

SEAT No. :

P347

[Total No. of Pages : 2

[4267]-31

T.Y. B. Arch.

ARCHITECTURAL DESIGN - III

(2003 Pattern) (Theory)

Time : 12 Hours (enclode 6 hours)

[Max. Marks : 100

Instructions to the candidates :

- 1) *The design will be valued as a whole.*
- 2) *Assume suitable data if necessary.*
- 3) *Line drawings of plan and section 1:100 must be submitted at the end of first day. This drawing will not be returned the next day.*
- 4) *All drawings should be clear and self explanatory.*

A Health Club, Pune

A residential locality in Pune has a piece of land reserved for a commercial purpose. It has been decided that it is necessary to provide a health club facility in this area. A rectangular piece of land, which is 4000 sq.m. (50 m × 80 m) is amidst a low rise residential buildings and has main road situated to the south. (Please refer to the attached plan).

In the recent years health consciousness has been raised amongst people because of lifestyle related health problems. A number of health clubs have risen due to this increasing demand. As this neighborhood lacks such a facility, the residents have approached the local authorities to provide one.

Front margin (main road) is 6.0 m and side margins are 4.5 m.

Requirements

	Area
1. Entrance lobby, waiting area and reception desk	40 sq.m
2. Administration/office (3 people)	15 sq.m
3. Yoga hall (40 people)	100 sq.m
4. Aerobics hall (20 people)	50 sq.m
5. Gym hall (60 people)	150 sq.m
6. Toilets + Changing (Ladies, Gents 25 sq.m each)	50 sq.m
7. Lockers (Ladies, Gents 10 sq.m each)	20 sq.m
8. Store (furniture, equipment)	20 sq.m
9. Snack bar + seating (20 people)	40 sq.m
10. Kitchen + store	15 sq.m

P.T.O.

Outdoor areas

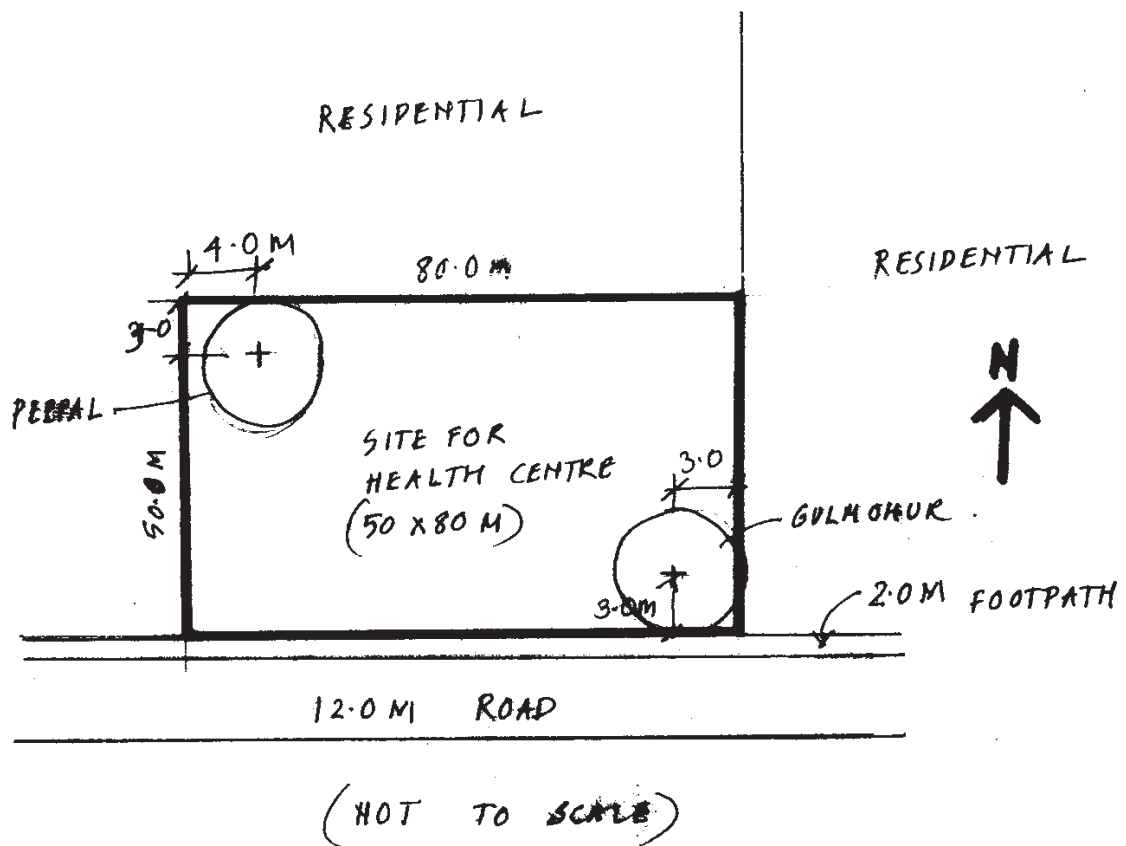
1. Hard and soft landscaped areas as required
2. Basketball practice court.
3. Parking – 10 four wheelers and 40 two wheelers.

Drawing requirements

1. Site Plan with roof plan of structure and landscape, roads, parking and pathways. 1:200.
2. Ground floor plan with all furniture 1:100

Note : This tracing with built form (no furniture) is to be submitted as first day sketch.

3. Two sections or sectional elevations 1:100
4. Two elevations 1:100
5. Any two Constructional details at 1:20
6. Perspective View explaining the layout



Total No. of Questions : 5]

SEAT No. :

P348

[Total No. of Pages : 2

[4267]-32

T.Y. B. Arch.

BUILDING CONSTRUCTION AND MATERIALS - III

(Annual 2003 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) Draw plan and section to a scale of 1:20 showing reinforcement details of RCC Cantilever balcony with simply supported balcony slab along the longer side of the room having one-way floor slab. Balcony projection is 1.2m. **[15]**
- b) Draw one alternative way of supporting a cantilever balcony. Also draw railing details and reinforcement in part isometric view. **[15]**
- Q2)** a) Draw plan and section to the scale of 1:10 of Timber Framed partition to be constructed for the Executive cabin. The Partition would be 4.0m wide and 3.0m in height. **[15]**
- b) Draw joinery details at the scale of 1:2. **[10]**
- c) Provide material specification and finishes details at suitable scale. **[5]**
- Q3)** Explain the following with neat sketches (Any Four) : **[30]**
- a) Provision in civil work for the installation of escalator.
 - b) Pile cap and Column construction.
 - c) External tanking in basement construction.

