



Seat No.	
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**B.Arch. (Semester – I ) Examination, 2014**  
**BUILDING CONSTRUCTION AND MATERIAL – I (New)**

Day and Date : Thursday, 22-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 50

**Instructions :** 1) Q. No. 1 and Q. No. 2 are **compulsory**.  
2) Solve **any 3** questions from **remaining**.  
3) **Draw neat sketches wherever necessary**.  
4) Make **suitable** assumptions, **wherever necessary and appropriate scale wherever necessary**.

1. Fill in the blanks : 5
  - a) Masonry Retaining wall should contain \_\_\_\_\_ at particular distance for draining out excess water.
  - b) Simple foundation for masonry load bearing walls is also called as \_\_\_\_\_ foundation.
  - c) Making rough stones suitable for masonry is called as \_\_\_\_\_ of stone.
  - d) The depression on the top face of brick is called as \_\_\_\_\_
  - e) The maximum intensity of loading that the soil will safely carry without risk of shear failure is called \_\_\_\_\_ of soil.
  
2. Draw section of foundation for 350 mm thick brick wall in black cotton soil to scale 1:10. Draw isometric view of the same. 15
  
3. Write short notes on (**any 2**) : (5×2=10)
  - a) Retaining wall
  - b) Dressing of stone
  - c) Stretcher and header bond
  - d) Sandy soil.
  
4. Compare brick work with stone work. 10
  
5. Explain classification of soil according to their size. 10
  
6. Explain Hoffman's kiln in detail. 10
  
7. Explain any 5 good qualities of stones and any 5 uses of stones in building industry. 10



SLR-I – 10

Seat No.	
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**B.Arch. (Semester – II) (New) Examination, 2014  
HISTORY OF ARCHITECTURE – II**

Day and Date : Friday, 30-5-2014

Max. Marks : 80

Time : 10.00 a.m. to 1.00 p.m.

- Instructions:** 1) Question No. 1 is **compulsory**.  
2) Solve **any six** questions from the **remaining**.  
3) Draw **neat** sketches **wherever** necessary.

1. Fill in the blanks :

8

- 1) Name any one Ratha at Mahabalipuram \_\_\_\_\_
- 2) Name any one Roman order \_\_\_\_\_
- 3) \_\_\_\_\_ is the horse shoe shaped arch fronting the entrance of the Chaitya temple.
- 4) \_\_\_\_\_ was the hall of justice in Rome.
- 5) Entablature consists of architrave, frieze and \_\_\_\_\_
- 6) Roman Colosseum also known as \_\_\_\_\_ amphitheatre.
- 7) Apsidal end of the church termed as \_\_\_\_\_
- 8) Greek column consists of base, shaft and \_\_\_\_\_

2. Draw plan, elevation or section and write detailed note on Chaitya hall at Karle. 12

P.T.O.



3. Explain in detail Basilican Church of St. Peter Rome. **12**
  4. Describe in detail “Hagia Sophia” with reference to plan and elevation or section. **12**
  5. Explain with neat sketch Pantheon at Rome. **12**
  6. A) Explain characteristic features of Greek architecture. **6**  
B) Explain with neat sketch Greek theatre at Epidaurus. **6**
  7. Write short notes on **any three** : **12**
    - A) Chitravali
    - B) Optical corrections in Greek temple
    - C) Roman forum
    - D) Thermae at Rome.
  8. What is meant by Ratha ? Draw neat sketch and write detailed note on any two Rathas at Mahabalipuram. **12**
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Seat No.	
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**B.Arch. (Semester – II) Examination, 2014**  
**THEORY OF STRUCTURE – II (Old)**

Day and Date : Wednesday, 28-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 100

- Instructions :** 1) **Use** of scientific calculator is **allowed**.  
2) **Q. 1 and Q. 5 are compulsory**. From remaining solve **any two questions from each Section I and II**.  
3) Figures to the **right** indicates **full marks**.

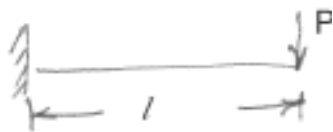
SECTION – I

1. Select correct option for the following : 10

i) 1 GPa = \_\_\_\_\_ N/mm<sup>2</sup>.  
a) 10<sup>9</sup>                      b) 10<sup>4</sup>                      c) 10<sup>6</sup>                      d) 10<sup>12</sup>

ii) Modulus section of rectangular section  $z =$  \_\_\_\_\_  
a)  $\frac{bd^3}{12}$                       b)  $\frac{bd^2}{6}$                       c)  $\frac{bd^3}{6}$                       d)  $\frac{bc^2}{12}$

iii) The maximum bending moment for the following diagram is \_\_\_\_\_



a)  $\frac{Pl}{2}$                       b)  $\frac{Pl^2}{2}$                       c)  $Pl$                       d) None of above

iv) The modulus of elasticity of timber material is \_\_\_\_\_ kN/mm<sup>2</sup>.

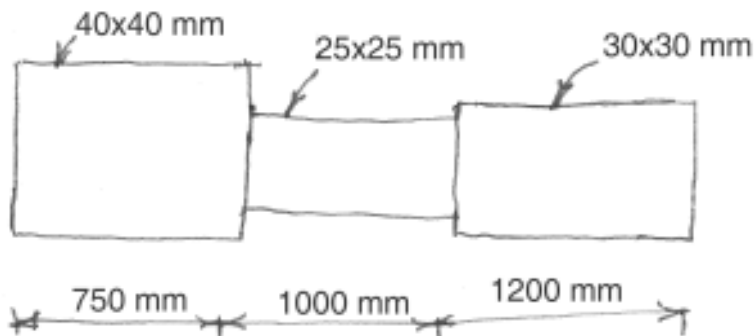
a) 95                      b) 50                      c) 170                      d) 10

v) The unit of the Poisson ratio is \_\_\_\_\_

a) Unitless                      b) mm                      c) N                      d) N/mm<sup>2</sup>



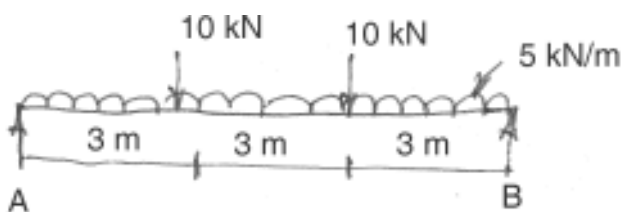
2. A member ABCD is subjected to point load  $P_1$ ,  $P_2$ ,  $P_3$  and  $P_4$  as shown in fig. Calculate the force  $P_3$  necessary for equilibrium if  $P_1 = 120$  kN,  $P_2 = 220$  kN and  $P_4 = 160$  kN. Determine the stress and also find the net change in length of member. Take  $E = 2.1 \times 10^5$  N/mm<sup>2</sup>. 20



3. A metal rod of 32 mm diameter and 2.7 m long is subjected to a tensile force of 55 kN. Reduction in diameter is 0.005 mm and elongation in length is 2.7 mm calculate  $U$ ,  $K$ ,  $E$ , and  $G$ . 20
4. a) Explain in detail behaviour of brittle material under tension. 8  
 b) Explain in detail strain and types of it. 12

### SECTION – II

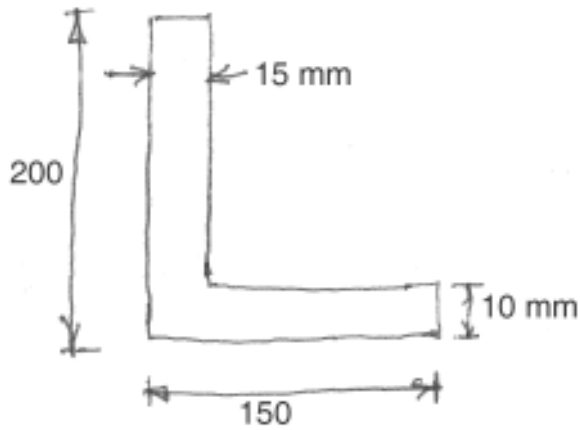
5. Explain in detail procedure of finding out centroid of gravity of irregular sketch. 10
6. Draw shear force and bending moment diagram. 20



Also find the Maxm. bending moment.



