

Total No. of Questions : 3]

SEAT No. :

P2000

[Total No. of Pages :2

[4762] - 1

Fourth Year B.Arch.

BUILDING CONSTRUCTION & MATERIALS (Paper - IV)

Time : 3 Hours]

[Max. Marks :100

Instructions to the candidates:

- 1) Answers to the TWO SECTIONS should be written in SEPARATE BOOKS.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Assume suitable data if required.*
- 4) All questions are compulsory.*

SECTION - I

Q1) An Industrial shed of size 30 m. x 50 m is to be constructed. Diffused natural light is required to be provided for the same. The minimum height of working space required for the shed is 6 m. Design an appropriate roofing system giving details of natural lighting, ventilation and rain water drainage to any appropriate scale, with plan and section at a scale of 1:200. **[30]**

OR

A multipurpose hall of size 60 m. x 25 m is to be constructed in a housing complex. Draw a plan to a scale of 1:100, and a detail section showing all structural details and a Suitable roofing system giving details of lighting ventilation and rain water disposal to a scale of 1:50.

Q2) Explain with neat sketches **ANY TWO** of the following: **[20]**

- a) Rectangular and diagonal grid coffered slab.
- b) Short and long span barrel vaults.
- c) Raking and flying shores.
- d) Expansion joints.

P.T.O.

SECTION - II

Q3) Write short notes on ANY FIVE with neat sketches.

[50]

- a) Two types of expansion joints for slabs and beams.
- b) Any one system of curtain walling.
- c) A cross section of a 12 m. wide road through a housing society, showing the necessary Surface water drainage , footpaths etc.
- d) RCC north light barrel vault.
- e) Construction of diaphragm retaining walls for multi basements.
- f) A skimmer unit detail for a swimming pool.
- g) Any two structural systems used to resist swaying problems in high rise buildings.
- h) Hyperbolic Para bolides.



Total No. of Questions : 10]

SEAT No. :

P3386

[Total No. of Pages : 2

[4762] - 2

B.Arch.

PROFESSIONAL PRACTICE I & II

(2003 Pattern)

Time : 3 Hours]

[Maximum Marks : 100

Instructions to the candidates:

- 1) *Answer to the two sections - I & II - must be written on Separate answer books.*
- 2) *Answers to Q.1 from Section - I, and Q.6 from section II are compulsory.*
- 3) *Attempt any two out of the remaining questions in each section.*
- 4) *Figures to the right indicate full marks.*

SECTION - I

- Q1)** What is the COUNCIL of ARCHITECTURE? How and when was it established? What is its composition, and its role in Architectural profession in India? **[20]**
- Q2)** What do you know about The Indian Institute of Architects? Give its History in brief, and its Role and Activities as a professional organisation of Architects. **[15]**
- Q3)** Write a comprehensive note on the Role of a Professional Architect, highlighting his specific Duties, Liabilities, Conduct and Image in Society. **[15]**
- Q4)** Define Any Three of the following :(5 Marks Each) **[15]**
- a) Liquidated Damages.
 - b) Power of Attorney
 - c) Dilapidation
 - d) Easement Rights
 - e) Easements.
 - f) Sinking fund

P.T.O.

Q5) Write short notes on Any Three of the following : (5 Marks Each) [15]

- a) Structure and composition of an Architects office.
- b) Code of conduct for Architects.
- c) Role of allied/specialist Consultants in Architecture
- d) Role of a Clerk of Works in a construction project.
- e) Professional remuneration for Architectural services.
- f) Stages of work in a typical Architectural project.

SECTION - II

Q6) Write a comprehensive note on TENDERING, highlighting various types of Tenders, systems of Tendering and their advantages and disadvantages.[20]

Q7) What are EASEMENTS? Describe different types of Easements, and elaborate with sketches where necessary. [15]

Q8) Write a comprehensive note on ARCHITECTURAL COMPETITIONS, giving the types and procedure with advantages and disadvantages if any.[15]

Q9) Compare and Contrast Any Three of the following (5 marks each) : [15]

- a) Bonus Clause and Penalty Clause in Tenders
- b) Proprietary and Partnership Practice.
- c) Defects Liability period and Extended period.
- d) Earnest Money Deposit and Security Deposit
- e) Cost, Price and Value
- f) Open and Invited Tender

Q10) Write short notes on any Three of the following (5 marks each) [15]

- a) Running Account Bills
- b) Virtual Completion
- c) Advertising by Architects
- d) Sentimental Value
- e) Pre - qualification system.
- f) Tender Notice



Total No. of Questions : 5]

SEAT No. :

P1324

[Total No. of Pages : 2

[4762] - 301

T.Y. B. Arch.

BUILDING TECHNOLOGY AND MATERIALS - III B

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Use drawing sheets for section - I and answer book for section - II.*
- 2) *Neat drawings must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Question No. 3 is compulsory. Solve any one question out of remaining two questions in section - I. Both the questions in section - II are compulsory.*
- 5) *Assume suitable data wherever necessary and mention it in your answer.*

SECTION - I

- Q1) a)** A T. W. Sliding folding door for a span of 2400 × 2100 mm is to be provided between a living room and sit-out. Draw a plan, elevation and section for an edge hung door with dimension and labeling to the scale 1:10. **[25]**
- b) Draw a enlarged detail at lintel level showing sliding arrangement for above mentioned door to the scale of 1:5. **[5]**
- Q2) a)** An RCC spine beam staircase having flight width of 1500mm is to be provided in a shop with a floor height of 3300mm. Draw a plan and section for the staircase showing main and distribution steel to the scale of 1:20. **[20]**
- b) Draw joinery details for fixing wooden studs for T.W. Partition to the scale of 1:5.
- i) Detail between Nogging and Stud.
 - ii) Panel fixing for double skin partition.
- [10]**

P.T.O.

- Q3)** Draw neat and proportionate sketches of following (Any three) : **[30]**
- a) Concealed suspended ceiling.
 - b) Aluminium partition.
 - c) A typical plan and section through elevator.
 - d) Gypsum board paneling to brick wall up to lintel level.
 - e) Kitchen storage cabinet construction in plywood.
 - f) External tanking for single basement.

SECTION - II

- Q4)** Write Short Notes with neat sketches (Any three) : **[24]**
- a) Draw 1 brick thick wall and brick pier using reinforced brickwork. Explain advantages of reinforced brickwork in construction.
 - b) Draw roof construction techniques using 'L' Panel developed by C. B.R. I. Explain its advantages and limitations.
 - c) Draw a sketch of Friction pile and explain its application in construction.
 - d) Draw a sketch of mass retaining wall showing reinforcement detail and explain terminology used in mass retaining wall.
 - e) Draw a sketch and explain process of setting out of structures.

- Q5)** Write Short Notes (Any four) : **[16]**
- a) Advantages of light weight concrete.
 - b) Advantages and application of guniting in building construction.
 - c) Advantages of PVC windows.
 - d) Use of stainless steel in building construction.
 - e) Use of glass in buildings.
 - f) Explain method of polishing of wood.