P.T.O.

- d) Roofing systems using RCC plank and partially precast joist developed by CBRI.
- e) Epoxy based waterproofing.
- f) Construction details for decorative brick work.

SECTION - II

Q4) Write Short Notes with neat sketches (Any four) : **[24]**

- a) Center Sliding folding doors.
- b) Counterfort RCC Retaining Walls.
- c) Reinforced Brick lintel for 1 brick thk wall.
- d) Types of cantilever R.C.C. staircases.
- e) Eaves/gutter fixing details and Cladding for steel truss with G.I or AC sheeting.
- f) Setting out of a RCC framed Structure.
- g) External Aluminium cladding.

Q5) Write Short Notes with neat sketches (Any four) : **[16]**

- a) Methods and materials of polishing of wood.
- b) Use of different types of glass in building.
- c) Waterproofing of RCC slab.
- d) Painting of surfaces of bricks, stones & plaster.
- e) Use of Light weight Concrete.
- f) Types of ferrous metals used in buildings.
- g) PVC door.



Total No. of Questions : 8]

SEAT No. :

P349

[Total No. of Pages : 3

[4267]-33
T.Y. B. Arch.
THEORY OF STRUCTURES - III
(2003 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 Fe415 steel and M20 grade concrete.*

SECTION - I

- Q1)** Write short notes on any four : **[16]**
- a) Consistency of Soil and Various Limits.
 - b) Various Foundation Problems at Site.
 - c) Weep holes in Retaining Walls - Need and different ways of providing them.
 - d) Structural detailing of A Folded Plate Staircase.
 - e) Structural detailing of a R.C.C. Straight Flight Staircase with a Central Stringer Beam.
 - f) Need for Pile Foundations, Types and Structural Action.
- Q2)** Design an isolated footing for a rectangular column of size 230×600 subjected to a load of 900 Kn. S.B.C = 300 Kn/sq m. **[17]**
Design for depth, Design the steel and check for one way shear.
- Q3)** Design a R.C.C doglegged staircase for an office building for the following data : **[17]**
- a) Width of the flight - 1500 mm
 - b) Floor to floor height - 3100 mm

P.T.O.

- c) Tread - 275 mm Riser - 155 mm.
- d) The staircase is supported on 230 mm wide beams on outer edges of landings.

Q4) Check the stability of the retaining wall. Check for maximum and minimum pressure at base. **[17]**

Retained earth is on the vertical face of the stem.

Density of retained earth 16 Kn/cubic m

Angle of repose - 25 degrees

Coefficient of friction - 0.6

S.B.C of soil - 300 Kn/sq m

Density of Concrete - 25 Kn/cubic m

Top Width of stem - 300 mm

Bottom width of stem - 630

Height of stem - 5700 mm

Width of base - 3200 mm

Toe Projection - 900 mm

Depth of Base - 750 mm

SECTION - II

Q5) a) Explain Prestressing and Post Tensioning. Why is only High Strength Concrete and High Strength Steel used in Prestressed Sections. **[8]**

b) A prestressed concrete beam of overall size 300 × 600 is simply supported over a span of 6 m. The beam carries an udl of 25 Kn/m over its entire span inclusive of its self weight. The prestressing tendons are located at a distance of 100 mm from the neutral axis and provide a prestressing force of 1000 Kn. **[9]**

Calculate the extreme fibre stresses at mid span.

Q6) a) Design a purlin factory for the following data : **[8]**

- i) Span of the truss - 16 m
 - ii) Spacing of the trusses - 5.0 m
 - iii) Slope of roof 22 degrees
 - iv) Spacing of purlins - 1.8 m
 - v) Roofing is of G.I Sheets
- Use angle section

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

- i) Structural detailing of A Rectangular Underground Circular Tank.
- ii) Few measures adopted to make a building earthquake resistant.
- iii) Ultimate Load Theory and why it was developed?

Q7) Solve. A compound stanchion of a factory building consists of 2 no ISMC 350 placed back to back. Calculate the spacing between the two sections so that they take maximum load. What load will such a column carry for a height of 5.2 m with both ends fixed. Design a suitable lacing system for the same compound column with neat sketches. **[17]**

Q8) Write short notes on any four with neat sketches : **[17]**

- a) R.C.C and Steel Portal Frames.
- b) Steel Castellated Girders.
- c) Steel Plate Girders and Crane Girders.
- d) Structural detailing of a Elevated Water Tower.
- e) Cantilever retaining walls - Types and structural detailing.
- f) Raft Foundation.



Total No. of Questions : 4]

SEAT No. :

P350

[Total No. of Pages : 2

[4267]-34

T.Y. B. Arch.

BUILDING SCIENCE & SERVICES - II

(2003 Pattern)

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

SECTION - I

Q1) Answer any Two questions from the following : **[2 × 15 = 30]**

- a) What are the different air movement effects take place in Natural ventilation system? Explain with sketches and examples.
- b) What are different types of fans used in Mechanical Ventilation system. Describe any two types of fans with sketches.
- c) Describe with sketches Dry and Wet filters used in ventilation and air conditioning systems.

Q2) Write short notes from the following - any Four : **[4 × 5 = 20]**

- a) Air Handling unit
- b) Plenum System
- c) Cooling Tower
- d) Stack Effect
- e) A window A.C. unit
- f) Compressor

SECTION - II

Q3) Answer any Two questions from the following : **[2 × 15 = 30]**

- a) State Sabine's Formula for finding out Reverberation Time. What are the different methods of treatment used to achieve optimum Reverberation Time of any auditorium.

P.T.O.

- b) Explain structure-borne noise and methods of controlling the same. Draw sketches.
- c) What are the types of fixed fire extinguishers used in a building. Explain Sprinkler System with sketches.

Q4) Write short notes on the following any Four :

[4 × 5 = 20]

- a) Wet Riser.
- b) Smoke Detector.
- c) Sound Amplification System.
- d) Any three defects of sound.
- e) Cutting off air-borne noise.
- f) Acoustical Materials.



Total No. of Questions : 7]

SEAT No. :

P351

[Total No. of Pages : 4

[4267]-35

T.Y. B. Arch.

