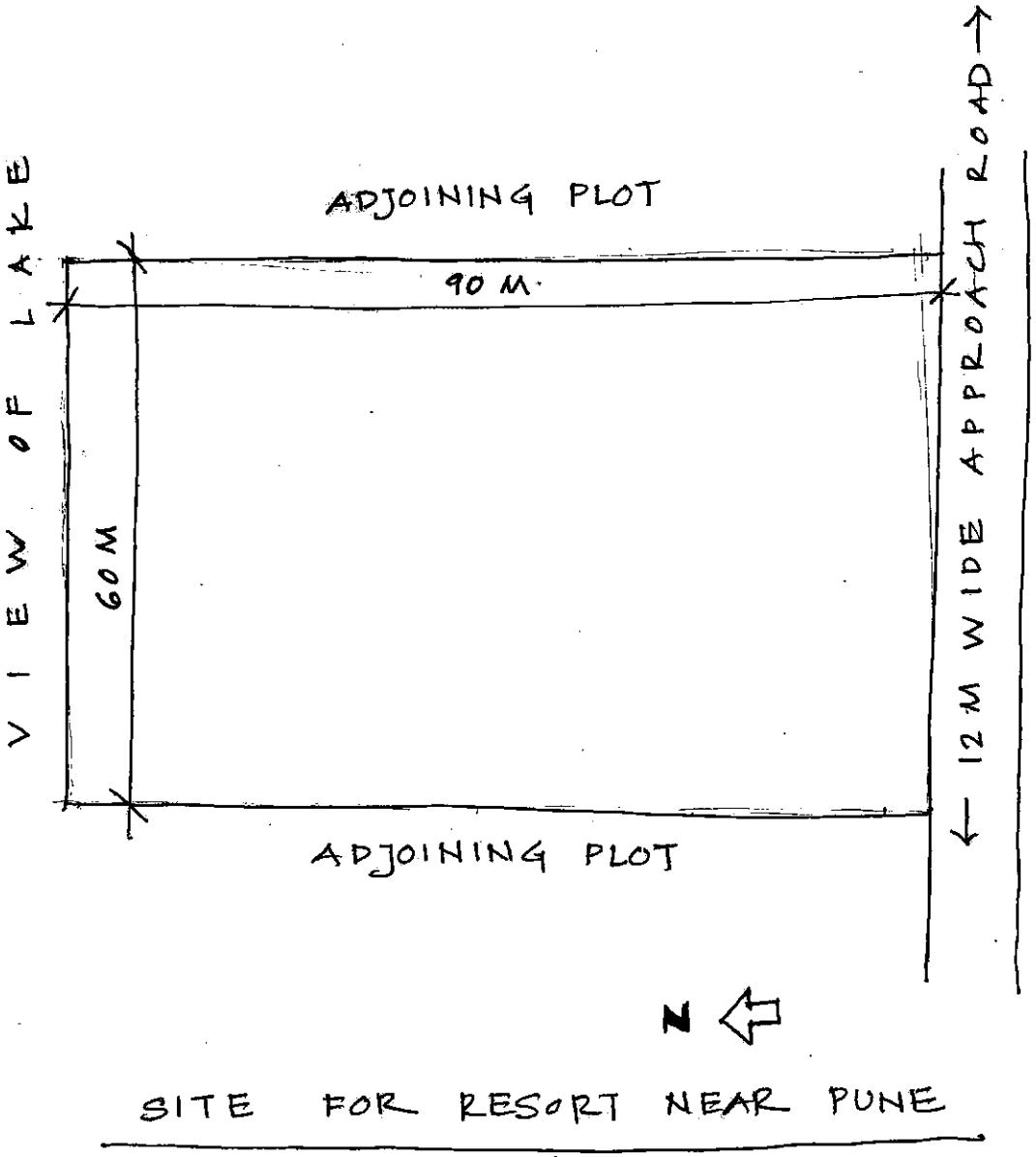
2. Adequate horizontal and vertical circulation areas over and above the mentioned areas to be provided.