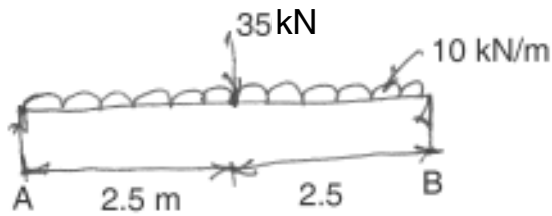
7. a) Calculate the MI at horizontal and vertical axis passing through centroid. **14**



b) Explain in detail perpendicular axis theorem. **6**

8. a) Find the polar moment of inertia of a circular section 100 mm  $\phi$ . Also calculate minimum radius of gyration. **10**

b) Determine the support reaction. **10**





Seat No.	
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**B.Arch. (Sem. – II) Examination, 2014  
HISTORY OF ARCHITECTURE – II (Old)**

Day and Date : Friday, 30-5-2014

Max. Marks : 100

Time : 10.00 a.m. to 1.00 p.m.

- Instructions:** 1) Figures to the **right** indicate **full** marks.  
2) Question numbers should be **clearly** written in the answer books.  
3) Draw **neat** sketch **wherever** necessary.

1. Choose the correct option.

5

- 1) Chaitya hall at Karle is known for one of finest specimens of \_\_\_\_\_
  - a) Sculpture
  - b) Painting
  - c) Wooden Imitation
  - d) Mural decoration
- 2) \_\_\_\_\_ was the public open space for civic or market purpose found in every Roman town.
  - a) Agora
  - b) Forum
  - c) Xeropolis
  - d) Thermae
- 3) Slab forming the crowing member of a capital is known as \_\_\_\_\_
  - a) Entablature
  - b) Cornice
  - c) Dentils
  - d) Abacus
- 4) \_\_\_\_\_ forms the parallel with the nave in Church.
  - a) Atrium
  - b) Morthex
  - c) Aisles
  - d) Apse
- 5) Hindu temples evolved during \_\_\_\_\_ period.
  - a) Mauryan
  - b) Buddhist period
  - c) Vedic period
  - d) Gupta period

2. Answer in **single** sentence :

10

- 1) Viharas
- 2) Girbha Griha
- 3) Vault
- 4) Fresco
- 5) Narthex.

P.T.O.



3. Answer the following (**any 3**) : **30**
- 1) What are typical Architectural characters of Rathas at Mahabalipuram ?
  - 2) Explain with neat sketch Basilica at Rome.
  - 3) Explain detail optical corrections by Greek peoples.
  - 4) Explain various parts of Sanchi stupa with neat sketch.
4. Explain the following (**any two**) : **30**
- 1) Explain with examples evolution of Hindu temples during Gupta period.
  - 2) Explain the term order. Write in detail all the orders of Roman Architecture along with sketches.
  - 3) Explain various characters of early Christian churches. Explain your answer with respect to St. Peter Rome.
5. Write short note on **any 5** : **25**
- 1) Droupadi Ratha
  - 2) Ashokan pillars
  - 3) Chaitya Arch
  - 4) Rotanda
  - 5) Crepedoma
  - 6) Thermae.
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**B.Arch. (Sem. – III) Examination, 2014**  
**THEORY OF STRUCTURE – III**

Day and Date : Tuesday, 27-5-2014  
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

**Instructions :** 1) Q. 1 and Q. 5 are **compulsory**.  
2) Solve **any 2** questions from remaining in Section I and II.

SECTION – I

1. Solve the following objectives :

10

i) The bending moment for a cantilever beam with entire span UDL is

a)  $\frac{Wl^2}{2}$

b)  $\frac{Wl}{4}$

c)  $\frac{Wl^2}{8}$

d)  $\frac{Wl}{2}$

ii) Section modulus of hollow circle is  $z_{xx} = z_{yy}$  :

a)  $\frac{\pi}{32} \frac{(D^3 - d^3)}{D^3}$

b)  $\frac{\pi}{32} \frac{(D^4 - d^4)}{D}$

c)  $\frac{\pi}{64} \frac{(D^3 - d^3)}{D^3}$

d) None of above

iii) The ratio of maximum shear stress to average shear stress for a rectangular section is

a) 1.0

b) 1.2

c) 1.5

d) 1.33

iv) The maximum slope at support for simply supported beam with UDL is

$\theta_A = \theta_B$

a)  $\frac{Wl^3}{48EI}$

b)  $\frac{Wl^4}{24EI}$

c)  $\frac{Wl^2}{24EI}$

d)  $\frac{Wl^3}{24EI}$





Seat No.	
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**B.Arch. (Semester – III) Examination, 2014**  
**HISTORY OF ARCHITECTURE – III**

Day and Date : Thursday, 29-5-2014  
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

1. Fill in the blanks : (1×5=5)
- i) The Brihadeshwara temple of Tanjore is built in \_\_\_\_\_ stone.
  - ii) Deulijagamohan, nat mandir and bhog mandir are parts of temples in \_\_\_\_\_ style of Indo Aryan architecture.
  - iii) Jain temples were based on the \_\_\_\_\_ principle of planning.
  - iv) Henry's Chapel in part of \_\_\_\_\_
  - v) The successive enclosures around Dravidian temples are known as \_\_\_\_\_
2. Answer in **one** sentence : (1×5=5)
- i) Name the areas in which Dravidian architecture flourished.
  - ii) Name two distinct characters of Khandereya Mahadeo temple.
  - iii) What were the different bands of carving an Hoysala temple plinths ?
  - iv) Where were the Jain temples generally situated ?
  - v) Name two structural parts of a Gothic cathedral.
3. Explain in brief with sketches : (6×5=30)
- i) Describe five differences between the Orissan and Khajuraho group of temples.
  - ii) Various parts of a Dravidian temple.



- iii) What were the factors that led to 'Renaissance' in architecture ?
- iv) What are the distinct characters of Jain temples ?
- v) Describe a Gothic cathedral.

4. Write short notes (**any 5**) :

**(5×6=30)**

- 1) Mandapas
- 2) Shikhara and Gopuram in Dravidian architecture
- 3) Renaissance domes
- 4) Dravidian order
- 5) Architectural character of Hoysala temple
- 6) Tirumala's Choultry.

5. Explain in detail with sketches (**any two**) :

**(2×15=30)**

- a) Brihadeshwara temple
  - b) Adinath temple, Kanakpur
  - c) S. Peter's, Rome.
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Seat No.	
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**B.Arch. (Semester – III) Examination, 2014  
CLIMATOLOGY AND ENVIRONMENT – I**

Day and Date : Saturday, 31-5-2014  
Time : 3.00 p.m. to 5.00 p.m.