**QUANTITY SURVEYING AND SPECIFICATION WRITING
(2003 Pattern) (Theory)**

Time :3 Hours]

[Max. 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 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 quantities for the following items of work based on the details given in the accompanying diagram (Fig.1) (**Any Five**) **[30]**
- i) R.C.C. M20 Column Footings.
 - ii) M 20 Plinth beams.
 - iii) 1:4 Niroo Plaster to Walls (Kitchen & Bed only)
 - iv) Polished Kotah Tread & Riser to Ground Floor Stair steps & to Entrance.
 - v) M 20 R.C.C. Roof slab for Gr. Floor only.
 - vi) Polished Kotah Flooring.
 - vii) Ceramic Tile Dado (2.10m) to Toilets.

Data : All Footings = 1500×1500 – D = 600 d = 200
All Plinth Beams = 230×450 All Columns = 230×450
Floor to Floor ht. = 3200 All Lintels = 230×150
All Slabs = 150 thk. All skirting = 100mm ht.
All Walls 230 thk. except shown.

Schedule of openings :

D1 - 1200×2100 D2 - 900×2100 D3 - 750×2100
W1 - 1800×1200 W2 - 1000×1200 W3 - 1200×900
W4 - 750×1200 W5 - 600×900

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. | vi) S.W. pipe for drainage. |
| ii) B.B.M. Masonry 230mm thk. | vii) Nahani trap. |
| iii) Rubble soling. | viii) R.C.C. Floor beam. |
| iv) Bib Cocks. | ix) Oil paint for M.S. grill. |
| v) Inspection Chamber. | x) R.C.C. stair pardi. |

Q2) Write short notes on : **(Any Two)** [10]

- a) Guess Work.
- b) Supplementary and Revised Estimate.
- c) Spot Items.
- d) Contingencies.

Q3) Rate analysis for the following item based on the material and labour cost as indicated below : **(Any Two)** [10]

- a) R.C.C. beam (1:2:4)
- b) Internal cement plaster (1:4) Niroo finished.
- c) P.C.C. in foundation (1:4:8)
- d) 230mm Brick masonry in C.M. (1:6)

Material =	Cement - Rs. 300/bag	Sand - Rs. 1500/cum
	Brick - Rs. 4000/brass(1000 nos)	Neeru - Rs. 80/bag
Labour =	Beam - Rs. 950/m ³	Brick work - Rs.250/m ³
	Cement plaster - Rs. 100/m ²	P.C.C (1:4:8) - Rs.180/m ³

SECTION - II

Q4) What is specification & describe briefly different types of specifications & elaborate any two types of specification. [10]

Q5) Write detailed specification for the following **(Any two)** : [10]

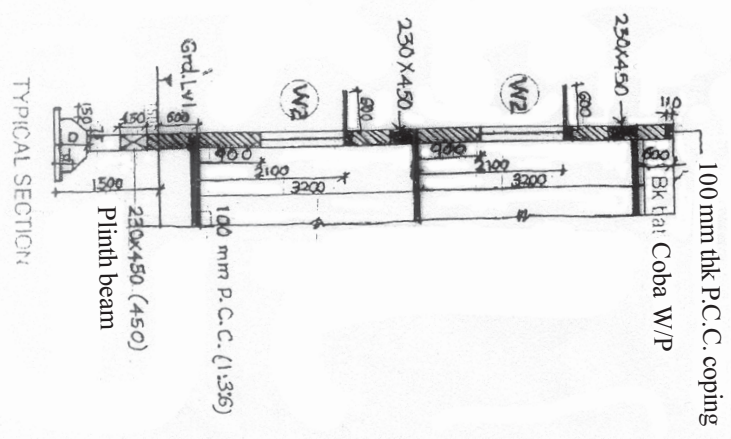
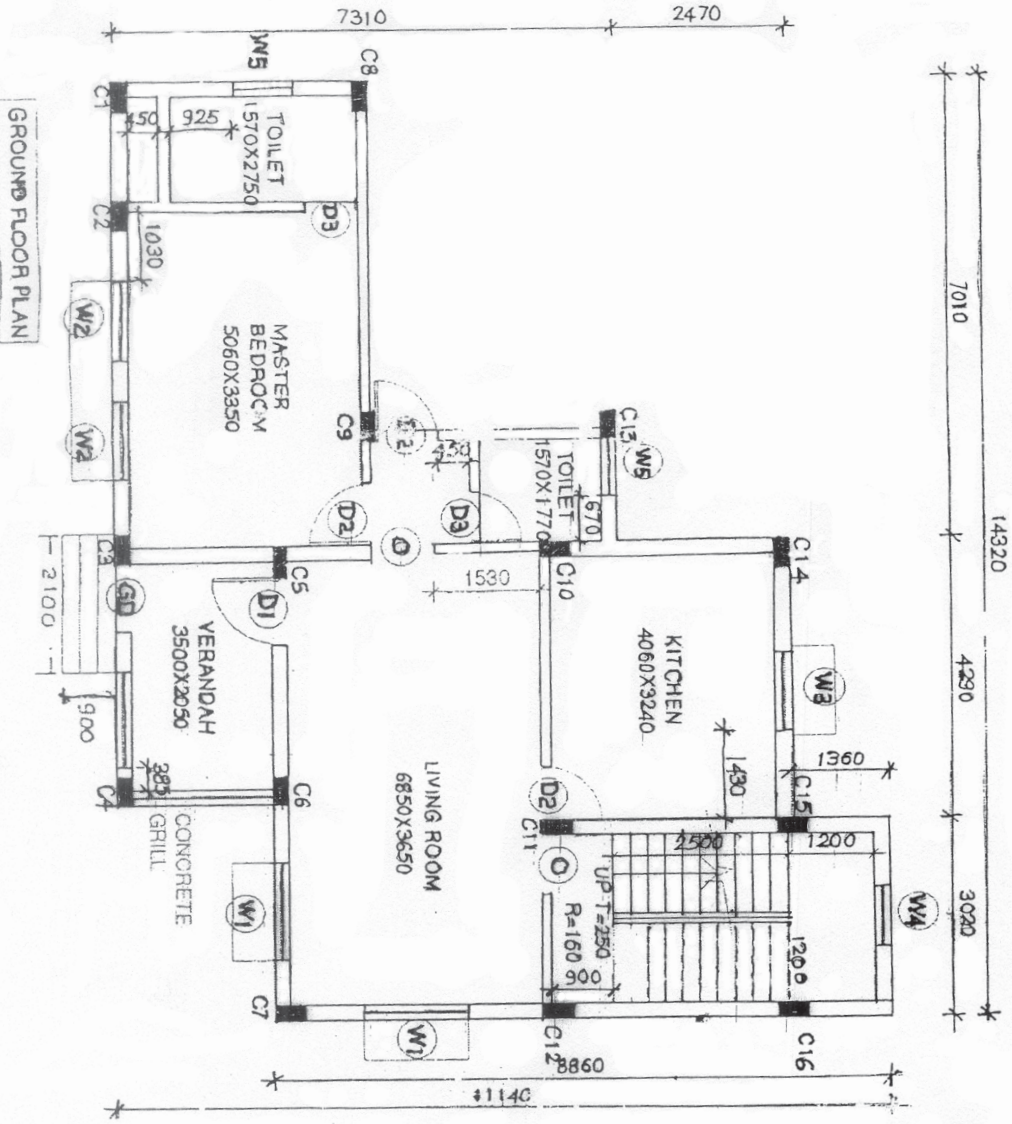
- a) Bricks.
- b) Cement.
- c) Reinforcing Steel.
- d) Water.