Total No. of Questions : 4]

SEAT No. :

P1325

[Total No. of Pages : 2

[4762] - 303

T.Y. B. Arch.

BUILDING SERVICES - II

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

SECTION - I

Q1) Answer any two questions from the following :

[2 × 15 = 30]

- a) What are the types of air distribution systems used in Mechanical ventilation for an enclosed area? Describe with sketches. Describe the plenum system of Mechanical ventilation with sketches.
- b) What is the function of an Air Handling Unit (AHU) of central Air - Conditioning system of a building? Explain location criteria of AHU in the building and network of distribution ducts and different services required in an AHU.
- c) What is “Refrigeration cycle”? How it is used in Air-conditioning? Explain different components of RAC (refrigeration & Air-Conditioning) with appropriate sketches.

Q2) Short notes (with sketches wherever necessary) (Any four) :

[4 × 5 = 20]

- a) Central DX Plant
- b) Fan Coil Unit
- c) Wet filters
- d) Water-cooled condenser
- e) Cooling tower
- f) A. C. Ducting system

P.T.O.

SECTION - II

Q3) 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 floors.
- b) What are Reverberation and Reverberation time. Explain the method of calculation of Reverberation time. What are the important factors for reducing the reverberation time of an auditorium.
- c) Explain with sketches sprinkler system used for Fire fighting purposes in a building.

Q4) Short notes (with sketches wherever necessary) (Any Four) : **[4 × 5 = 20]**

- a) Properties of sound
- b) Decibel
- c) Cutting off air-borne noise
- d) Fire escape staircase
- e) Smoke detectors
- f) Fire proof door



P1326

SEAT No. :

[Total No. of Pages : 4

[4762] - 304
T.Y. B. Arch.
ARCHITECTURAL DESIGN - III
(Common for Both the Patterns)
(2008 Pattern)

Time : 12 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *The design will be valued as a WHOLE.*
- 2) *Candidates to assume suitable data wherever necessary and mention the same.*
- 3) *Candidates MUST submit the single line drawings as specified which shall not be returned to them on day two, therefore they should keep due record of the design scheme for reference and further work on day two.*
- 4) *Candidates should refrain from making major deviations from the sketches/scheme submitted on day one.*
- 5) *The drawings should be self explanatory in all aspects mentioned.*
- 6) *The orientation of all the plans/layout must be maintained.*

COUNTRY CLUB FOR WINDMILL OWNERS' ASSOCIATION

PREAMBLE :

[10]

In past one decade, with growing concern for energy consumption alternative energy sources are becoming fast popular with solar and wind energy taking centre stage. With growing incentives from Government, Installing, maintaining wind mills is fast trend in corporate, individuals and other organizations. Sahyadri ranges in Satara district have witnessed a surge in windmill development.

The wind mill owners in this belt of Satara-Patan have come together and have formed association which has purchased a plot (admeasuring 0.68 hectare) on the plateau overlooking the Koyana Backwaters, to develop a country club for the members. The plot has scenic surroundings and a pleasant weather throughout the year. You are to design the Country club and present the same in form of drawings prescribed hereunder.

Design Parameters :

- As the association is founded on philosophy of sustainable development, the Design should be address to this issue of green architecture and be energy conscious.

P.T.O.

- The local conditions and climate has to be considered while designing.
- The site is almost flat with a gentle slope on west side and can be practically treated as flat land.
- The structural system must be considered and expressed through the drawings (columns, beams etc.)

DESIGN PROGRAMME :

Description	Carpet area
1) Reception and waiting lounge, with drop in porch for the members.	100.00 Sq. M
2) <u>Administration back office :</u>	
a) Estate Manager' cabin with attached toilet	20.00 Sq. M.
b) Club manager's cabin with attached toilet	25.00 Sq. M.
c) Accounts and Clerical staff (Six persons)	50.00 Sq. M.
d) A small meeting room for Eight persons	15.00 Sq. M.
e) Pantry, store and staff Toilet (1 WC, 1WB each for ladies and Gents)	As per Deign
3) Restaurant with spacious seating to accommodate 60 persons along with a Bar Counter and space for live orchestra.	100.00 Sq. M 120.00 Sq. M.
4) Kitchen for the restaurant and cafeteria including following Veg/Non-Veg cooking areas Dry store, Cold storage, Small room for manager Preparation areas	120.00 Sq. M.
5) A small cafeteria for 20 Person	30.00 Sq. M.
6) Recreational areas :	80.00 Sq. M.
a) A cards room with to accommodate six to eight groups of four to six each	
b) A pool table lounge with two pool table and seats for visitors (take pool table size as 2.44 M × 1.22 M.)	60.00 Sq. M.
c) A table tennis room with Two TT table. (TT table size as 2.74 M. × 1.52 M.)	70.00 Sq. M.

- d) A small Library on with reading area for 20 persons with a small store. **40.00 Sq. M.**
- e) A small Gymnasium with steam, sauna and Locker + changing rooms (2 Showers + 1 WC + 2 W Basins each for Ladies and Gents) **100.00 Sq. M.**
- 7) **A small banquet hall** for small gatherings/functions for 80 persons with A/V facilities. **150.00 Sq. M.**
- 8) **Residential Facility :**
 Guest rooms for members, twin sharing (two single beds) with attached toilet.
Eight rooms with a small common lounge/lobby 8 × 25 Sq. M. **200.00 Sq. M.**
 Common Lobby / Lounge **50.00 Sq. M**
- 9) **Support areas :**
- a) Common washrooms for members at suitable location (should be distributed according to individual planning)
 Ladies : 6 WCs, 6 W. Basins,
 Gents : 4 WCs, 8 Urinals, 6 W. Basins
- b) Electrical Panel room, HVAC room 10.00 Sq. M. each
- c) Stores as per requirement.
- 10) Circulation spaces, stairways, ramps etc as per design.
20 Cars, 1 Bus, 10 twoWheelers