Total Marks : 50

**Instructions :** 1) Q. 1, 2 and 5 are **compulsory**.  
2) Solve **any one** out of Q. 3 and Q. 4.

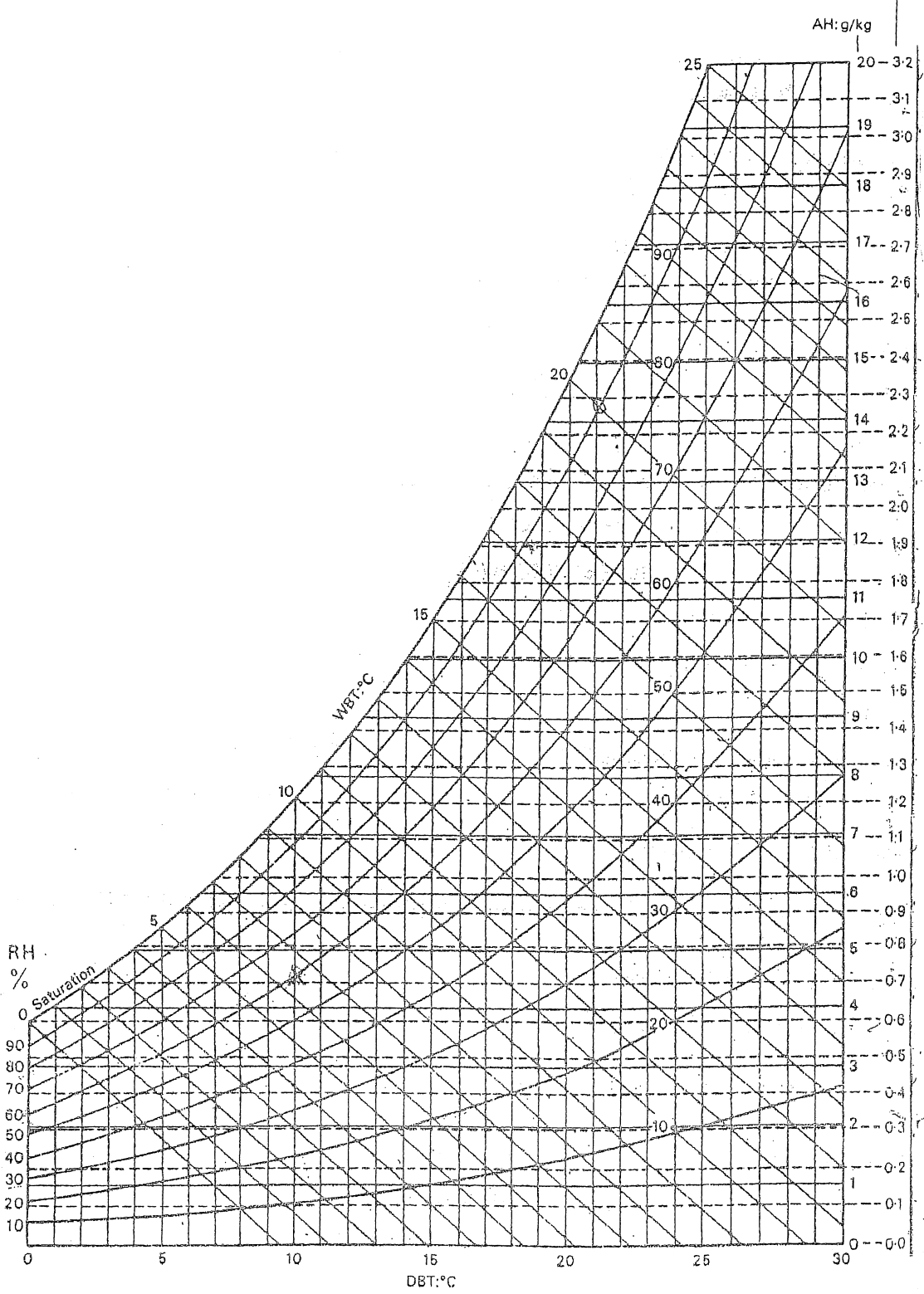
1. A) Fill in the blanks : 5
- 1) Tropical climates are those where \_\_\_\_\_ is the dominant problem.
  - 2) Earth axis is tilted to the plane of the Elliptical orbit at an angle of \_\_\_\_\_
  - 3) Longest day in Northern hemisphere \_\_\_\_\_
  - 4) Winds are basically \_\_\_\_\_ in the atmosphere.
  - 5) Site climate means \_\_\_\_\_ climate.
- B) Answer in **one** sentence : 5
- 1) What is weather ?
  - 2) Explain ITCZ ?
  - 3) Explain temperature.
  - 4) Explain climatic zone.
  - 5) Explain polar winds.
2. Find RH, VP and WBT when DBT = 10°C and AH = 7g m/kg by using psychrometric chart. 5
3. a) Explain Global climate with its factors. 8  
b) Explain Thermal comfort and its factors. 7
4. Explain Solapur climate. 15
5. Write short notes on **any four** : 20
- a) Wind scape.
  - b) Effective temperature.
  - c) Driving rains.
  - d) Trade winds.
  - e) Influence of topography.

# SLR-I - 19



Psychrometric chart

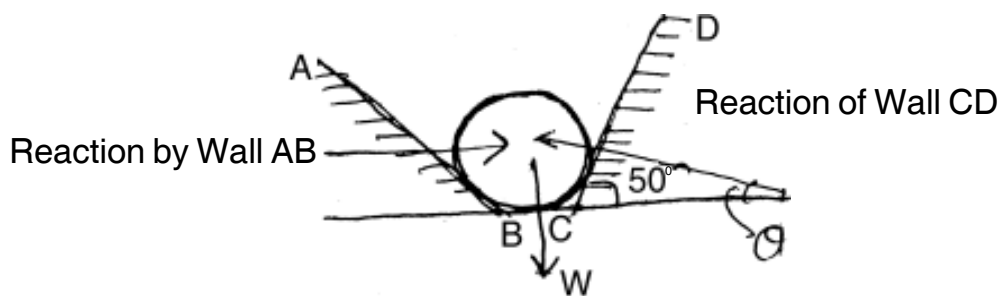
Vapour pressure: kN/m<sup>2</sup>





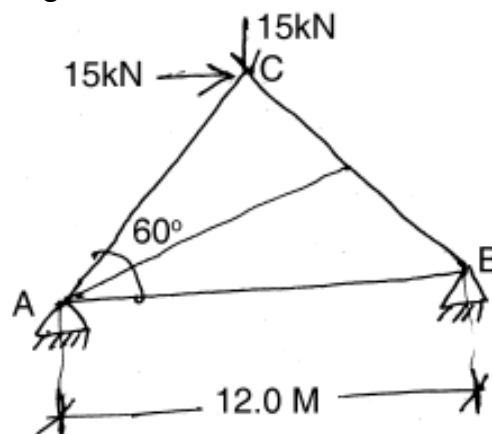


2. a) Explain the term resolution of forces and the different methods of resolution. 7  
 b) Resolve a force 1000 N acting along 55 with X-axis. Find its components along  $105^\circ$  and  $330^\circ$  with X-axis. 8
3. Find the magnitude and resultant of the following force system. 15  
 i) 35 N acting along North-East  
 ii) 60 N acting  $40^\circ$  North of West.  
 iii) 55 N acting along West  
 iv) 120 N acting South.
4. A sphere of 500 N is resting between two surfaces AB and CD as shown in Fig. Calculate reacting surfaces. 15



## SECTION – II

5. Write a note on system of forces. 10
6. For the equilateral triangle truss of 12 m side. Find out the reactions. 15

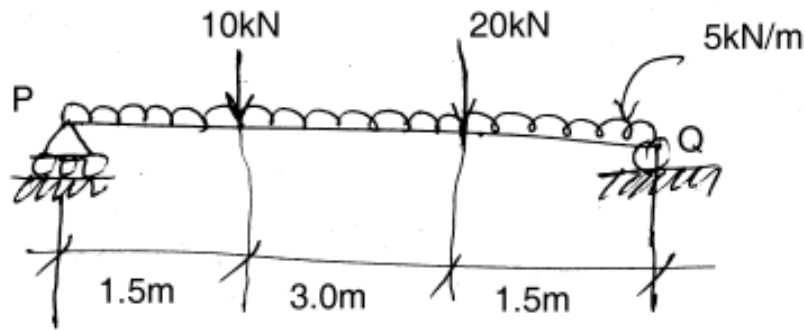






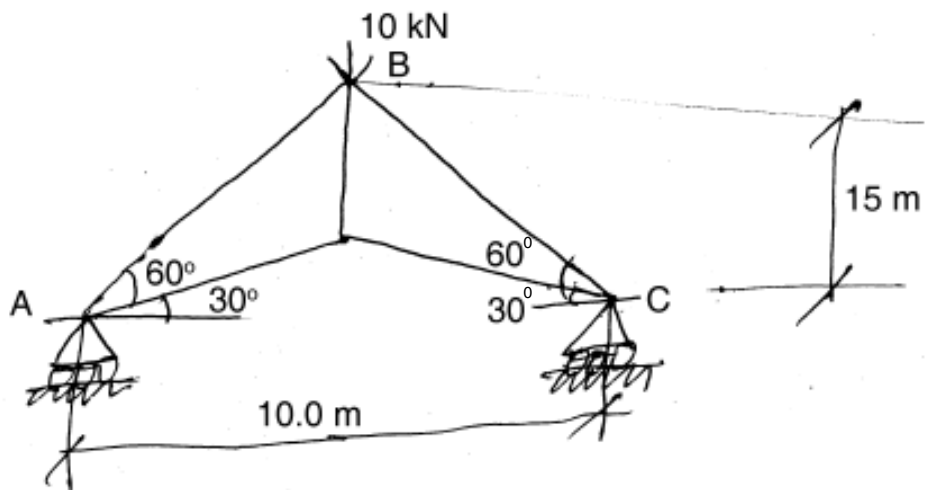
7. For the beam shown in Fig. Find out the support reactions.

15



8. Analyse the truss by method of joints.

15





SLR-I – 20

Seat No.	
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**B.Arch. (Sem. – III) Examination, 2014  
BUILDING SERVICES – I**

Day and Date : Monday, 2-6-2014  
Time : 3.00 p.m. to 5.00 p.m.