3. Maximum ground coverage 50% of the plot area.

4. Maxmium ground plus one floor to be considered.

DRAWING REQUIREMENTS :

1. Site plan showing roof plan with parking and landscape layout — 1 : 200
2. Other floor plan — 1 : 100
3. Two sections explaining floor heights, toilets, staircases, roofing system. — 1 : 100
4. Road side elevation and one more relevant side elevation. — 1 : 100
5. Proportionate sketch perspective giving visual impression of the form of the building.



SITE FOR RESORT NEAR PUNE

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

Seat No.	

[5357]-401

Fourth Year B.Arch. EXAMINATION, 2018

TOWN PLANNING

(BRIDGE 2008 PATTERN)

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

N.B. :— (*i*) Question No. **1** and Question No. **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 answer-books.

(*iv*) Draw neat diagrams or sketches wherever necessary.

(*v*) Assume suitable data if required.

(*vi*) Figures to the right indicate marks.

Section-I

1. Briefly describe with sketches, Clarence Perry's principles of Neighbourhood design and its relevance in present context. [14]

2. Explain the concepts of Neighbourhood by Clarence Perry and its characteristics. [12]

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

P.T.O.

4. Write a note on any *one* of the planned cities in India. [12]

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

Section-II

6. What is the necessity of a Development Plan ? How does it help in achieving orderly city development ? [14]

7. What is the importance of Development Control Regulations ? [12]

8. Write a note on the MRTP : Maharashtra Regional and Town Planning Act, 1966. [12]

9. Describe the different types of surveys used in the process of planning, [12]

10. What are the problems faced by Indian cities in the Transportation sector ? [12]

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

Seat No.	

[5357]-402

Fourth Year B. Arch. EXAMINATION, 2018

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 indicate full marks.

Section-I

1. Describe in detail typical setup of a medium scale professional office of an Architect, also explaining the role & responsibilities of the Principal architect in his office. [20]

Answer any *two* of the following :

2. What is the role of Council of Architecture in the profession & education of Architecture. Also explain the eligibility and procedure for registration with the Council of Architecture. [15]

P.T.O.

3. Write short notes on (any **3**) - (5 marks each) : [15]

(*a*) Code of Conduct for Architects

(*b*) Role of Allied consultants in a project

(*c*) Rules of Advertisement prescribed by COA

(*d*) Proprietary practice in Architecture

(*e*) Architects agreement with client

(*f*) Architects responsibility towards society.

4. What do you know about the Indian Institute of Architects ? Give its history in brief and its role and activities as a professional organization of Architects. [15]

5. Write a comprehensive note on ARCHITECTURAL COMPETITIONS, giving the types and procedures, advantages and disadvantages if any. [15]

Section II

6. What are the advantages and disadvantages of the Tendering system ? Write a note on Types of Tenders & Systems of Tendering. [20]

Answer any *two* of the following :

7. Explain the importance of Contract in a Construction project. Also explain, the exact role of Architect in preparing & implementing the contract document through articles of agreement. [15]

8. Write short notes on (any **3**) - (5 marks each) : [15]

(*a*) Virtual completion certificate

(*b*) Site visit report

(*c*) Tender Notice

(*d*) Liquidated damages

(*e*) Sentimental value

(*f*) Demolition tender.

9. What is the process of Arbitration ? State advantages of Arbitration vis a vis other methods of settling disputes. [15]

10. Explain the salient differences between the following (Any 3) : [15]

(*a*) Earnest money deposit & Security deposit.

(*b*) Cost, Price and Value

(*c*) Arbitrator and Umpire

(*d*) Defects Liability Period and Extended Period

(*e*) Bonus clause and Penalty clause

(*f*) Appointed contractor & nominated sub contractor.

[Total No. of Printed Pages—**5**

Seat No.	

[5357]-403

Fourth Year B. Arch. EXAMINATION, 2018

ARCHITECTURAL DESIGN

Paper IV

(2008 BRIDGE PATTERN)

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

N.B. :— (*i*) Your design solution will be evaluated as a whole.

(*ii*) Assume suitable data if necessary.