11) Parking

SITE PARAMETERS

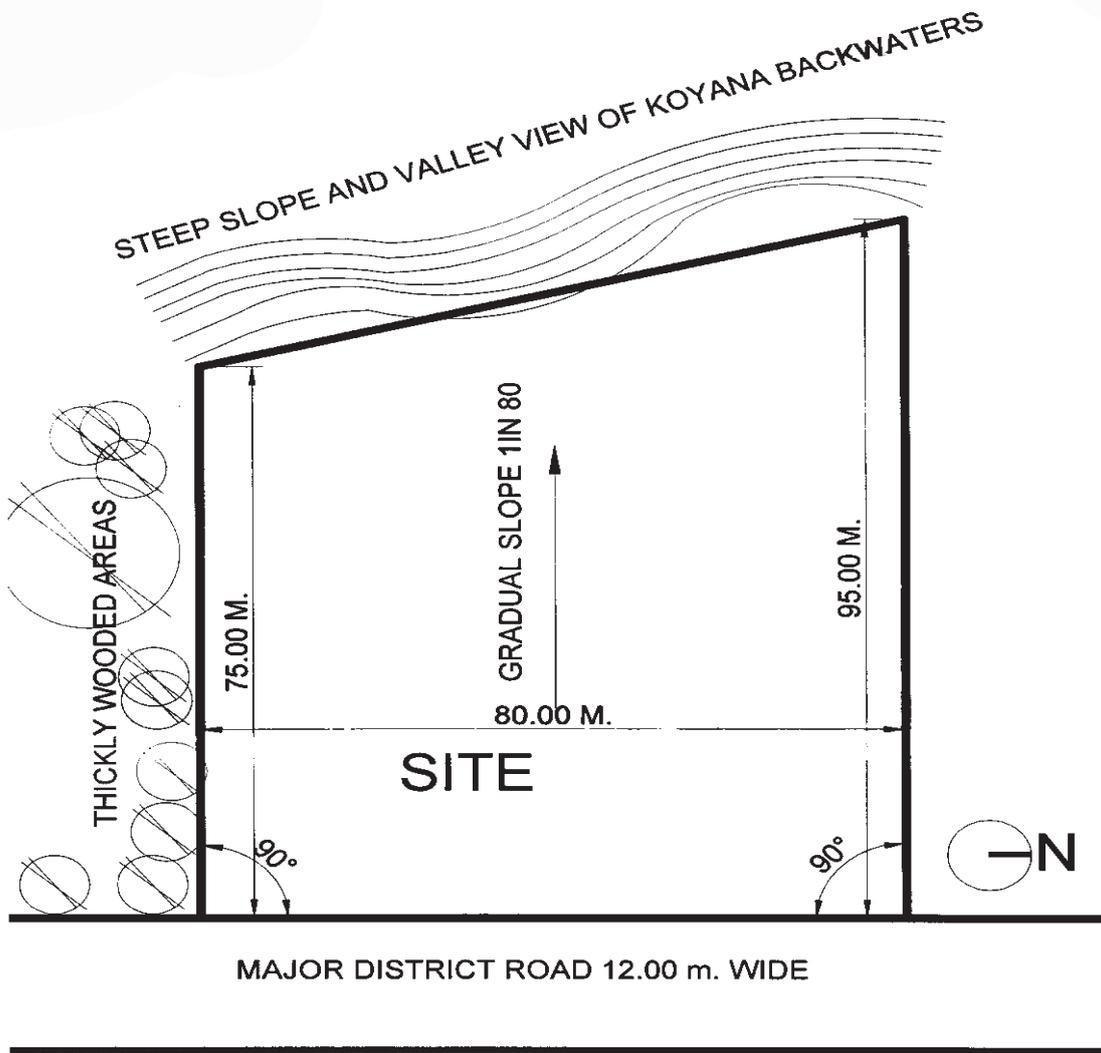
- i) Mandatory setbacks from road side = 9.00 M, from all other sides = 6.0M.
- ii) Permissible height : 9.00 M.
- iii) Maximum ground coverage 35% of the plot area
- iv) Site experiences heavy rain fall throughout the monsoon (June to September)
 Prevalent winds are S-W in Monsoons, N, N-E in rest of the year.
 You may combine or separate some of the spaces/function as per your design without compromising on the function/s

DRAWING REQUIREMENTS - DAY ONE :

- | | |
|---|-------|
| i) Single line Site layout | 1:200 |
| ii) Single line floor plans with at least one schematic section | 1:100 |

FINAL DRAWING REQUIREMENTS :

- | | |
|--|-------|
| i) Site plan with roof and all the site features such as landscape elements, parking, gate, driveways, pathways etc. | 1:200 |
| ii) Site section Minimum one | 1:200 |
| iii) All the floor plans with correct wall thicknesses, openings levels etc. | 1:200 |
| iv) Building section Minimum two | 1:100 |
| v) Building elevations Minimum two | 1:100 |
| vi) Sketch view. | 1:100 |



Total No. of Questions : 5]

SEAT No. :

P1320

[4762] - 31

[Total No. of Pages : 2

T. Y. B. Arch.

**Building Technology and Materials - III
(2008 Pattern) (Bridge)**

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Use drawing sheets for section - I and answer book for section - II.*
- 2) *Neat drawings must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Question no. 3 is compulsory. Solve any one question out of remaining two questions in section - I. Both the questions in section - II are compulsory.*
- 5) *Assume suitable data wherever necessary and mention it in your answer.*

SECTION - I

- Q1)** a) A T.W. Sliding door for a span of 900×2100 mm is to be provided between a living room and sit-out. Draw a plan, elevation and section with dimension and labeling to the scale 1 : 10. **[25]**
- b) Draw an enlarged detail at lintel level showing sliding arrangement for above mentioned door to the scale of 1 : 5. **[5]**
- Q2)** a) An RCC dog legged staircase having flight width of 1000mm is to be provided in a shop with a floor height of 3000mm. Draw a plan and section for the staircase showing main and distribution steel to the scale of 1 : 20. **[20]**
- b) Draw joinery details for fixing wooden studs for T.W. partition to the scale of 1 : 5. **[10]**
- i) Glass fixing for double skin partition
 - ii) Detail between Nogging and Stud
- Q3)** Draw neat and proportionate sketches of following (any three) **[30]**
- a) Any one type of suspended ceiling.
 - b) Stanchion fixing detail on RCC stub column.
 - c) A typical plan and section of parallel escalator system.
 - d) T.W. paneling to brick wall.
 - e) Diwan construction in T.W. frame.
 - f) Drain cavity system for single basement.

P.T.O.

SECTION - II

Q4) Write short notes with neat sketches (any three) **[24]**

- a) Built-up mild steel sections and its application in buildings.
- b) Draw brick lintel for 1 brick thick wall and brick pier using reinforced brickwork. Explain advantages of reinforced brickwork in construction.
- c) Draw roof construction techniques using R.C. plank developed by C.B.R.I. Explain its advantages and limitations.
- d) Draw a sketch of RCC pile cap and explain its function.
- e) Draw a sketch of counterfort retaining wall showing reinforcement detail and explain its application.

Q5) Write short notes (any four) **[16]**

- a) Constituents and preparation of light weight concrete.
- b) Process of guniting in building construction.
- c) Advantages of aluminium windows.
- d) Use of alloy steel in building construction.
- e) Use of any two types of glasses in buildings.
- f) Explain method of painting of metal surface.



Total No. of Questions : 8]

SEAT No. :

P1814

[Total No. of Pages : 4

[4762] - 32

T.Y. B.Arch.