Total Marks : 50

**Instructions:** 1) Solve *all* questions.  
2) Draw *neat* sketches *wherever* necessary.

1. Fill in the blanks : 5
    - 1) The underground conduits or drains through which sewage is conveyed known as \_\_\_\_\_
    - 2) \_\_\_\_\_ is a opening by which man may entre or leave a drain for maintenance cleaning, inspection and other operation.
    - 3) House drainage after passing through \_\_\_\_\_ trap enters the public sewer.
    - 4) In separate system of sewerage \_\_\_\_\_ sets of sewer is laid.
    - 5) \_\_\_\_\_ is the highest part of interior of sewer.
  2. Answer in single sentence : 5
    - 1) Garbage
    - 2) Trap
    - 3) Vent pipe
    - 4) Sewer
    - 5) Effluent.
  3. Write short notes on **any three** : 15
    - 1) Grease and oil trap
    - 2) Surface drains
    - 3) Mirror test
    - 4) Soak pit.
  4. a) Explain in detail with sketch fixing of W.C. pan on the first floor. 7  
b) Differentiate between water carriage system and conservancy system. 8
  5. Design septic tank for 50 persons. Draw typical plan, elevation and section of the same. 10
- OR
- Explain with neat sketch 'Sulabha Shouchalaya'. 10
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Seat No.	
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**B.Arch. (Semester – III) Examination, 2014**  
**ARCHITECTURAL DESIGN – III**

Day and Date : Wednesday, 4-6-2014  
Time : 10.00 a.m. to 4.00 p.m.

Total Marks : 100

- Instructions:** 1) *The candidates are required to submit the concept and rough scheme and final presentation at the **end of the day**.*  
2) *Assume suitable data **wherever** necessary.*

Small Museum at Solapur

To promote art and culture of the city the Municipal corporation has proposed a museum in the city.

The brief – Design requirements

- |   |           |
|---|-----------|
| 1) Entrance lobby   | 10.00 SQM |
| 2) Office and waiting area  | 15.00 SQM |
| 3) Display room   | 60.00 SQM |
| 4) Collection and storage room  | 25.00 SQM |
| 5) Workshop   | 20.00 SQM |
| 6) Toilets for ladies and gents   | 20.00 SQM |
| 7) Area for future development has to be shown on site.                 |           |
| 8) Provide adequate parking for staff and visitors (cars, two wheelers) |           |

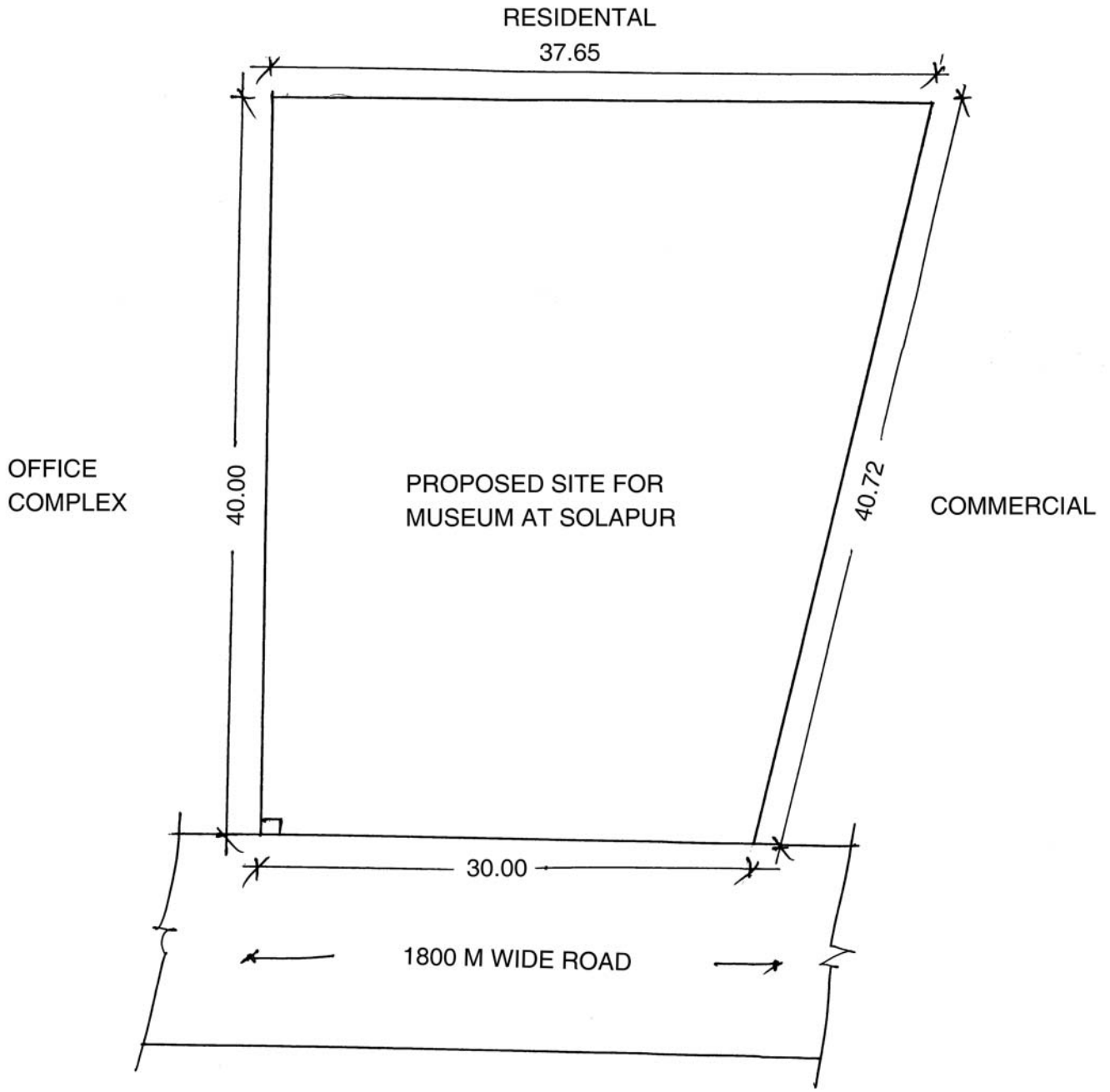
Drawing requirements and scheme of marking :

- |   |          |
|---|----------|
| 1) Concept  | 10 Marks |
| 2) Site analysis                                    | 10 Marks |
| 3) Site plan, all floor plan and terrace floor plan | 30 Marks |
| 4) Two elevations                                   | 15 Marks |
| 5) Two sections                                     | 15 Marks |
| 6) Views  | 10 Marks |
| 7) Presentation                                     | 10 Marks |

Note :

Site plan – 1 : 100 scale

All floor plan, elevations and sections 1 : 50 scale.



SITE PLAN

Setback for site

- Front margin - 9.00 M

Rear and side - 3.00 M

Note - All Dimensions are in M.





Seat No.	
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**B.Arch. (Semester – IV) Examination, 2014**  
**ARCHITECTURAL GRAPHICS – IV**

Day and Date : Friday, 23-5-2014

Max. Marks : 50

Time : 3.00 p.m. to 6.00 p.m.

**Instructions :** 1) **All** questions are **compulsory**.

2) Retain **all** construction lines.

3) Figures to the **right** indicates **full** marks.