Q6) Write brief specification for the following works (**Any two**) : [10]

- a) Kotah stone for flooring.
- b) T.W. for window frames.
- c) R.C.C. work for columns (concrete only)
- d) Ceramic tile dado for toilet.

Q7) Specify following materials by trade/manufacturer's name (**Any Ten**) : [10]

- a) Ceramic tiles.
- b) A.C. Sheets.
- c) W.C. Pan.
- d) Cement paint.
- e) Lift.
- f) Glass films.
- g) PVC water storage tank.
- h) Vitrified tiles.
- i) Cement 53 grade.
- j) PVC water tank.
- k) Vitrified tiles.
- l) Electric switches.
- m) Ceiling fans.



Total No. of Questions : 2]

SEAT No. :

P352

[Total No. of Pages : 2

[4267]-42

Fourth Year B. Arch.

BUILDING CONSTRUCTION AND MATERIALS - IV
(2003 Pattern)

Time :3 Hours]

[Max. Marks :100

Instructions to the candidates :

- 1) *All questions are compulsory.*
- 2) *Answers to the two sections should be written in separate books.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data, if necessary.*

SECTION - I

Q1) Answer **any two** from the following :

[60]

- a) A multipurpose hall of size 45m × 20m with a clear ht. of 9m 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.
- b) An Industrial shed of size 25m × 50m 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 6m. 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.
- c) Explain with neat sketches **any two** of the following :
 - i) Rectangular and diagonal grid coffered slab.
 - ii) Short and long span barrel vaults.
 - iii) Raking and flying shores.
 - iv) Expansion joints.
- d) A recording room of size 6m × 8m is to be constructed. With the help of neat sketches give all details of treatment to make the room sound proof.

P.T.O.

SECTION - II

- Q2)** Write short notes on **any four** with neat sketches : **[40]**
- a) Two types of expansion joints for slabs and beams.
 - b) Any one system of curtain walling.
 - c) A cross section of a 12m 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 Paraboloid.



Total No. of Questions : 7]

SEAT No. :

P353

[Total No. of Pages : 3

[4267]-51
Final Year B. Arch.
PROFESSIONAL PRACTICE
(2003 Pattern)

Time :3 Hours]

[Max. Marks :100

Instructions to the candidates :

- 1) *Answer any three questions from Section - I and any two from Section - II.*
- 2) *Answers to the two sections should be written in separate answer books.*
- 3) *Figures to the right indicate full marks.*
- 4) *Your answers will be valued as a whole.*

SECTION - I

Q1) Write notes on the following (any four) : **[20]**

- a) Registration and Taxation for Architects office.
- b) Types of company formation for the Architect.
- c) Architects site visit and instructions.
- d) Professional Consultancy charges as per Council of Architecture.
- e) Structure of an Architect's office.
- f) Indian Institute of Architects.

Q2) a) What is Architect's Act? Describe the various aspects of the Architectural Profession it covers and controls. **[10]**

b) Mention in detail the guidelines prescribed by Council of Architecture to conduct architectural design competition. **[10]**

Q3) Answer any two : **[20]**

- a) What is Easement? Write characteristics of Easement. Describe types of Easement.
- b) Describe purpose of valuation of properties and factors affecting the value of property.
- c) Define Value, Price and cost. Describe market value and any four value types.

P.T.O.

- Q4)** a) Answer in one sentence (Any Five) **[5]**
- i) When the Architects Act was established?
 - ii) What is the long form of COA and IIA?
 - iii) When a person can be called as an Architect?
 - iv) Who maintains the Register of Architects under the Act?
 - v) What is the qualification for the registration of an Architect?
 - vi) Which is the common method to settle disputes and differences in a project?
 - vii) Who is the person who is appointed by the Architect and maintains the records on site?
 - viii) What is termed as the inherent value of land?
- b) Write short notes on any three of the following : **[15]**
- i) Ways and means of Securing and Servicing Clientage.
 - ii) Registration and taxation for Architects office.
 - iii) General structure of professional consultancy charges.
 - iv) Project employer's duties and liabilities.

SECTION - II

- Q5)** Answer any two of the following : **[20]**
- a) What is Arbitration? Explain the Arbitration procedure in brief highlighting the purpose of Arbitration.
 - b) Define: Arbitrator, Qualifications of the Arbitrator, Umpire and Award.
 - c) What is Dilapidations and Characteristics of Dilapidation?
- Q6)** Answer any two : **[20]**
- a) What is importance of Estimating? Describe various methods of Estimation.
 - b) Why Tendering in a project is required? What are the various methods of Tendering?
 - c) Write note on any two of the following :
 - i) Interim Certificates and Final Certificate of work.
 - ii) Earnest Money, Security Deposit and Retention amount.
 - iii) Defects Liability period and Liquidated Damages.

Q7) Answer in brief (any four) :

[20]

- a) Define the Architect's Duties and Liabilities under the contract.
- b) Importance of Clerk of works at site.
- c) Leasehold and Freehold tenure.
- d) Methods of inviting tenders.
- e) Procedure for Pre-qualification of Contractors.
- f) Articles of Agreement in a Contract.



Total No. of Questions : 5]

P354

SEAT No. :

[Total No. of Pages : 2

[4267] - 301

T.Y. B.Arch.