(*iii*) The candidates shall submit single line plans of the entire scheme with layout plan to the required scale al the end of first day. These drawings shall not be returned to the candidates, therefore due record of the same should be kept for subsequent days. The candidates shall not make any considerable departure for the design submitted on the first day.

(*iv*) The drawings should be self-explanatory with structural scheme and should have clarity in all the plans and sections.

College of Architecture in Rurban Pune :

In the newly developing rurban areas of Pune Municipal Corporation, a private trust is interested in starting a new college of Architecture. The site has access from 15 m wide road and is located on the banks of a river.

P.T.O.

The proposed Architecture College has to be designed with the following requirements :

Space requirements (figures indicate carpet area in sq.m)

Note : Adequate areas for passages, lobbies, staircases, lifts etc, services and toilets should be adequately provided wherever required.

Administration

Entrance lobby and reception area	30 sq.m
Principal's cabin and toilet	30 sq.m
Office area for 6 no. administration staff	60 sq.m
Staff room with attached toilet	100 sq.m
Professors cabins 4 nos – 15 sq. m each	60 sq.m
Store	15 sq.m
Adequate toilets for both sex	

Academic Area

Design studios – 5 nos. – 120 sq.m each	600 sq.m
Classrooms – 4 nos. for 40 students –60 sq.m each	240 sq.m
Class rooms may or may not be combined with design studios	
Material museum and material testing lab	120 sq.m
Climatology lab	30 sq.m
Surveying and leveling lab	30 sq.m

Computer lab with scanning and potting facility	60 sq.m
Carpentary workhop	120 sq.m
Library	200 sq.m
Other areas	
Auditorium	240 sq.m
Canteen with kitchen, washing, store, indoor and outdoor seating area	150 sq.m
Girls common room	30 sq.m
NASA room	60 sq.m
Sports room (indoor)	60 sq.m
Store	15 sq.m
Reprography facility	15 sq.m
Service area	
Electrical transformer, electric meter and panel room	75 sq.m
Generator room	50 sq.m
UG water tank of capacity of 50,000 ltr	
Fire fighting system	
Parking and security	
Cars	10 nos
Tow wheelers	50 nos
Bus	1 no.
Security cabin	1 no.

Design Parameters :

1. Minimum setback 9.00 m from Main road and 6 m from other sides
2. Maximum ground coverage 50%
3. Design should be functionally and structurally stable
4. Provision of barrier free environment for differently abled
5. Structural components should be shown in plan and section
6. Vehicular movement, ramps, headroom etc as per standards.

Drawing requirements :

First day

Site zoning

Single line layout plan showing iste development, building configuration, circulation etc. 1:200

Single line floor plans at all levels 1:200

Final day

Site plan with site development—ground floor plan, access, roads, parking, landscaped areas and service areas 1:200