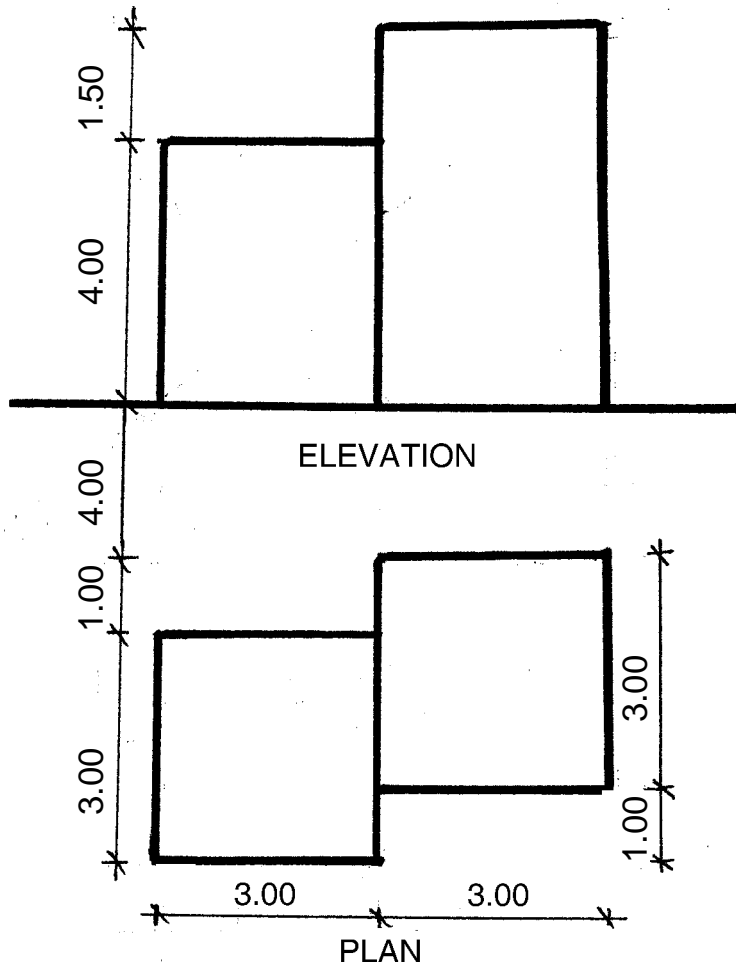
4) **Five** marks are reserved for **neatness** and **good** drafting.

5) Make suitable assumptions **wherever** required.

1. Draw shade and shadows of the object in 'Fig. A' in plan and elevation considering the source of light is in conventional direction on the vertical and horizontal planes of the object. **15**
2. Draw perspective view of the object in 'Fig. B' by observing following point B. **20**
  - a) The plane makes an angle as shown in Fig.
  - b) The picture plane touches the object.
  - c) The station point is 150 mm away from x.
  - d) The eye level is 120 mm above ground level.
3. Show shade and shadows for the perspective view drawn in Q. No. 2. **10**



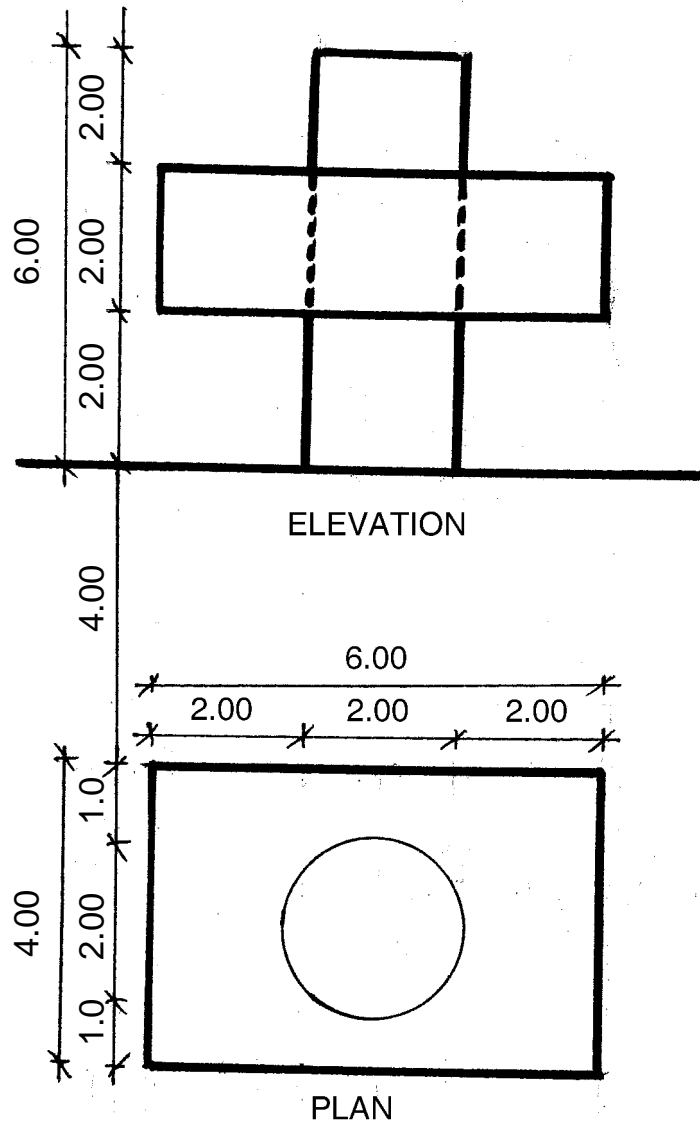
Q. No. 1-Fig. A – No.1



**NOTE : ALL DIMENSIONS ARE IN CM**



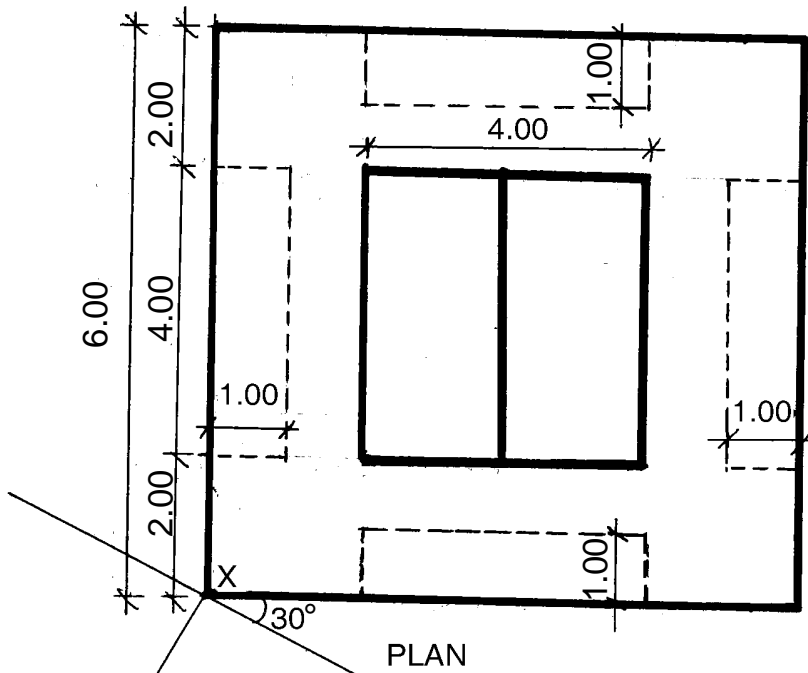
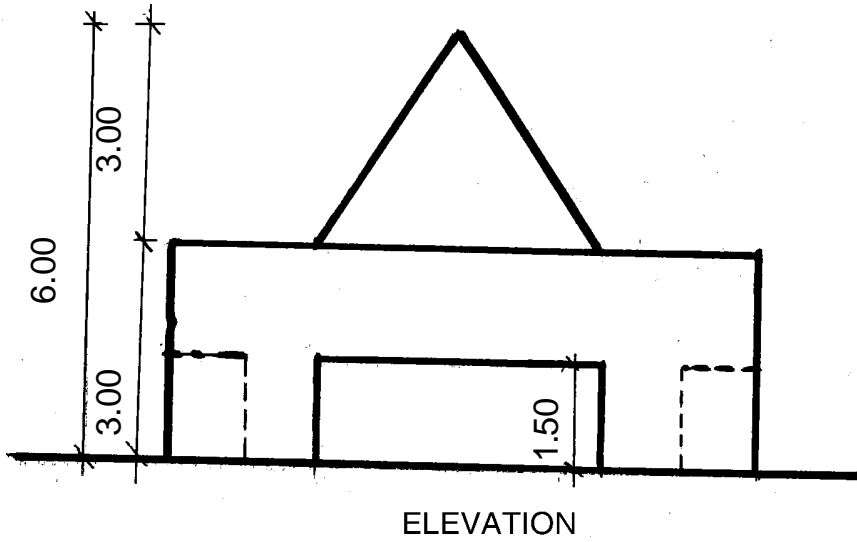
Q. No. 1-No-2 Fig – A