THEORY OF STRUCTURES

(2008 Pattern) (2008 Bridge Pattern)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answer any 3 questions from each section.
- 2) Answer should be written in separate answer books.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Figures to the right indicate full marks.
- 5) Use of non programmable calculators and steel tables allowed.
- 6) Assume suitable data if necessary.
- 7) Use Fe 415 steel and M20 grade concrete.

SECTION - I

Q1) Write short notes on any four:

[16]

- a) Foundation Problems at Site.
- b) Trial Pits and Bore Holes.
- c) Active and Passive Earth Pressure.
- d) Stresses in an eccentrically loaded column and I.S. provisions.
- e) Reinforcement detailing of a Central Spine Staircase.
- f) Maximum and Minimum Pressure at the Base of a Retaining wall.

Q2) A rectangular column of size 230 x 500 is subjected to a load of 800 kN and rests on a soil of S.B.C. of 225 kN/m².

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]

P.T.O.

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

Ast/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

Q3) Design a R.C.C. doglegged staircase for an School building for the following data: [16]

- Width of the flight - 1450.
- Floor to floor height - 3500.
- Tread-300mm No of treads 9 in each flight.
- The staircase is supported on 200 mm wide beams on outer edges of landings.

Q4) A Retaining wall is proportioned as follows:

Retained earth is on the vertical face of the stem

Density of retained earth 18 kN/m³

Angle of repose - 25°

Coefficient of friction - 0.6

S.B.C. of soil - 250 kN/m²

Density of Concrete - 25 kN/m³

Top width of stem - 270mm

Bottom width of stem - 540mm

Height of stem - 4900mm

Width of base - 3300mm

Toe Projection - 800mm

Depth of Base - 540mm

- Check the Stability of the Retaining Wall with respect to Sliding and Over-Turning. [10]
- Design the Stem Reinforcement. [7]

SECTION - II

- Q5)** a) Explain why high strength steel and concrete need to be used in Prestressing. [6]
- b) A prestressed concrete beam of overall size 300 x 900 is simply supported over a span of 8.0m. The beam carries an udl of 30 kN/m over its entire span exclusive of its self weight. The prestressing tendons are located at a distance of 125 from the neutral axis and provides a prestressing force of 1300 kN. [10]

Calculate the extreme fibre stresses at Mid Span and at End Span

- Q6)** a) Two column of size 300 x 300 and 400 x 400 carry loads of 900 and 1200 kN respectively and are spaced 1.6m apart centre to centre and rest in a soil of S.B.C. of 160 kN/m². Find the plan dimensions of the combined footing. Draw a sketch of the plan. [9]
- b) Write short notes on any two: [8]
- i) Compare between Limit State Method and Ultimate Load Method.
 - ii) Stress Block Diagram for a Flexural Member in Limit State Method.
 - iii) Castellated Girder.
 - iv) Different Pressure Conditions in an underground water Tank.

- Q7)** A compound Stanchion is made of 2 number ISMC 250 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 4.5m. 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

Q8) Write short notes on any four with neat sketches:

[16]

- a) Details in a Steel Portal Frame with Hinged Base Connections. Or Advantages of a Steel Portal Frame.
- b) Reinforcement Detailing for Beams and Columns in Earthquake Resistant Structures.
- c) Reinforcement Detailing for a Rectangular Over Head Water Tank.
- d) Structural supports in an open well staircase.
- e) Different Shapes of Compound Stanchions.
- f) An Intze Tank.



Total No. of Questions : 5]

SEAT No. :

P1321

[4762] - 33

[Total No. of Pages : 2

T. Y. B. Arch

**BUILDING SERVICES - I
(2008 Pattern) (Bridge)**

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

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

SECTION - I

Q1) A grain warehouse with length = 20m, width = 12m, height = 6m, is required to be mechanically ventilated. Based either on a supply system or an exhaust system, calculate the number of exhaust fans required. Show the position of fans in a neatly drawn plan and section. Assume the appropriate air cycles required. You may choose fans from the following : **[15]**

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

OR

Explain with neat sketches the Central DX System.

Q2) Explain with neat sketches the different systems used for mechanical ventilation. **[15]**

OR

Explain with neat sketches the air and refrigerant cycles in an air conditioning system.

Q3) Write short notes on any FOUR of the following : **[20]**

- a) Stack effect
- b) Conditions of human thermal comfort
- c) Types of fans used in mechanical ventilation systems
- d) Wind catchers
- e) Cooling towers
- f) Water cooled condensers

P.T.O.

SECTION - II

Q4) What is Reverberation Time? State Sabine's formula and the optimum reverberation time for a Assembly hall. **[20]**

Calculate the reverberation time for a lecture hall with length = 30m, width = 15m, height = 5m.

Seating capacity of the hall = 200.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>NO.S</u>	<u>SIZE</u>
Flooring	Marble mosaic tiles	-	-
Walls	230 thick brick walls with cement finished plaster	-	-
Ceiling	Concrete slab with cement finished plaster	-	-
Doors	T. W. fully paneled doors	4 No.s	1.5m × 2.1m
Windows	Fully glazed windows	8 No.s	1.8m × 1.2m

Assume half occupancy, all windows and doors open.

OR

Methods of controlling structure and air borne noise in buildings.

Q5) Write short notes on any five of the following : **[30]**

- a) Dry riser system.
- b) Fire alarms.
- c) Fire hydrants.
- d) Public address system.
- e) Types of sprinklers
- f) Fire load.
- g) Means of egress.
- h) Fire escape staircase.



Total No. of Questions : 5]

SEAT No. :

P2001

[Total No. of Pages : 4

[4762] - 34

Third Year B. Arch.

QUANTITY SURVEYING & ESTIMATING
(Theory) (Bridge Course)
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

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

SECTION - I

Q1) a) Work out the quantities for the following items of work for the structure shown in the (FIG. 1), Based on the details and data as given below.
(Any Eight) : **[40]**

- i) Excavation in Hard Murum (Footings only)
- ii) R.C.C. (1:1.5:3) for Column Footings.
- iii) Niroo finish wall Plaster for Hall only.
- iv) Painting only for Hall only. [walls and ceiling]
- v) Floor tile & Skirting for Hall (Skirting ht. 100mm).
- vi) R.C.C. Floor Beams at 1ST Slab.
- vii) R.C.C. Lintels (bearing 150mm)
- viii) M.S. Window & Ventilators.
- ix) R.C.C. Chajja for Door & windows
- x) W.H.B. & W.C.

P.T.O.

- b) State the Unit of measurement as per IS code 1200 (**Any Ten**) : [10]
- i) M.S. Reinforcement.
 - ii) 230mm thk. B.B. Masonry.
 - iii) P.C.C. for footing.
 - iv) Inspection Chamber.
 - v) M.M. Tile Skirting. (100mm ht.)
 - vi) Vitriified tile Flooring.
 - vii) Aluminium Windows.
 - viii) M.S. Grill.
 - ix) Murum Filling.
 - x) Painting to Ceiling.
 - xi) Stop cocks.
 - xii) W/P to Terrace.