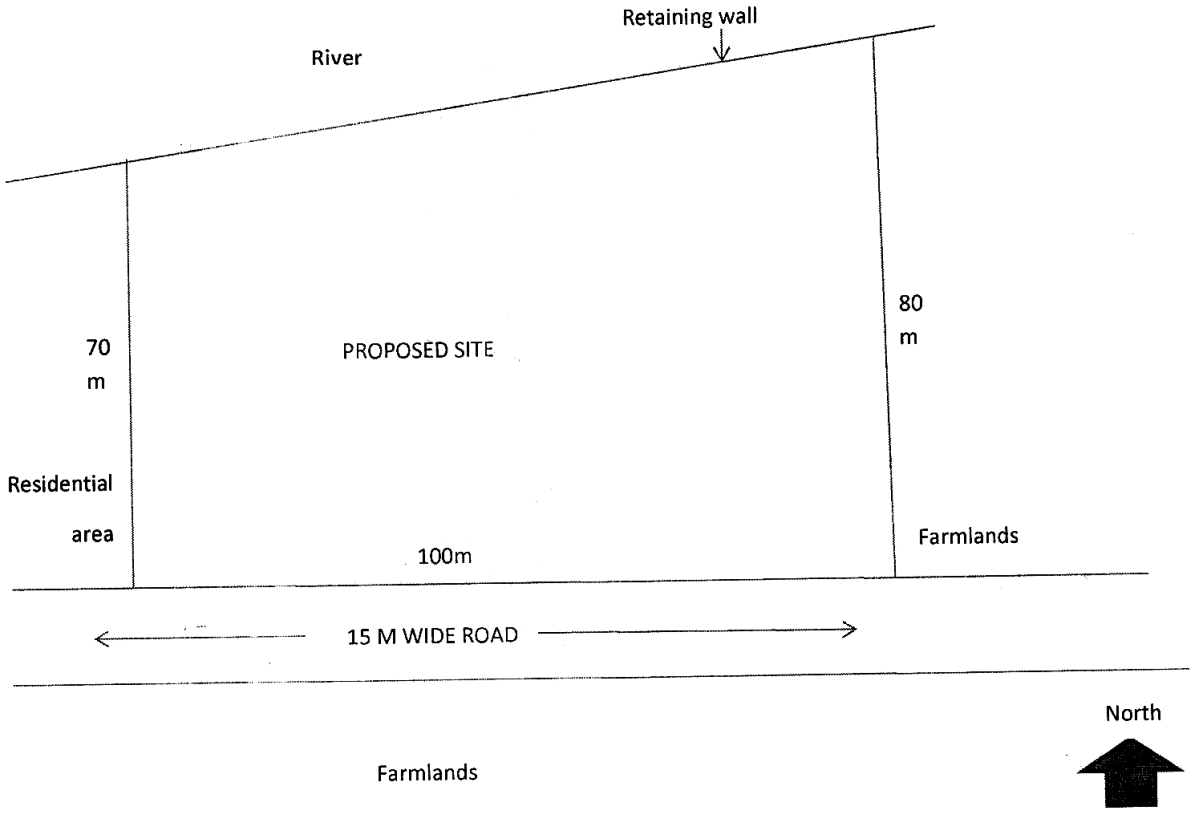
All double line floor plan showing furniture layout 1:100

Roof Plan

Building sections – minimum 2 1:100

Elevations – minimum 2 1:100

View


Retaining wall
River
80
m
70
m
PROPOSED SITE
Residential
area
Farmlands
100m
15 M WIDE ROAD
North
Farmlands

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

Seat No.	

[5357]-41

Fourth Year B.Arch. EXAMINATION, 2018

TOWN PLANNING

(2008 PATTERN)

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

N.B. :— (*i*) Question No. **1** and Question No. **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 answer-books.

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Section-I

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4. Write a note on any *one* of the planned cities in India. [12]

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Section-II

6. What is the necessity of a Development Plan ? How does it help in achieving orderly city development ? [14]

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10. What are the problems faced by Indian cities in the Transportation sector ? [12]

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

Seat No.	

[5357]-42

Fourth Year B. Arch. EXAMINATION, 2018

PROFESSIONAL PRACTICE

(2008 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 indicate full marks.

Section-I

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P.T.O.

3. Write short notes on (Any *three*) (**5** marks each) : [15]

(*a*) Code of Conduct for Architects

(*b*) Role of Allied consultants in a project

(*c*) Rules of Advertisement prescribed by COA

(*d*) Proprietary practice in Architecture

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Section-II

6. What are the advantages and disadvantages of the Tendering system ? Write a note on types of Tenders and Systems of Tendering. [20]

Answer any *two* of the following :

7. Explain the importance of Contract in a Construction project. Also explain, the exact role of Architect in preparing and implementing the contract document through articles of agreement. [15]

8. Write short notes on (Any *three*) (**5** marks each) : [15]

(*a*) Virtual completion certificate

(*b*) Site visit report

(*c*) Tender Notice

(*d*) Liquidated damages

(*e*) Sentimental value

(*f*) Demolition tender.

9. What is the process of Arbitration ? State advantages of Arbitration vis-a-vis other methods of settling disputes. [15]

10. Explain the salient differences between the following (any *three*) : [15]

(*a*) Earnest money deposit and Security deposit.

(*b*) Cost, Price and Value

(*c*) Arbitrator and Umpire

(*d*) Defects Liability Period and Extended Period

(*e*) Bonus Clause and Penalty Clause

(*f*) Appointed contractor and Nominated sub-contractor.