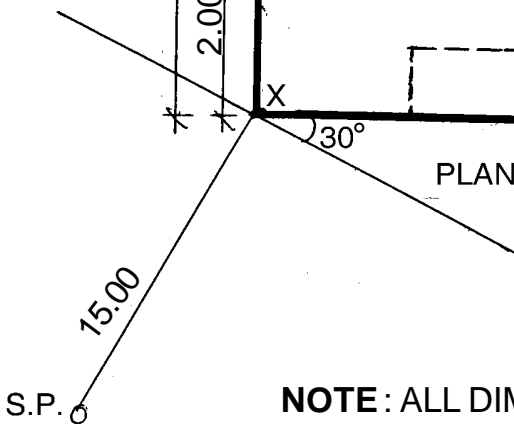
**NOTE :** ALL DIMENSIONS ARE IN CM



Q. No. 2-Fig. B



STATION POINT - 15.00 CM  
EYE LEVEL - 12.00 CM



NOTE : ALL DIMENSIONS ARE IN CM





Seat No.	
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**B.Arch. (Semester – IV) Examination, 2014**  
**BUILDING CONSTRUCTION AND MATERIALS – IV**

Day and Date : Monday, 26-5-2014  
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 50

**Instructions :** 1) Make suitable assumption *wherever* necessary.  
2) Draw *neat* sketches *wherever* necessary.

1. Fill in the blanks : 5
    - a) Bow in timber is defect due to \_\_\_\_\_
    - b) Construction timber is obtained from \_\_\_\_\_ class of trees.
    - c) In concrete ratio 1 : 3 : 6, 1 is cement, 3 is aggregate then 6 is \_\_\_\_\_
    - d) To support porlin on rafter a wooden \_\_\_\_\_ is required.
    - e) Wooden frame for door is fixed in wall with the help of holdfast and \_\_\_\_\_
  
  2. Draw a king post trees, plan, elevation for a span of 7 M × 20 m room. Draw detail at gutter. 15
  
  3. Describe with sketches one way and two way slab. 10
  
  4. Explain defects in timber. 10
  
  5. Write short note (**any two**) : 10
    - a) R.C.C. retaining wall
    - b) Cantilever beam
    - c) Seasoning of timber.
-



Seat No.	
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**B.Arch. (Semester – IV) Examination, 2014**  
**THEORY OF STRUCTURES – IV**

Day and Date : Wednesday, 28-5-2014  
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions:** 1) *Use of scientific calculator is allowed.*  
2) *Q. 1 and Q. 5 are compulsory. From the remaining question solve (any two) from each Section I and II.*  
3) *Figures to the right indicates full marks.*

SECTION – I

1. Select correct option for the following : 10
- a) The effective length of the column of effectively held in position and restrained against rotation at both ends
- a)  $0.5l$                       b)  $0.7l$                       c)  $1.00l$                       d)  $2.00l$
- b) The slenderness ratio of the column is known as the ratio of the
- a)  $\frac{l^2}{K}$                       b)  $\frac{l}{K}$                       c)  $\frac{l^2}{\sqrt{K}}$                       d)  $\frac{\sqrt{l}}{K}$
- c) The specific gravity of water is
- a)  $7.5 \text{ kN/m}^3$                       b)  $1 \text{ kN/m}^3$                       c)  $9.81 \text{ kN/m}^3$                       d) zero
- d) Short column fails by
- a) Budding                      b) Shearing                      c) Bending                      d) Crushing
- e) For the hard clay soil coefficient of rest pressure  $K_0$  is
- a) 0.5                      b) 0.6                      c) 0.75                      d) 0.45
2. a) Write a note on Euler's theory of long column. 8
- b) A solid circular compression member 50 mm in diameter is to be replaced by a hollow circular section of the same material. Find the size of the hollow section if the internal diameter is 0.6 times external diameter. 12



3. A hollow C.I. column whose outside diameter is 200 mm has a thickness of 20 mm. It is 4.5 m long and is fixed at the both ends. Calculate the safe load by Rankine's formula using a factor of safety of 4. Calculate the slenderness ratio and the ratio of Euler's and Rankine's critical loads. For cast iron take  
 $F_c = 550 \text{ N/mm}^2$  and  $\alpha = \frac{1}{1600}$ ,  $\epsilon = 8 \times 10^4 \text{ N/mm}^2$ . **20**
4. Design the foundation for a Masonry pillar of  $450 \times 450 \text{ cm c/s}$  and 4 m high subjected to an axial load of 525 kN. Assume SBC of soil as  $275 \text{ kN/m}^2$ , density of masonry =  $19 \text{ kN/m}^3$ . Angle of repose of soil =  $25^\circ$ . **20**

## SECTION – II

5. Write a note on the SBC of the soil. **10**
6. A compacted soil sample with bulk density of  $19 \text{ kN/m}^3$  has a water content of 15%. What are its dry density, degree of saturation and air content if  $G = 2.60$ . **20**
7. a) Define Moisture content, degree of saturation and shrinkage limit. **9**  
 b) Explain in detail plastic and liquid limit. **11**
8. a) Write a note on stability of retaining walls. **8**  
 b) A concrete dam of rectangular section is 10 m ht and 5 m wide retains water upto 8 m. Find **12**  
 i) Total pressure for 1 m length  
 ii) Point where resultant cut at the base.  
 iii) Maximum and minimum intensity of stress at the base.  
 Take : Wt. of concrete  $25 \text{ kN/m}^3$  and Wt. of water  $10 \text{ kN/m}^3$ .
-



Seat No.	
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**B.Arch. (Semester – IV) Examination, 2014  
HISTORY OF ARCHITECTURE – IV**

Day and Date : Friday, 30-5-2014  
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions:** 1) Q. No. 1 is **compulsory**.  
2) Answer **any two** questions from 2, 3, 4 and **any two** questions from 5, 6, 7.  
3) **Draw** neat sketches **wherever** necessary.

1. A) Fill in the blanks : 5
- 1) Qutub Minar built by \_\_\_\_\_
  - 2) Islamic style developed in India is known as \_\_\_\_\_
  - 3) Reading of Kuran is known as \_\_\_\_\_ in Islamic religion.
  - 4) Architect of Gol Gumbaz is \_\_\_\_\_
  - 5) \_\_\_\_\_ was known as king of builders.
- B) Choose the correct option : 5
- 1) Architect of Parliament house in Delhi is \_\_\_\_\_
    - a) Le Corbusier
    - b) Herbert Baker
    - c) Waren Hastings
    - d) Christopher Wren
  - 2) Fatchpur Sikri near Agra has gateway which is known as \_\_\_\_\_
    - a) Gateway of India
    - b) India gate
    - c) Buland Darwaza
    - d) Gandhi Dwar
  - 3) Taj Mahal is typical example of
    - a) Indo Greek Arch.
    - b) Indo British Arch.
    - c) Indo Chinese Arch.
    - d) Indo Persian Arch.
  - 4) Rashtrapati Bhavan was designed in \_\_\_\_\_ style.
    - a) Gothic
    - b) Roman
    - c) Islamic
    - d) New Classical



5) In Islamic Architecture the circular dome was constructed over a square configuration through \_\_\_\_\_

- a) Double barrel vault
- b) Beams and columns
- c) Intra domes
- d) Pendentives and squinches

2. Write short note on **any 5** : **25**
- 1) Alai Minar
  - 2) Five pillars in Islamic Architecture
  - 3) Tomb
  - 5) Different types of Arches used in Islamic Architecture
  - 6) Minar
  - 7) Liwan.
3. Explain in detail formation and development of Islamic Architecture in India with respect to geographical, geological, political climatic and historical conditions ? **25**
4. Explain architectural characters of Bijapur. Provide with any one example in detail. **25**
5. A) Explain Victoria Terminus, Delhi. **10**  
B) Explain in detail tomb of Ghiasuddin Tughlaq with neat sketch. **10**
6. Write detail note on any three buildings in the city of Fatehpur Sikri. Draw neat sketch of same. **20**
7. Explain Rashtrapati Bhavan New Delhi. And also explain architectural characters of colonial architecture in India. **20**
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**B.Arch. (Sem. – IV) Examination, 2014  
CLIMATOLOGY AND ENVIRONMENT – II**