SECTION - II

Q2) Write short notes on (**Any two**) : [12]

- a) Uses of Detailed Estimate.
- b) Contingencies.
- c) Construction Overheads.
- d) Mode of measurement of R.C.C. Slab, Beams & Columns.

Q3) Describe the items of work as described in bill in quantities. (**Any Two**) : [12]

- a) B.B. Masonry 230mm thk.
- b) 12-15mm Niroo Plaster in CM (1:4)
- c) Wash Hand Basin.
- d) Plinth filling with murum from excavated material.

Q4) Prepare Indent of Material (**Any Two**) : [12]

- a) Vitriified tile Flooring (600mm x 600mm) Quantity = 200 Sqm.
- b) B.B.M (1:6) 230mm thk. Quantity = 120 Cum.
- c) UCR Masonry in CM (1:6) Quantity = 50.0 Cum.
- d) Sand Faced Plaster (1:4) 25mm thk. 320 Sqm.

Q5) Prepare Rate Analysis (Any Two) :

[14]

- a) P/C U.C.R. Masonry in CM (1:6) - unit 10.0 Cum.
- b) P/C 230 mm thk. B.B. Masonry in CM 1:6.- unit 10 Sq.m
- c) P.C.C. (1:3:6) for floor Sub Base- Machine mixed.
- d) P/L. Dry Rubble Soling - 230-300mm thk. - unit 1.0 Cum.

Material Rates					
Cement	Rs. 330/bag	Aggregate	Rs. 850/Cum	Sand	Rs.1700/Cum
Bricks	Rs. 7.0/No	Rubble	Rs. 650/cum	U.C.R.	Rs.700/Cum
Outside Murum		Rs. 350/Cum			
Labour Rates					
P.C.C–Rs. 520/Cum		B.B. Masonry = Rs. 180/Sqm		Rubble Soling – Rs. 350/Cum	
U.C.R. Masonry = Rs.700/Cum					

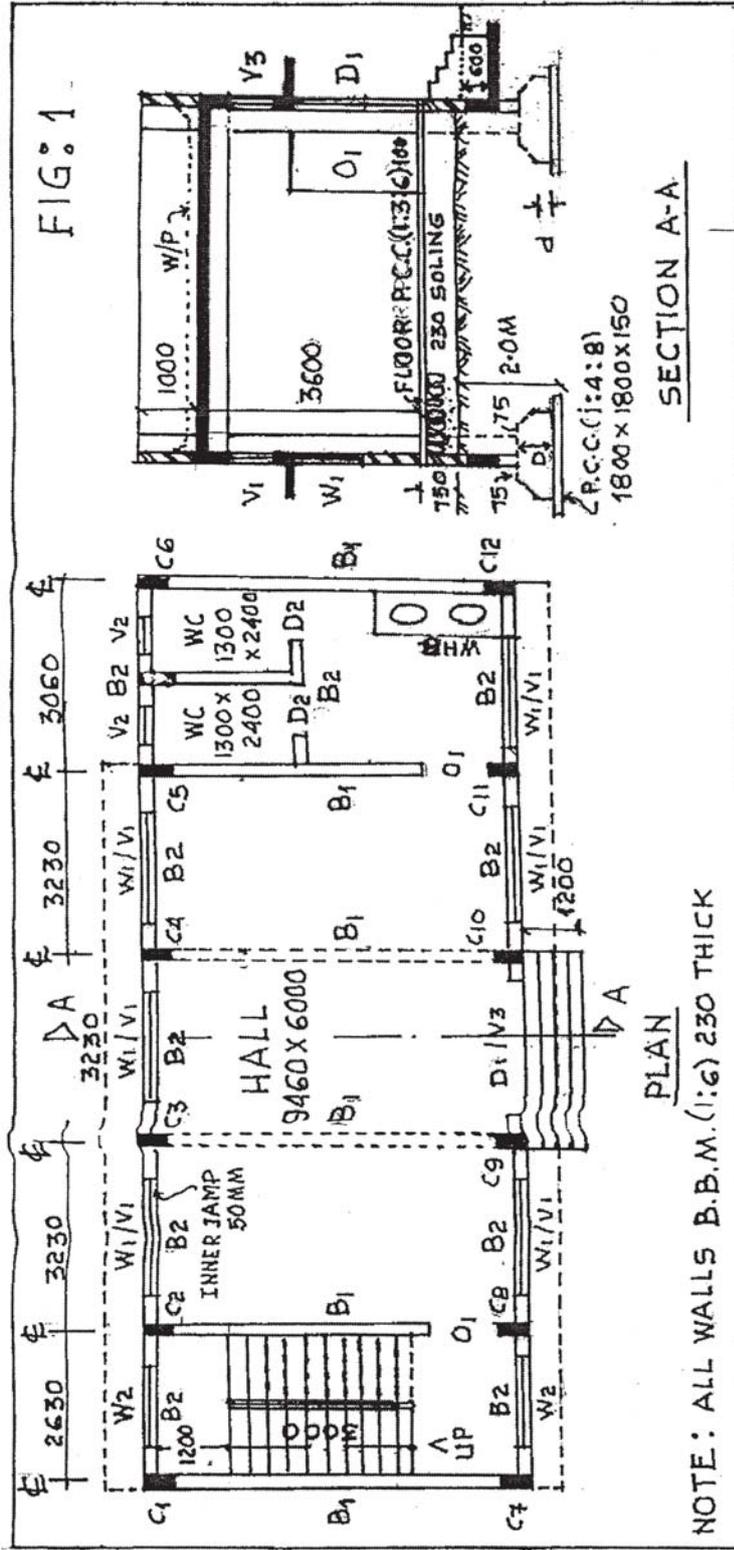


FIG: 1

SECTION A-A

① SCHEDULE OF D/W/O

D₁ : 2540 X 2100 V₁ : 2000 X 600

D₂ : 800 X 2100 V₂ : 600 X 900

O₁ : 1000 X 2100 V₃ : 2540 X 600

W₁ : 2000 X 1200

W₂ : 1500 X 1200

ASSUME SUITABLE DATA IF NECESSARY.

NOTE: ALL WALLS B.B.M. (1:6) 230 THICK

① R.C.C. DETAILS

ALL R.C.C. M20, ALL FOOTINGS 1500 X 1500, D=600, d=200

ALL FLOOR SLABS - 140 THICK, FLOOR HEIGHT - 3600,

FLOOR BEAMS - B₁ = 230 X 600, B₂ = 230 X 450.

ALL COLUMNS - 230 X 600, ALL LINTELS - 230 X 300.

STAIR STEPS - T=300, R=164, WAIST SLAB = 180MM,

ALL CHAJJA'S - 100 THICK, PROTECTION - 600MM.