Total No. of Questions—**6**] [Total No. of Printed Pages—**5**

Seat No.	

[5357]-43

Fourth Year B. Arch. EXAMINATION, 2018

QUANTITY SURVEYING AND ESTIMATING

(2008 PATTERN)

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

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

(*ii*) Answers to the two sections MUST be written in separate answer-books.

(*iii*) Neat sketches must be drawn wherever necessary.

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

(*v*) Assume suitable data wherever necessary.

Section I

1. Work out quantities for the following items of work based on the details given in the accompanying diagram (Fig.1) (any *eight*) : [40]

1. P.C.C. 1 : 4 : 8 below footing
2. R.C.C. Beams in 1 : 2 : 4
3. Dado tiles only for Bath and WC up to 2.1 m height
4. Windows and Ventilators

P.T.O.

5. RCC Footings – 1 : 2 : 4

6. Skirting in Bed – 100 wide

7. Internal Plaster for walls and ceiling – Kitchen only

8. Doors

9. RCC (1 : 2 : 4) columns in superstructure from FFL to FFL (FFL-finished floor level)

10. Flooring in Bath and WC.

2. State the unit of measurement as per IS Code 1200 (any *ten*) : [10]

1. Excavation in hard murum

2. External Plastering

3. R.C.C. Lintel in 1:2:4

4. Aluminium Windows

5. Vitrified Tiled Flooring

6. M.S Grill

7. WC in toilet

8. G. I. Pipe 50 mm dia.

9. White Wash

10. 15 Amp. Electrical PowerPoint

11. Chain-link Fencing

12. Bib-Cock.

Section II

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

1. Work Charged Establishment
2. Schedule of rates
3. Rate Analysis.

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

1. 1:4:8 PCC at Plinth level
2. 230 mm Brick Masonry in 1:4 cement mortar
3. 20 mm thick Cement Plaster in 1:6 cement mortar
4. 1:2:4 R.C.C. work in Slab

Material rates :

Stone - 1500/- per cum

Cement - 400/- per bag

Sand - 4000/- per cum

Aggregate - 610/- per cum

Bricks - 9/- per Number

Labour rates :

P.C.C. Work - 3,500/- per cum

R.C.C. Work - 8,500/- per cum

Brick Masonry Work - 6,000 /- per cum

Cement Plaster - 600/- per sqm

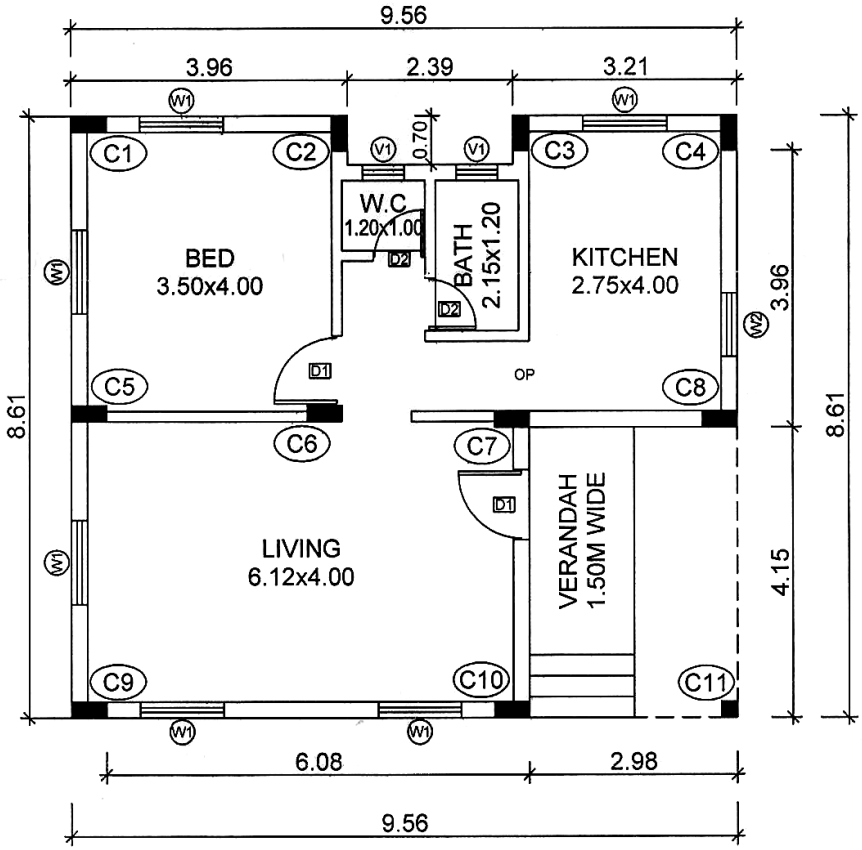
5. Prepare indent of material for the following (any *three*) : [15]