BUILDING TECHNOLOGY AND MATERIALS - III

(2008 Pattern & Bridge Course)

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) Draw plan and section showing reinforcement details of half flight staircase of Flight width 1.2m and floor height of 3.0m to the scale of 1:20. **[15]**
- b) Draw railing fixing details and tile fixing details for finishing of tread and riser to a suitable scale. **[5]**
- c) Draw detail sketches proportionately of various RCC components for G + 4 Storey structure. Also draw the alignment of reinforcement in all components. **[10]**
- Q2)** a) Draw plan and section to the scale of 1:10 of T.W. Double bed of a suitable size. **[15]**
- b) Draw joinery details at the scale of 1:2. **[10]**
- c) Provide material specification and finishes details at suitable scale. **[5]**

P.T.O.

- Q3) Explain the following with neat sketches (Any three) :** **[30]**
- a) Hydraulic Lift.
 - b) Types of piles based on its mode of bearing loads.
 - c) Methods of Basement Waterproofing.
 - d) Any two roofing systems developed by Central Building Research Institute.
 - e) Timber Paneling.

SECTION - II

- Q4) Write Short Notes with neat sketches (Any Four) :** **[24]**
- a) Straight Sliding doors.
 - b) Terminology of Retaining Walls.
 - c) Reinforced Brick slabs.
 - d) Aluminium Sliding window.
 - e) Ridge and eaves/gutter fixing details for steel truss with G.I or AC sheeting.
 - f) RCC Raft foundation.

- Q5) Write Short Notes with neat sketches (Any four) :** **[16]**
- a) Methods and materials of polishing old wood work.
 - b) Setting out structures.
 - c) Guniting and its uses.
 - d) Ready mix Concrete.
 - e) Stainless steel and its application in buildings.
 - f) Different types of rendering to plastered surface.



Total No. of Questions : 8]

P355

SEAT No. :

[Total No. of Pages : 3

[4267] - 302
T.Y. B.Arch.
THEORY OF STRUCTURES - III
(2008 Pattern & Bridge Course)

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) Consistency of soil and various limits.
- b) Various foundation problems at site.
- c) Weep Holes in Retaining Walls - Need and Different Ways of Providing them.
- d) Structural Detailing of A Folded Plate Staircase.
- e) Structural Detailing of a R.C.C Straight Flight Staircase with a Central Stringer Beam.
- f) Need for Pile Foundations, Types and Structural Action.

Q2) Design an isolated footing for a rectangular column of size 230 × 600 subjected to a load of 900 Kn. S.B.C. = 300 Kn/sq.m. **[17]**
Design for depth, Design the steel and check for one way shear.

Q3) Design a R.C.C. doglegged staircase for an office building for the following data **[17]**

- a) Width of the flight - 1500 mm
- b) Floor to floor height - 3100 mm
- c) Tread - 275 mm Riser - 155 mm
- d) The staircase is supported on 230 mm wide beams on outer edges of landings.

P.T.O.

Q4) Check the stability of the retaining wall. Check for maximum and minimum pressure at base. [17]

Retained earth is on the vertical face of the stem

Density of retained earth 16 Kn/cubic m

Angle of repose - 25 degrees

Coefficient of friction - 0.6

S.B.C of soil - 300 Kn/Sq.m

Density of Concrete - 25 Kn/cubic m

Top Width of stem - 300 mm

Bottom width of stem - 630

Height of stem - 5700 mm

Width of base - 3200 mm

Toe Projection - 900 mm

Depth of Base - 750 mm

SECTION - II

Q5) a) Explain Prestressing and Post Tensioning. Why is only High Strength Concrete and High Strength Steel used in Prestressed Sections. [8]

b) A prestressed concrete beam of overall size 300 × 600 is simply supported over a span of 6 m. The beam carries an udl of 25 Kn/m over its entire span inclusive of its self weight. The prestressing tendons are located at a distance of 100 mm from the neutral axis and provide a prestressing force of 1000 Kn.

Calculate the extreme fibre stresses at mid span. [9]

Q6) a) Design a purlin factory for the following data : [8]

- i) Span of the truss - 16m
 - ii) Spacing of the trusses - 5.0m
 - iii) Slope of roof 22 degrees
 - iv) Spacing of purlins - 1.8m
 - v) Roofing is of G.i sheets
- Use angle section

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

- i) Structural Detailing of A Rectangular Underground Circular Tank
- ii) Few measures adopted to make a building earthquake resistant.
- iii) Ultimate load theory and why it was developed.

Q7) Solve A compound stanchion of a factory building consists of 2 no ISMC 350 placed back to back. Calculate the spacing between the two sections so that they take maximum load. What load will such a column carry for a height of 5.2m with both ends fixed, design a suitable lacing system for the same compound column with neat sketches. **[17]**

Q8) Write short notes on any four with neat sketches **[17]**

- a) R.C.C and Steel Portal Frames.
- b) Steel Castellated Girders.
- c) Steel Plate Girders and Crane Girders.
- d) Structural Detailing of A Elevated Water Tower.
- e) Cantilever retaining walls-types and structural detailing.
- f) Raft Foundation.



Total No. of Questions : 4]

P356

SEAT No. :

[Total No. of Pages : 2

[4267] - 303

T.Y. B.Arch.

BUILDING SERVICES - I

(2008 Pattern & Bridge Course)

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

SECTION - I

Q1) Answer any two questions from the following : **[2 × 15 = 30]**

- a) Describe any two types of fans which are used in Mechanical Ventilation system. Draw Sketches.
- b) What are the different types of condensers used in Air Conditioning System. Describe with sketches.
- c) Describe with sketches Dry and Wet filters used in Ventilation and Air-Conditioning systems.

Q2) Write short notes on any four from the following : **[4 × 5 = 20]**

- a) Air Handling Unit.
- b) Plenum System.
- c) Cooling Tower.
- d) Stack Effect.
- e) A Window A.C. Unit.
- f) Compressor.

P.T.O.

SECTION - II

Q3) Answer any two questions from the following : **[2 × 15 = 30]**

- a) Explain structure-borne noise and methods of controlling the same. Draw sketches.
- b) What is Reverberation Time and Sabine's Formula? What are the different methods of treatment used to achieve optimum Reverberation time of any auditorium?
- c) What are the different types of fixed fire extinguishing systems used in a building? Explain Sprinkler System with sketches.