Total No. of Questions : 6]

SEAT No. :

P1815

[Total No. of Pages : 2

[4762] - 35

Third Year B.Arch. (Bridge Course)

SPECIFICATION WRITING

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right hand side indicate marks.*
- 3) *Answers to diff sections to be written in separate answer books.*

SECTION - I

Q1) Discuss the language of Specification writing and precautions to be taken during framing specifications for a tender document. **[15]**

OR

Explain any four types of specifications. Discuss standard specifications giving examples.

Q2) Discuss the instructions to be given to contractor for carrying out demolition work & excavation work. **[15]**

OR

Write material specifications for Cement, Sand and MS reinforcement. Explain qualities of ideal bricks.

Q3) Write brief specifications (Any Four): **[20]**

- a) T.W. Door.
- b) Aluminium Windows.
- c) RCC Slab.
- d) Excavation in soft Murum.
- e) Dry Rubble Soling.
- f) Marble flooring.

P.T.O.

SECTION - II

Q4) Write Short Notes (Any Four): **[20]**

- a) Solar Energy.
- b) Ideal acoustical materials.
- c) Types of waterproofing.
- d) Use of Biogas.
- e) Fire Detectors.
- f) Central Airconditioning.

Q5) Write Brief Specifications (Any Four): **[20]**

- a) Toilet door for a disabled person.
- b) Floating Floors.
- c) Inspection Chamber.
- d) Waterproofing.
- e) Barbed Wire Fencing.
- f) Wash Basin.

Q6) Write Manufacturers Name for the following products (Any Ten): **[10]**

- a) Wash Basins.
- b) Float Glass.
- c) Lift.
- d) Roofing Sheets.
- e) Waterproofing Compound.
- f) Cement.
- g) Drainage pipes.
- h) Readymade Doors.
- i) Storage Tanks.
- j) Ceramic Tiles.
- k) Escalators.



Total No. of Questions : 10]

SEAT No. :

P1327

[Total No. of Pages : 2

[4762] - 401
F.Y. B. Arch.
TOWN PLANNING
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Q. 1 and Q. 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.*

SECTION - I

- Q1)** 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]**
- Q2)** Explain the concept & characteristics of Neighborhood by Clarence Perry. **[12]**
- Q3)** Mention the six stages in town development as suggested by Lewis Mumford. **[12]**
- Q4)** What is the classification of residential buildings? Write a note on requirements of residential buildings. **[12]**
- Q5)** What is the importance of Zoning? Explain the aspects of Zoning. **[12]**

SECTION - II

- Q6)** Write short notes on (any four) **[20]**
- a) Town Planning Schemes & its importance in Town Planning.
 - b) River front development.
 - c) Difference between FSI & TDR.
 - d) Subdivision of Land.
 - e) Regional Planning.

P.T.O.

- Q7)** Explain briefly the provisions of Maharashtra Tree Act & how it is administered to plant, to replant & to cut the trees. **[10]**
- Q8)** A residential plot measuring 15m × 20m abuts a road on its smaller side. Permissible ground coverage is 50%. Floor space Index is 2.5. Considering the data, calculate the maximum no. of building floors. **[10]**
- Q9)** What are the objectives & important features of National Housing Policy. **[10]**
- Q10)** Explain briefly various stages of getting development permission in Pune Municipal corporation area and also state the required documents for such permission. **[10]**



Total No. of Questions : 10]

SEAT No. :

P1328

[Total No. of Pages : 3

[4762] - 402

Fourth Year B. Arch.

PROFESSIONAL PRACTICE

(Theory) (2008 Pattern) (Bridge Course)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Answers to the two Sections - I & II - must be written on separate answer Books.*
- 2) *Answers to Q. 1 from Section - I, and Q. 6 from Section - II are compulsory.*
- 3) *Attempt any two out of the remaining Questions in each section*
- 4) *Figures to the right of each Question indicate full marks.*

SECTION - I

Q1) What is the COUNCIL OF ARCHITECTURE? How and when was it established? What is its composition, and its role in Architectural Profession in Indian? [20]

Q2) What do you know about **The Indian Institute of Architects**? Give its History in brief, and its role and Activities as a professional organisation of Architects. [15]

Q3) Write a comprehensive note on the **Role of a Professional Architect**, highlighting his specific Duties, Liabilities, Conduct and Image in Society. [15]

Q4) Write Short Notes on **ANY THREE** of the following : (5 Marks Each) [15]

- a) Structure and composition of an Architects Office.
- b) Code of Conduct for Architects.
- c) Role of allied / specialist consultants in Architecture.
- d) Role of a Clerk of Works in a construction project.
- e) Professional remuneration for Architectural services.
- f) Stages of Work in a typical Architectural project.

P.T.O.

Q5) Define ANY THREE of the following : (5 Marks Each) [15]

- a) Architecture
- b) Power of Attorney
- c) Sinking Fund
- d) Dilapidation
- e) Easements

SECTION - II

Q6) What are the advantages and disadvantages of the TENDERING system? Write a note on different TYPES of Tenders, and SYSTEMS of Tendering. [20]

Q7) Write a comprehensive note on **ARCHITECTURAL COMPETITIONS, giving the types and procedure with advantages and disadvantages if any. [15]**

Q8) What are **EASEMENTS? Describe different types of Easements, and elaborate with sketches where necessary. [15]**

Q9) Compare and Contrast ANY THREE of the following (5 marks each) : [15]

- a) Earnest Money Deposit and Security Deposit.
- b) Open and Invited Tender.
- c) Bonus Clause and Penalty clause in Tenders.
- d) Cost, Price and Value.
- e) Proprietary and Partnership Practice.
- f) Defects Liability Period and Extended Period.

Q10) Write Short Notes on ANY THREE of the following (5 marks each) : **[15]**

- a) Pre-qualification system.
- b) Tender Notice.
- c) Running Account Bills.
- d) Sentimental Value.
- e) Virtual Completion.
- f) Advertising by Architects.



Total No. of Questions : 5]

SEAT No. :

P1816

[Total No. of Pages : 4

[4762] - 403

Fourth Year B.Arch.

QUANTITY SURVEYING & ESTIMATING

(2008 Pattern) (Theory)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

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

SECTION - I

Q1) a) Work out the quantities for the following items of work for the structure shown in the (Fig.1), Based on the details and data as given below
(Any Eight): [40]

- i) Painting only for Bedroom [walls and ceiling].
- ii) Niroo finish wall Plaster for Living Room.
- iii) Dado for WC and Bath.
- iv) Floor tile for living, kit/din & bedroom.
- v) R.C.C. column for Ground Floor and above slab.
- vi) Chajja for all windows.
- vii) All Door frame for D1 (Frame size : 125mm x 75mm).
- viii) Brick Masonry walls 230mm thick for Ground Floor.
- ix) R.C.C. for footings.
- x) External and internal R.C.C. beams.

Data:

- Thickness of slab 150mm, Floor to Floor Height 3m, Height of parapet 1m.
- External beams 230 x 650mm * Internal beams 230 x 500mm

P.T.O.