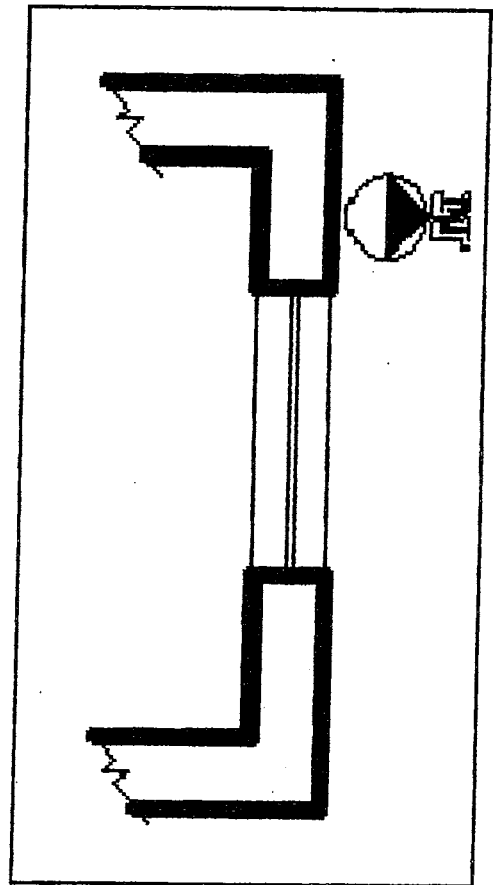
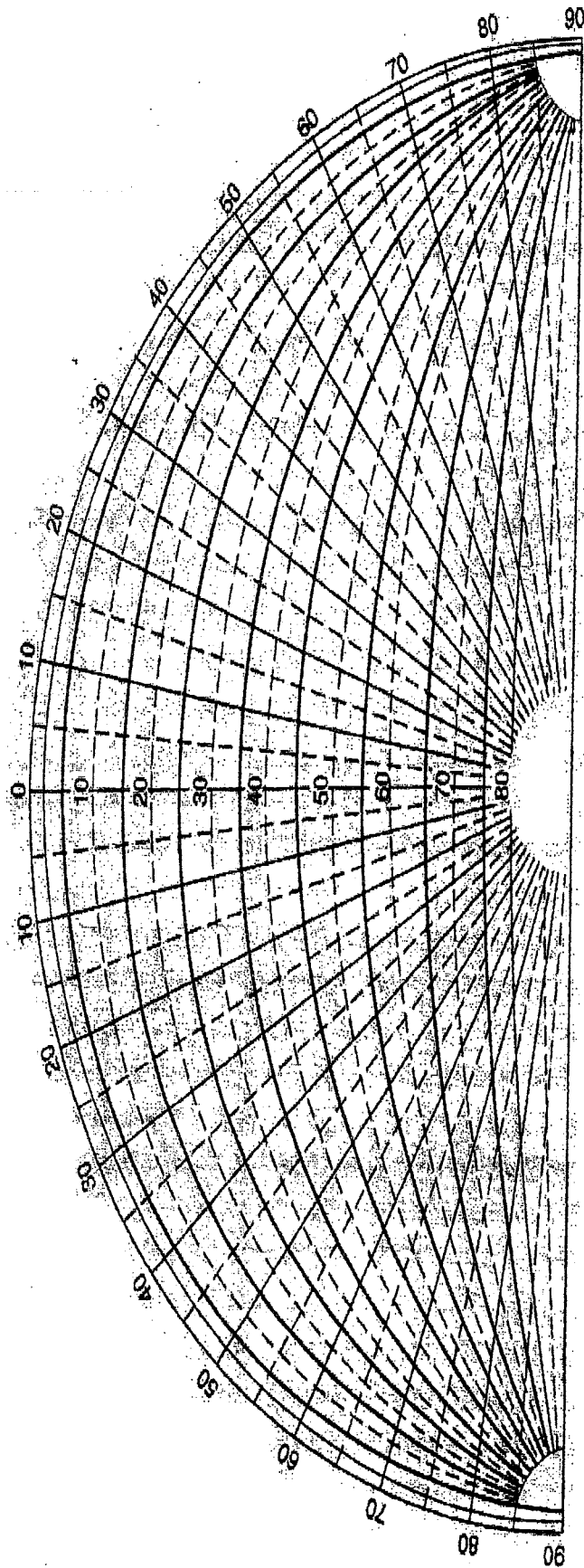
Day and Date : Tuesday, 3-6-2014  
Time : 3.00 p.m. to 5.00 p.m.

Max. Marks : 50

**Instructions:** 1) Q. 1 and Q. 2 and Q. 3 are **compulsory**.  
2) Solve **any one** out of Q. 4 and Q. 5

1. A) Fill in the blanks. 5
- 1) Horizontal shadow angle is denoted as \_\_\_\_\_
  - 2) Verticle shadow angle is denoted as \_\_\_\_\_
  - 3) Canopie is a \_\_\_\_\_ device.
  - 4) Hue, value and croma is distinguished by \_\_\_\_\_
  - 5) Relative humidity in mech. ventilation is increased by \_\_\_\_\_
- B) Answer in **one** sentence : 5
- 1) Solar altitude angle.
  - 2) Azimuth machines.
  - 3) Verticle shading devices.
  - 4) Transmission of light.
  - 5) Wind scoop.
2. a) Find out solar altitude angle and azimuth angle for given chat 32°N latitude angle and arimuth angle for given chat 32°N latitude. 5
- 1) 15 May at 7ths.
  - 2) 28 Feb. at 10ths.
- b) Find out Horizontal and verticle shadow angles for given window at 32°S latitude. 10
- 1) 22 June at 16 HRs.
  - 2) 23 sept. at 14 HRs.
- Also give sketches in detail.









Seat No.	
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**B. Arch. (Semester – IV) Examination, 2014  
BUILDING SERVICES – II**

Day and Date : Thursday, 5-6-2014  
Time : 3.00 p.m. to 5.00 p.m.

Total Marks : 50

**Instructions:** 1) Solve *all* questions.  
2) Draw *neat* sketches *wherever* required.

1. A) Fill in the blanks : 5

- 1) The pump in which compressed air is used to lift the water is known as \_\_\_\_\_
- 2) Addition of chlorine to raw water before any treatment is known as \_\_\_\_\_
- 3) The process of killing infective Bacteria from the water and making it safe to user is called as \_\_\_\_\_
- 4) In water supply system the portion of pipe laying within the consumers premises is known as \_\_\_\_\_
- 5) \_\_\_\_\_ are the devices which are used to tap water from mains for fire extinguishing.

B) Answer in **one** sentence : 5

- 1) Service connections
- 2) Meters
- 3) Spigot and socket joint
- 4) Filtration
- 5) Suction tank.



2. Explain with neat sketches (**any 3**) : **15**
- 1) Dual system of water distribution.
  - 2) Tube well.
  - 3) Reciprocating pump.
  - 4) Slow sand filters.
  - 5) Dead end method.
3. Explain with the help of neat sketches
- A) Discuss various types of pipes used in water supply system and explain any two joints. **10**
  - B) Discuss concealed water supply piping system. **5**
4. A) Discuss in detail service connections. **10**
- OR
- B) Calculate size of overhead water tank for flat system of 12 tenements. **10**
-



Seat No.	
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**B.Arch. (Semester – V) Examination, 2014**  
**BUILDING CONSTRUCTION AND MATERIALS – V**

Day and Date : Thursday, 22-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 50

**Instructions:** 1) Q. 1 and Q. 2 are **compulsory**.  
2) Solve **any 3** out of remaining.  
3) Draw **neat** sketches.

1. Draw plan, elevation section of Aluminium window with Mosquito protection arrangement for opening of 1.5 × 1.2 m to the scale of 1 : 10 with notes to checking. 15
  
  2. Fill in the blanks (MCQs) : 5
    - 1) \_\_\_\_\_ foundation are used in loose soil.  
a) Pad                      b) Pile                      c) Open footings      d) Eccentric
    - 2) Revolving door revolves on \_\_\_\_\_  
a) Hinge                      b) Pivot                      c) Horn                      d) Holdfast
    - 3) \_\_\_\_\_ is used in end bearing pile.  
a) Restiy on strata                      b) Friction  
c) Bulb                      d) Gravity
    - 4) \_\_\_\_\_ is lead.  
a) Pb                      b) Fe                      c) H<sub>2</sub>SO<sub>4</sub>                      d) H<sub>2</sub>O
    - 5) Silica is major element of \_\_\_\_\_  
a) Iron                      b) Aluminium      c) Glass                      d) Stone
  
  3. Explain different types of shutter and frame material. 10
  
  4. Explain anticorrosive treatment. 10
  
  5. Explain physical properties and defects in glass. 10
  
  6. a) North light truss 10  
b) Patent glazing.
-



Seat No.	
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**B.Arch. (Semester – V) Examination, 2014**  
**THEORY OF STRUCTURES – V**

Day and Date : Saturday, 24-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 80

**Instructions:** 1) Use of calculator and IS : 456 is **allowed**.  
2) Q. 1 is **compulsory**.  
3) Solve **any 4** questions from remaining.