Q4) Write short notes on any four from the following : **[4 × 5 = 20]**

- a) Wet Riser.
- b) Smoke Detector.
- c) Sound Amplification System.
- d) Any three defects of sound.
- e) Cutting off air-borne noise.
- f) Acoustical materials.



Total No. of Questions : 5]

P357

SEAT No. :

[Total No. of Pages : 4

[4267] - 304

T.Y. B.Arch.

QUANTITY SURVEYING & ESTIMATING

(2008 Pattern & Bridge Course) (Theory)

Time : 3 Hours]

[Max. 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 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 quantities for the following items of work based on the details given in the accompanying diagram (Fig. 1) (Any Eight) **[40]**
- i) R.C.C. M 20 Column Footings.
 - ii) M 20 Floor beams.
 - iii) Neeru finished plaster to ceiling & walls CM(1:4) for bed room only.
 - iv) Polished Kotah Flooring.
 - v) Ceramic tile Dado to Bath & W.C. Dado ht. 2.10m
 - vi) Oil Bound Distemper to walls & ceiling for bed room only.
 - vii) 100 mm ht skirting. (for living & veranda only).
 - viii) Aluminium sliding windows.
 - ix) R.C.C. Lintel for windows (bearing 300).
 - x) R.C.C. Slab.
 - xi) R.C.C. Chajja.
 - xii) T.W. door frames (125 × 65 mm) for D1 & D2.
 - xiii) Sand Faced plaster in C.M. (1:4) externally.

P.T.O.

Data : All Footing size 1350×1350 D = 500, d = 200
Depth of excavation 1500 below ground level.
All slab = 130 mm thk
All Floor/plinth beams = 230×450 mm
All column = 230×450 mm
All lintels = 230×150 mm, bearing = 300 mm.
All skirting Ht. 100 mm
External wall - 230 mm thk. B.B.masonry
Internal walls - 150 mm thk. B.B.masonry

Schedule of openings :

D - 1000×2100	W - 1500×1200	W3 - 600×900
D1 - 900×2100	W1 - 1200×1200	
D2 - 750×2100	W2 - 900×1200	

- b) State the unit of measurement (as per IS 1200) for the following items of work. [10]
- i) T.W. Window Frame
 - ii) B.B.M. Masonry 230 mm thk.
 - iii) P.C.C. for Plinth
 - iv) EWC
 - v) PVC Over Head Water Storage Tank
 - vi) S.W. pipe for drainage
 - vii) Bib cock
 - viii) R.C.C. columns beam
 - ix) Oil paint for Door
 - x) R.C.C. pardi

SECTION - II

- Q2) Write short notes on (any two) :** [12]
- a) Bill of quantities.
 - b) Spot items.
 - c) Characteristics & Uses of Approximate Estimates.
 - d) I.S. 1200

Q3) Based on material & Labour Rates stated below, Analyse & work out “UNIT-RATE” for the following items of work (any two) : **[14]**

- a) P.C.C. (1:4:8) levelling course below footings.
- b) B.B. Masonry in C.M. (1:4) 150 mm thick
- c) 12-15mm thick Niroo finished plaster in C.M. (1:4)
- d) Ceramic tile floorings on 30 mm C.M. (1:6) bedding

Materials : Aggregates - Rs. 700/cum, sand : Rs. 1750/- per cum,
O.P.C : Rs. 320/Bag, Bricks : 9/-each, Sanla : 60/Bag,
Ceramic Tiles : Rs. 400/-per sqm.

Labour

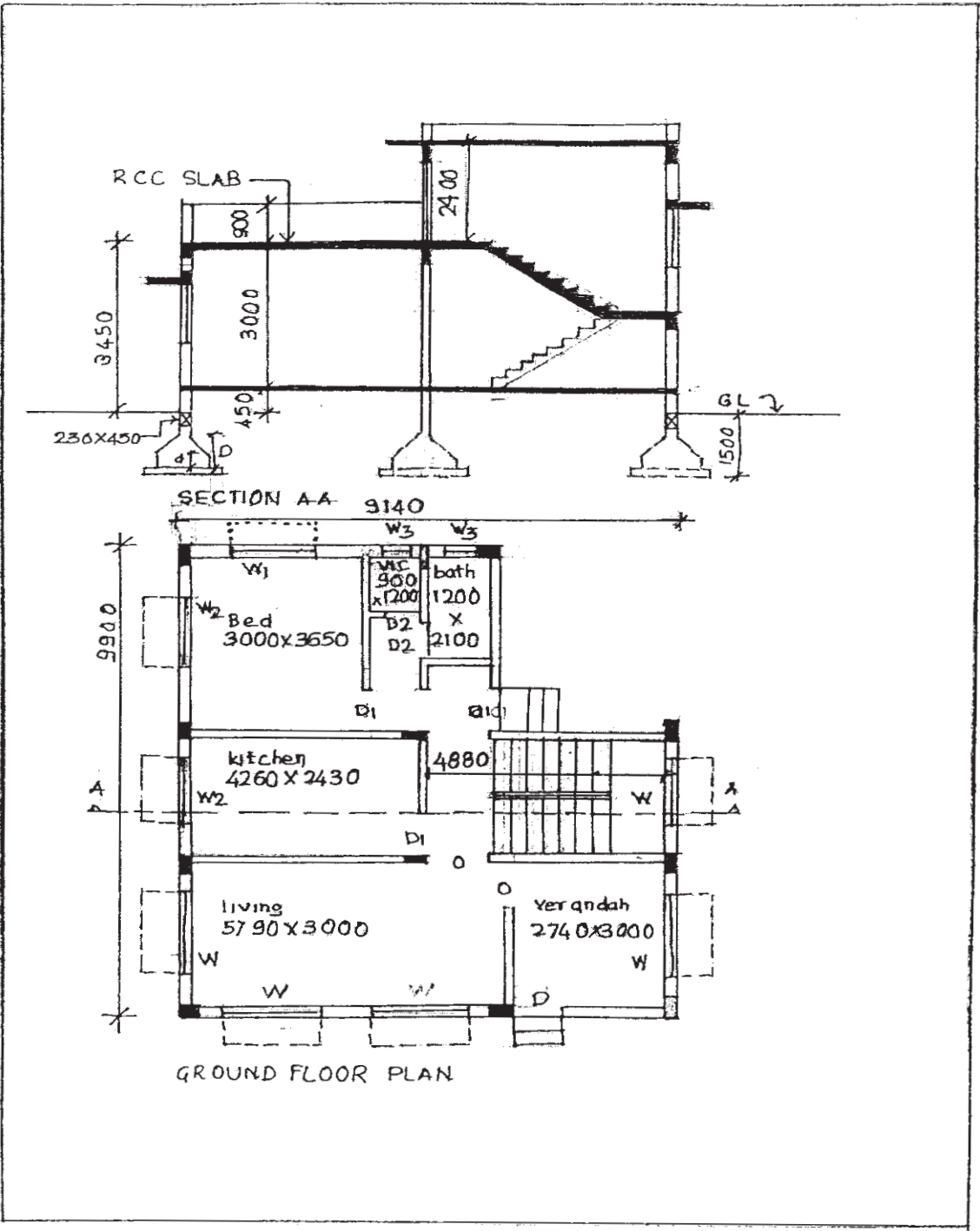
- a) Rs. 500/cum
- b) Rs. 175/sq m
- c) Rs. 120/sq m
- d) Rs. 150/sq m