- All columns C1: 230 x 500mm, C2 = 230 x 230 offset at footing 100mm
- Footings for C1 = 1000 x 1200 for C2 : 1000 x 1000mm
D = 700mm, d = 150mm for both footings
- Size of P.C.C. for column C1 = 1300 x 1500mm, and for C2 1300 x 1300 Thickness 200mm.
- Size of excavation for column C1 = 1600 x 1800mm and for C2 = 1600 x 1600mm, Depth of excavation from G.L 1.45m.
- Plinth to Ground 0.6m.
- Projection of Chajja 450mm, Uniform thickness of 100mm.
- Bearing of lintel 150mm on one side.
- Door D = 900 x 2100, D1 = 800 x 2100mm, D2 = 750 x 2100mm.
- Windows W = 1200 x 1000mm, W1 = 1100 x 1000mm, V = 400 x 600 mm.
- Dado in Toilets 2100mm height.

b) **State the Unit of measurement as per IS code 1200.** [10]

- Site Clearance.
- Steel members in trusses.
- Septic tanks.
- Electric 15 Amp points.
- Compound Walls.
- Wash hand basin.
- P.C.C. in footings.
- Internal plaster.
- Earth filling.
- Brick masonry more than 230mm thick.

SECTION - II

Q2) Prepare Indent of Material (Any Two): [12]

- Brick Masonry 115mm thick in 1:6 for 40 Sqm.
- Ashlar stone Masonry in Cement mortar 1:6 for 60 Cum.
- Kota Flooring in Cement mortar 1:6 for 50 Sqm.

Q3) Prepare Rate Analysis (Any Two):**[14]**

- Dado Tiles in Wall for 1.0 SQm.
- Steel reinforcement for 1.0 metric ton.
- Timber door frame 125mm x 65mm with standard size 2.10m x 0.90m.
- U.C.R. in CM 1:6.

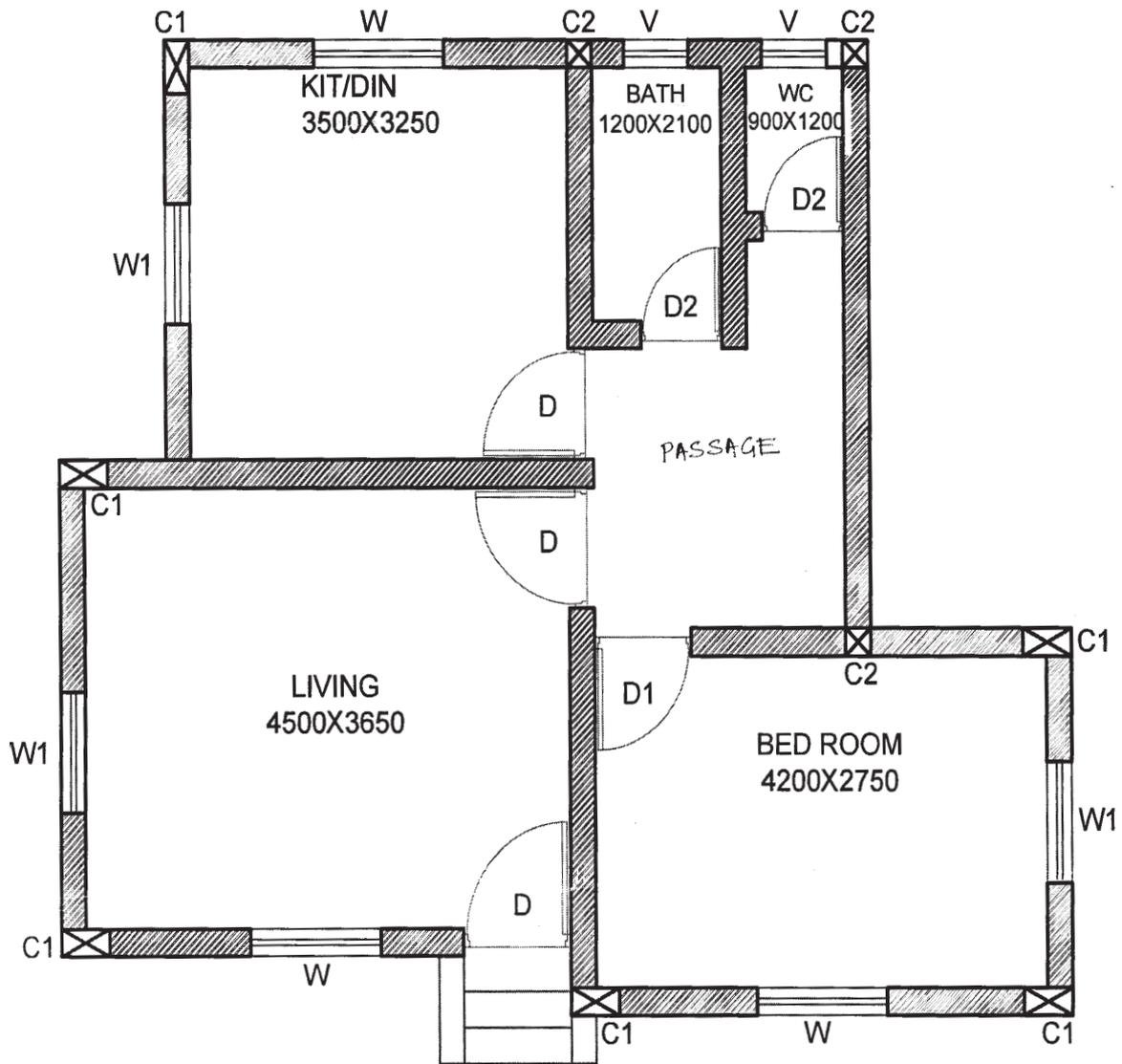
Material Rates					
Cement	Rs 350/bag	Dado Glazed tiles	Rs.500 / Sqm	Colour cement	Rs.50/kg
Steel	Rs. 28000/MT	Binding wire	Rs. 35/KG	Timber	Rs 58000/cum
Rubble	Rs. 700 / cum			Hold Fast	Rs. 150/no
Labour Rates					
Dado tiles= Rs 175/Sqm		Steel = 3000/MT		Making Door Frame = Rs 1600/ no	
U.C. R. Masonry = Rs. 500/cum				Erecting Door Frame = Rs 250/No	

Q4) Write short notes on (Any Two):**[12]**

- Explain the guidelines for entering a abstract sheet.
- I.S. 1200.
- Revised estimate.
- Spot Items.

Q5) Describe the items of work as described in bill in quantities (Any Two):**[12]**

- 0.45 x 0.90 x 1.5m inspection chamber.
- Excavation for footing.
- M.S. Reinforcement.
- Neeru finished Plaster.