1. P.C.C. at plinth level in 1:3:6 for 137 cum
2. 20 mm thick cement plaster in 1:4 mortar for 250.0 sq.m
3. 230 mm thick BB Masonry in 1:4 cement mortar for 368 cum
4. R.C.C. lintels in 1:2:3 for 18 cum.

6. Explain in detail the following (any *two*) : [10]

1. Describe any *two* items as Bill of Quantities for Q. 1 A
2. Explain types of estimates (any *two*)
3. Explain the long wall and short wall method in quantity calculation.

Figure 1.



DATA:	
RCC FOOTINGS	: 1.20M x 1.50M
D : 500, d : 200	
FLOOR TO FLOOR HEIGHT	: 3.20M
RCC COLUMNS : C1-C10	: 0.23M x 0.50M
RCC COLUMNS : C11	: 0.23M x 0.23M
RCC BEAMS	: 0.23M x 0.50M
CILL LEVEL	: 0.90M
LINTEL LEVEL	: 2.10M
SLAB THICKNESS	: 0.15M
PLINTH LEVEL	: 0.60M
DEPTH OF EXCAVATION FROM GROUND LEVEL	: 1.50M
D1 : 1000x2100 ; D2 : 750x2100	
W1 : 1200x1200 ; W2 : 900x1200 ; V : 600x900	
ASSUME SUITABLE DATA AS REQUIRED	

Total No. of Questions—**7**] [Total No. of Printed Pages—**3**

Seat No.	

[5357]-44

B. Arch. (Fourth Year) EXAMINATION, 2018

SPECIFICATION WRITING

(2008 PATTERN)

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

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

(*ii*) Figures to right hand side indicate marks.

(*iii*) Answers to the *two* sections should be written in separate answer-books.

Section-I

1. Define specification writing. Discuss open and closed specifications [10]

Or

Explain importance of specifications in bungalow projects. Explain with examples what you mean by standard and performance specifications

2. Discuss the detailed specifications for RCC staircase. [10]

Or

Explain difference in writing brief specifications for brick masonry and stone masonry.

P.T.O.

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

(*a*) Dry Rubble Masonry

(*b*) R.C.C. Slabs

(*c*) Marble Flooring

(*d*) Neeru plaster

(*e*) Oil bound Distemper.

4. Write Material Specifications for (any *three*) : [15]

(*a*) Glass

(*b*) Timber

(*c*) Bricks

(*d*) Stone

(*e*) Aggregate.

Section-II

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

(*a*) Elevators

(*b*) Road specifications

(*c*) Types of Air-conditioning Systems

(*d*) Acoustical Partitions

(*e*) Types of Fire Detectors

(*f*) Ramps for Differently abled persons

(*g*) Renewable Energy resources

(*h*) Fencing Systems.

6. Explain the function of (any *four*) : [20]

(*a*) Fireproof Doors

(*b*) Smoke detectors

(*c*) Biogas plants

(*d*) Manhole

(*e*) Disconnecting Chamber

(*f*) Compressors.

7. Write names of manufacturer for the materials (any *ten*) : [10]

(*a*) Glass

(*b*) Indian Water Closet

(*c*) Water pipes

(*d*) Cement

(*e*) Ceramic Tiles

(*f*) Laminates

(*g*) Escalators

(*h*) Air-conditioner

(*i*) Elevators

(*j*) Mangalore Tiles

(*k*) Wallpapers.