Q4) Describe the items of work as described in bill of quantities, for the following items of work (any two), stating inclusions and exclusions and unit of measurement **[12]**

- a) Excavation in soil & S.M. (0-1.5m)
- b) B.B. Masonry (1:6) for steps.
- c) 20-25 mm sand faced plaster in C.M. (1:4).
- d) Inspection chambers (450 × 900).

Q5) Work out the quantity of materials required for the following items of work, for the quantum shown (any two) : **[12]**

- a) P.C.C. (1:3:6) for floor - 30 Cum
- b) B.B.M. (1:4) more than 230 thick - 50 Cum
- c) C. Flush door shutters for 900 × 2100, T.W. framed doors - 10 Nos
- d) Polished kota floor (450 × 600 × 32 mm) on 30 mm C.M. (1:6) bedding - 120 Sq m.



P358

SEAT No. :

[Total No. of Pages : 3

[4267] - 401
Fourth Year B.Arch.
ARCHITECTURAL DESIGN - IV
(2008 Pattern & Bridge Course)

Time : 18 Hours]

[Max. Marks :100

Instructions to the candidates:

- 1) Assume suitable data wherever necessary.*
- 2) Single line sketch plans of entire scheme with the site to the required scale shall be submitted by the candidates at the end of first day. These drawings shall not be returned to the candidates, therefore due record of same should be kept for subsequent days. The candidates will not make any considerable departure from the sketch submitted on the first day.*
- 3) The drawings should be self explanatory.*

COTTAGE HOSPITAL

A health & family welfare department of Zillah Parishad Haveli wants to establish cottage hospitals in selected small towns on modular basis. The site admeasures 60 m by 40 m with 12 m wide road on east along 60 m side as road frontage. Assume all sites are located on outskirts of town. You are required to give a design solution for the same for following requirements.

a) Administration area

- i) RMO office with attached toilet.....20sqm
- ii) Administration office for 2 clerks.....15 sqm

b) Outdoor patients department

- i) Registration & entrance lobby with waiting space.....50 sqm
- ii) Public toilets male/female.....adequate areas
- iii) Dispensary room/ counter with store.....15sqm
- iv) Dressing & injection room.....15 sqm
- v) Nursing area with store.....15sqm
- vi) Consulting room 2 nos with examination table etc.....15 sqm
- vii) Patients/ relatives counseling room.....15 sqm

P.T.O.

- c) Indoor patient's area**
 - i) Lobby with waiting & stretcher /trolley space.....30 sqm
 - ii) Male General ward for 10 beds.....75 sqm
 - iii) Female general ward for 10 beds.....75 sqm
 - iv) Patient's toilet for male/female separate.....adequate areas
 - v) Nursing station.....15 sqm
 - vi) Ancillary facilities rooms -2 nos.....15 sqm each
- d) Diagnosis areas**
 - i) Pathology lab.....20 sqm
 - ii) X-ray room.....20 sqm
 - iii) Sonography room.....20 sqm
- e) Surgical areas**
 - i) Visitors waiting & trolley parking space.....20 sqm
 - ii) Doctors room with scrub/changing/toilet.....20 sqm
 - iii) Sterilization room.....15 sqm
 - iv) Store for medicine & tools.....15 sqm
 - v) Dirty/clean linen store.....15 sqm
 - vi) Pre/post operative room for 3 beds.....20 sqm
 - vii) Minor OT 1no.....20 sqm
 - viii) Labor room/delivery room.....20 sqm
- f) Residential areas**
 - i) One BHK flat for RMO.....50 sqm
 - ii) Resident doctor room with 2 beds with attached toilet.....20 sqm
 - iii) Nurse's room with 2 beds with attached toilet.....20sqm
- g) Open areas**
 - i) An open space for holding various health concerned camps-for 100 people
 - ii) Temporary shade for cooking etc with toilets for visitors
- h) Parking area**
 - i) Ambulance.....1 nos.
 - ii) Four wheelers.....5 nos.
 - iii) Two wheelers.....10 nos.

Notes

- Staircase /ramps /steps of adequate size should be provided in level/ vertical circulation .
- Toilet no's & areas are to be provided adequately
- Circulation & allied areas should not exceed 40% of carpet areas
- Maximum height of structure should be 10m
- Setback from all sides 6m
- Max permissible ground coverage is 50%
- Services like UG water tanks, septic tank, waste disposal etc. are to be shown in site plan
- Outdoor interactive spaces are to be provided wherever necessary
- Requirement given are carpet areas.

Drawings requirements

First day

- a) Site plan with building blocks showing zoning-1:200
- b) Single line floor plans & schematic section (min 1).....1:200

Final day

- a) Site plan with access, roads, parking, roof plan of building, Landscaped areas & services.....1:200 [30]
- b) All floor plans showing interior layout & openings.....1:100 [40]
- c) Section(min 1)-1:100 [10]
- d) Elevation (min 1)-1:100 [10]
- e) Arial view of total Cottage hospital [10]



Total No. of Questions : 10]

P359

SEAT No. :

[Total No. of Pages : 2

[4267] - 402

Fourth Year B.Arch.

TOWN PLANNING

(2008 Pattern & Bridge Course) (Theory)

Time : 3 Hours]

[Max. 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) Answer to the two sections shall be written in separate books.*
- 4) Draw neat diagrams or sketches whenever necessary.*
- 5) Assume suitable data if required.*

SECTION - I

Q1) Describe concept of the mass housing. Elaborate the various methods of providing mass housing. State the various economic groups which are considered in mass housing. **[14]**

OR

What are the causes and consequences of shortage of supply of houses of affordable prizes? Write social and environmental problems arising out of such situation.