PLAN (FIG 1) GROUND FLOOR

(ALL DIMENSIONS ARE IN MM)



Total No. of Questions : 7]

SEAT No. :

P1817

[Total No. of Pages : 3

[4762] - 404
Fourth Year B.Arch.
SPECIFICATION WRITING
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right hand side indicate marks.*
- 3) *Answers to diff sections to be written in separate answer books.*

SECTION - I

Q1) Discuss the requirement of Specification writing for construction projects. Explain the necessity of specification for arbitration proceedings. **[15]**

OR

Define Specification writing. Explain any three types of specifications. Discuss manufacturers specifications.

Q2) Discuss the relation between working drawings & specification writing. Explain the tools & machinery required for excavation in hard rock strata. **[10]**

OR

Discuss the importance of material testing in construction projects. Explain slump test & concrete cube test.

Q3) Write brief specifications (Any Two): **[10]**

- a) External Brick Wall.
- b) R.C.C. Slab.
- c) UCR Masonry.
- d) Vitriified Tile Flooring.

P.T.O.

Q4) Write material specifications for (Any Three):

[15]

- a) Timber.
- b) Reinforcement.
- c) Bricks.
- d) Glass.
- e) Stone.
- f) Aggregate.

SECTION - II

Q5) Write Short Notes (Any Four):

[20]

- a) Sprinkler Systems.
- b) Types of Elevators.
- c) Knotting & Stopping.
- d) Renewable Energy resources.
- e) WBM Roads.
- f) Escalators.

Q6) Write Brief Specifications (Any Four):

[20]

- a) Ramp for a disabled person.
- b) Soundproof Partition.
- c) Fireproof Door.
- d) Brick Bat Waterproofing.
- e) Stone compound wall.

Q7) Write Manufacturers Name for the following products (Any Ten): [10]

- a) Asbestos Cement Sheets.
- b) Flooring Tiles.
- c) Glass.
- d) Orissa Pan.
- e) Lift.
- f) External Paint.
- g) Wash Basin.
- h) Cement.
- i) Electric Switch.
- j) Water Tank.
- k) European Water Closet.
- l) Internal Paint.



Total No. of Questions : 10]

SEAT No. :

P1322

[4762] - 41

[Total No. of Pages : 2

**Fourth year B. Arch.
TOWN PLANNING
(2008 Pattern) (Bridge Course)**

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Q. 1 and Q.6 are compulsory.*
- 2) *Answer any three questions from each section from remaining.*
- 3) *Answer to two sections should be written in separate books.*
- 4) *Draw neat diagrams wherever necessary.*

SECTION - I

Q1) Write a detailed note on Garden city concept by Ebenezer Howard. Explain the same with examples. **[14]**

Q2) What are the different forms of planning. **[12]**

Q3) Write short notes (any two) **[12]**

- a) Sir patrick Geddes.
- b) Clarence perry.
- c) C.A. Doxiadis.

Q4) Explain the classification of towns in India. **[12]**

Q5) a) Discuss different types of housing. **[6]**

- b) Explain the term town planning schemes and its importance in town planning. **[6]**

P.T.O.

SECTION - II

Q6) Write short notes on (any four) **[20]**

- a) Completion certificate in pune municipal corporation area.
- b) Difference between FSI & TDR.
- c) Subdivision of land.
- d) Byelaws.
- e) Two methods of slum clearance.

Q7) Write a note on M.R. & T.P. Act & explain its importance. **[10]**

Q8) Explain briefly the provisions of maharashtra tree Act and how it is administered to plant, replant or cut trees. **[10]**

Q9) Describe various types of surveys in town planning. Explain importance of surveys in planning. **[10]**

Q10) Explain the objectives & importance of national housing policy. **[10]**



SEAT No. :

P1323

[4762] - 43

[Total No. of Pages : 3

Fourth Year B. Arch.
ARCHITECTURAL DESIGN - IV
(2008 Pattern) (Bridge)

Time : 18 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Your answers will be valued as a whole.*
- 2) *Assume suitable data if necessary.*
- 3) *The candidate 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.*
- 4) *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.*

A HOUSING COMPLEX AT ALIBAUG

A reputed promoter and builder has purchased a plot of land admeasuring 16,500 Sq. Meter in Alibaug city. Alibaug is a fast growing city located along Arabian sea and in Raigad district of Maharashtra. It experiences hot and humid climate throughout the year except mild pleasant winters. It receives heavy rainfall during monsoon season.

The proposed plot is rectangular, 110 meters in east - west and 150 meters in north - south direction. Plot has 1 : 100 slope towards east. The plot is surrounded by residential area and has 30 meter wide road on west side. Modern living environment conducive for social interaction is their prime requirement. You have to design this 'Housing Complex' as per the following requirements.

THE SPACE REQUIREMENTS

Built - up areas of Dwelling units is as follows :

Type	Area	Total No. of Units
A	65	40
B	90	80
C	115	40

P.T.O.

PARKING

Four wheelers	160
Two wheelers	100

DESIGN REQUIREMENTS

- i) 10% of the area is to be reserved as open space. Floor space of open space is not available for construction. However, a 'Club House' of maximum 150 Sq. Meters and max. 6.0 Meter height can be provided free fo FSI in the open space. You have to show only footprint of the 'Club House'. Assume requirements of 'Club House'.
- ii) Floor space of area of internal roads is availabel for construction.
- iii) Side margins :
 - a) Min 4.5 M from internal and external roads. Max can be 4.5 M.
 - b) Min 3.0 M from plot boundary.
 - c) Distance between two buildings/wings min.6.0M. and $(H/2)-3M$. H = Height of building. It can be maximum 7.50 M.
 - d) Side margins from plot boundary will be minimum $(H/2)-3M$. It can be maximum 7.50 M.
- iv) Permissible FSI is one.
- v) Max. permissible height is 24.00M.
- vi) U.G. Tank, security cabin, D.G. Set, compost plant should be provided at Aconvenient locations.
- vii) Areas free of FSI
 - a) Balconies : to the extent of 15% of floor area.
 - b) Staircase : width of flight should be 1.2M.
 - c) Stilt floor.
 - d) Passages : to the extent of 10% of floor area.
 - e) Basement : constructed with in the area left of side margins.
- viii) All other requirements of 'National Building Code' should be followed.

DESIGN PARAMETERS :

- i) Outdoor activity spaces should be integrated with indoor activity spaces.
- ii) Necessary passages, corridors, staircases, lobbies should be provided.
- iii) Interesting landscape should be provided.

DRAWINGS REQUIRED :

First Day :

Scale

- i) Single line layout plans showing site, buildings, parking, driveways, pathways, landscaping etc. 1 : 250
- ii) Single line plans at all levels. 1 : 100

Final Day :

- i) Layout plan showing site, buildings parking, driveways, pathways, landscaping etc. 1 : 250
- ii) Plans at all levels 1 : 100
Internal layout should be shown.
- iii) Minimum 2 sections to explain the scheme 1 : 100
- iv) Minimum 2 elevations. 1 : 100
- v) A sketch perspective or bird's eye - view.