Q2) Explain the theory of three magnet theory and state application of theory. State who defined it? Elaborate the answer with sketches. **[12]**

Q3) What is the role of an architect in maintaining balance between Urban Development and healthy environment? **[12]**

Q4) What is the concept of a New Town? Elaborate with sketches and name such towns which are developed in India. **[12]**

P.T.O.

- Q5)** Write short notes on any three : **[12]**
- a) Subdivision of Land.
 - b) Negative and Positive Aspects of Chandigarh and Gandhinagar.
 - c) Regional Planning.
 - d) Density and its Types.

SECTION - II

- Q6)** Which Development Control Regulations are followed for subdivision of layout? Explain your points with appropriate sketches. **[14]**

OR

Explain the term 'Land Pooling' and discuss the various act(s), which allow land pooling as technique. Mention implemented government and private projects using land pooling in India and discuss the merits and demerits of land pooling. State the importance of land pooling in implementing Development Plan.

- Q7)** Describe aesthetical surveys planning. State its application and explain its importance in planning process. **[12]**

- Q8)** Write a note on M.R. and T.P. Act and explain its importance. **[12]**

- Q9)** What is the relation of Urban Design with respect to Planning and Architecture? State the any theory of Urban Design. List any three successful Urban Design projects in India. **[12]**

- Q10)** What are the various lands uses in an Urban and Regional Planning? State percentage of various land uses. What role the amenities and open spaces play in a planning? **[12]**



Total No. of Questions : 6]

P360

SEAT No. :

[Total No. of Pages : 2

[4267] - 403
Fourth Year B.Arch.
PROFESSIONAL PRACTICE
(2008 Pattern & Bridge Course) (Theory)

Time : 3 Hours]

[Max. Marks :100

Instructions to the candidates:

- 1) Answer ANY TWO questions from Section - I, and ANY TWO questions from Section - II.*
- 2) Answer ALL sub-questions (a, b, c, etc...) below any main question that is attempted.*
- 3) Answers to the two sections - I & II must be written on SEPARATE answer books.*
- 4) Figures to the right of each question indicate full marks.*

SECTION - I

- Q1) a) Write a comprehensive note on the Role of an Architect, highlighting his specific Duties, Responsibilities, Liabilities and Image in the Society. [15]*
- b) What is the difference between a Trade, Business and Profession, and why is Architecture classified as a 'Profession'? [10]*
- Q2) a) What is the Council of Architecture? How and when was it established? What is its composition, and its role in Architectural Profession in India? [15]*
- b) Write a comprehensive note on the Indian Institute of Architects, giving its History in brief, and its Role and Activities as an Institution of Architects. [10]*
- Q3) a) Write short notes on any three of the following : [15]*
- i) The Architects Act and its impact on Architects.*
 - ii) Professional Ethics for Architects.*
 - iii) Architects Agreements with Clients.*
 - iv) Structure and composition of an Architects Office.*
 - v) Scale of Fees for standard Architectural Services.*
 - vi) Architects work from his Appointment to Completion.*

P.T.O.

- b) Define any two of the following : [10]
- i) Arbitrator
 - ii) Easements
 - iii) Sinking Fund
 - iv) Dilapidation
 - v) Power of Attorney

SECTION - II

- Q4)** a) Write a comprehensive note on ARCHITECTURAL COMPETITIONS, giving the types and procedures, advantages and disadvantages if any. [15]
- b) What is ARBITRATION? What are its advantages and dis-advantages, if any, and what is the procedure prescribed for conducting Arbitrations? [10]
- Q5)** a) How is a Contractor selected by an Owner, or the Architect, for construction of any building project? Discuss the merits or de-merits of each method? [15]
- b) What is PROPERTY VALUATION and what is its Purpose? What are the various factors that can affect the value of a property? [10]
- Q6)** a) Explain the salient DIFFERENCES between the following (Any Three): [15]
- i) Item Rate and Lump Sum Tender.
 - ii) Freehold and Leasehold Land Tenure.
 - iii) Cost, Price and Value.
 - iv) Proprietary and Partnership Practice.
 - v) Dominant Heritage and Servient Heritage.
 - vi) Earnest Money Deposit and Security Deposit.
- b) Write short notes on any two of the following : [10]
- i) Extra Items of Work.
 - ii) Pre-Bid Conference.
 - iii) Termination of Contractor.
 - iv) Market Value of a Property.
 - v) Demolition Tender.



Total No. of Questions : 3]

P361

SEAT No. :

[Total No. of Pages : 2

[4267]-ID-501
Fifth Year B.Arch.
PROFESSIONAL PRACTICE - II
(2003 Pattern) (Interior Design)

Time : 2 Hours]

[Max. Marks :50

Instructions to the candidates:

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

Q1) Write short notes on any five of the following (four marks each) : **[20]**

- a) Market Value
- b) Sentimental Value
- c) Depreciation
- d) Sinking Fund
- e) Years Purchase
- f) Freehold Tenure
- g) Dominant Heritage
- h) Solatium

Q2) a) Describe the process of Land & Building method of valuation. **[10]**

OR

- b) Describe the advantages of Arbitration.

P.T.O.

Q3) Give your opinion on any four of the following situations : **[20]**

- a) An Owner wishes to sell his ancestral property at a higher rate than market value because he has fond memories of his childhood associated with the property.
- b) An old property with about 5 to 10 years of residual life is to be mortgaged to a Bank for a long-term loan.
- c) A site reserved in the Development Plan for a Shopping Centre is to be acquired by the Pune Municipal Corporation, but the owner argues that this is not a public purpose and the site can not be acquired.
- d) An old Single-Screen Cinema Theatre is running in loss and the Owner wishes to sell of the property at a price arrived at by adding together the market value of the land and the construction cost of the existing building.
- e) You own an open plot in the old city area adjoining a thirty year old building built upto the edge of the plot boundary, and has windows facing your plot. The owner of the old property insists that he has acquired an Easement over your plot.
- f) Land is acquired by the Pune Municipal Corporation for constructing a Road, and after the construction of the road, property prices in the area increase. The land owner argues that he must be paid compensation at the enhanced rate due to this rise in price of land in the vicinity.