1. Choose the correct objective for the following : 10
- 1) Effective span is \_\_\_\_\_
- a) Clear span + eff. depth  
b) Clear depth + clear span  
c) Clear span
- 2) Development length of bar is given by \_\_\_\_\_
- a)  $L_d = \frac{\phi \sigma_s}{4\tau_{bd}}$       b)  $L_d = \frac{\phi \sigma_s}{2\tau_{bd}}$       c)  $L_d = \frac{\phi \sigma_s}{3\tau_{bd}}$
- 3) Tearing strength per pitch length is given by \_\_\_\_\_
- a)  $p_t = f_t(p - d) t$       b)  $p_t = f_t \cdot \frac{\pi d^2}{4}$       c)  $p_t = f_t \cdot d \cdot t$
- 4) The process of welding takes \_\_\_\_\_ than riveting.
- a) More time      b) less time
- 5) Safe load which a rivet can withstand in double shear is \_\_\_\_\_
- a)  $1 \times fs \frac{\pi d^2}{4}$       b)  $2 \times fs \times \frac{\pi d^2}{4}$       c)  $3fs \frac{\pi d^2}{4}$
2. a) Give the conceptual idea of application of working stress method to R.C.C. design. 8
- b) Give the classification of R.C.C. beams. 9



3. a) A R.C.C. singly reinforced beam is 250 mm wide and 450 mm over all deep .  
The beam has 16 mm  $\phi$  four reinforcing bars at an effective cover of 50 mm.  
If permissible stresses in con<sup>c</sup>. and steel are 5 MPa and 140 MPa and  
 $M = 18$ . Determine the safe M.R. of the beam. Also calculate the stress  
developed in steel. **9**
- b) Write a note on failure of butt joint and lap joint. **8**
4. a) Sketch the different types of rivetted joints. **8**
- b) A single rivetted lap joint is made in 15 mm thk. plate with 20 mm dia. rivets.  
Determine the strength of the joint, if the pitch of the rivets is 6 cm.  
Take  $f_s = 900 \text{ kg/cm}^2$ ,  $f_b = 1600 \text{ kg/cm}^2$ ,  $f_t = 1200 \text{ kg/cm}^2$ . **10**
5. a) Write in brief @ the pitch of the rivets. **8**
- b) Write a note on workability of concrete. **10**
6. a) Write in brief about the under reinforced beam, over-reinforced and balanced  
section of a beam. **8**
- b) Write in brief about grades of con<sup>c</sup> and properties of concrete. **9**
7. a) Differentiate between working stress method and limit state method. **8**
- b) Explain with sketches types of rivetted joints. **9**
-



SLR-I – 3

Seat No.	
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**B.Arch. (Semester – I) Examination, 2014  
HISTORY OF ARCHITECTURE – I (New)**

Day and Date : Tuesday, 27-5-2014

Total Marks : 80

Time : 10.00 a.m. 1.00 p.m.

- Instructions :**
- 1) Figures to the **right** indicates **full** marks.
  - 2) Question numbers should be **clearly** written in the answer books.
  - 3) **Draw** neat sketches **wherever** necessary.
  - 4) Q. No. **1** is **compulsory**. Solve **any 6** questions from the remaining.

1. Fill in the blanks :

8

- 1) Cromagnon man also known as \_\_\_\_\_
- 2) The urban form in Harrapa and Mohenjodaro refers to \_\_\_\_\_ pattern of road.
- 3) Roman civilisation was preceded by \_\_\_\_\_
- 4) Egypt was located on the bank of river \_\_\_\_\_
- 5) Persians adopted religion of prophet \_\_\_\_\_
- 6) Obelisk were the symbol of \_\_\_\_\_ god.
- 7) Entrance gateway of vedic village \_\_\_\_\_
- 8) \_\_\_\_\_ civilisation is termed as queen of all civilisation.

P.T.O.



2. Write short notes with relevant sketches on **any three** : **12**
    - 1) Architectural characters of Indus Valley civilisation
    - 2) Java Ape Man
    - 3) King Chandragupta Maurya
    - 4) Corbelled arch.
  
  3. Describe changes that took place in neolithic man. **12**
  
  4. Sketch the plan and section of “Temple of Khons” at Karnak and explain the same in detail. **12**
  
  5. Explain characteristic features of west asiatic architecture ? Sketch and explain a typical ziggurat. **12**
  
  6. Explain with neat sketch palace of tiryns. **12**
  
  7. What are the salient features of Patliputra city ? **12**
  
  8. Elaborate the general contribution of Etruscan architecture with example. **12**
-



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**B.Arch. (Semester – V) Examination, 2014  
HISTORY OF ARCHITECTURE – V**

Day and Date : Tuesday, 27-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 80

- N. B. :** i) Figures to the **right** indicate **full** marks.  
ii) Question numbers should be **clearly** written in the answer books.  
iii) **Draw neat sketches wherever necessary.**

1. Fill in the blanks : **(5×1=5)**

- i) \_\_\_\_\_ was designed by Lauric Baker.
- ii) 'Complexity and Contradiction' in architecture was written by \_\_\_\_\_
- iii) The 'City of Chandigarh' was designed by \_\_\_\_\_
- iv) \_\_\_\_\_ is the only female architect to have won the Pritzker award individually.
- v) 'Sagrada Familia' is a famous work by \_\_\_\_\_

2. Answer in **one** sentence : **(3×1=3)**

- i) Name two materials used extensively in 'modern architecture'.
- ii) Who introduced the concept of 'Maison Domino' ?
- iii) Who designed 'Guggenheim Museum, New York' ?

3. Explain in brief with sketches : **(3×6=18)**

- i) Explain in brief the characteristics of 'port modernism'.
- ii) Write a brief note on Mayer and Schlesinger Departmental Store.
- iii) Write a brief history of 'Bauhaus School'.





4. Write short notes on **(any 6)** : **(6×4=24)**
- i) Charles correa-work and philosophy.
  - ii) Furniture designs by Le-Corburier and Mies van der Rohe.
  - iii) Elevators and modern architecture.
  - iv) Deconstructivism.
  - v) Chicago school of architecture.
  - vi) Prairic houses by FL Wright.
  - vii) Less in More.
  - viii) Oscar Niemeyer-Work and Philosophy.
5. Explain in detail with sketches **(any two)** : **(2×15=30)**
- i) Explain the various movements in 'modern architecture'. **15**
  - ii) Draw plan, elevation, sections of Dr. Farnsworth house. Name the architect.  
Write a note on its architectural character. **15**
  - iii) a) Write a detailed note on work and philosophy of FL wright. **10**  
b) Explain falling water w.r.t. to the beliefs and architectural principles of  
FL Wright. **5**
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Seat No.	
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**B.Arch. (Semester – V) Examination, 2014  
BUILDING SERVICES – III**

Day and Date : Thursday, 29-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 80

**Instructions :** 1) Q. No. 1 is **compulsory**.  
2) Solve **any 6** questions from the **remaining**.  
3) Draw **neat** sketches **wherever** necessary.

1. Fill in the blanks : **8**
    - 1) \_\_\_\_\_ is a moving staircase.
    - 2) In three phase supply voltage between phase wire and neutral wire is \_\_\_\_\_
    - 3) In ohm's law current is directly proportional to \_\_\_\_\_
    - 4) Lumineous intensity measured in \_\_\_\_\_
    - 5) \_\_\_\_\_ is a flow of electrons in metal wires.
    - 6) \_\_\_\_\_ are used to cut-off supply to any part of the installation.
    - 7) A connection to general mass of earth by means of an earth electrode is known as \_\_\_\_\_
    - 8) \_\_\_\_\_ is defined the ratio of amount of water vapour if the air is saturated at the same temperature.
  2. Explain in detail winter and summer air conditioning in detail. **12**
  3. Explain sprinklers system in detail. **12**
  4. Explain various types of wiring systems. **12**
  5. Explain various types of filters used in air conditioning systems. **12**
  6. Explain lift planning along with neat sketch. **12**
  7. Explain in detail Escalators and also explain functioning of the same. **12**
  8. Write short notes on **(any 3)**. **12**
    - 1) Sodium vapour lamp
    - 2) M.C.B.
    - 3) Fire alaram system
    - 4) Fuse.
-



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**B.Arch. (Semester – V) Examination, 2014**  
**ARCHITECTURAL DESIGN – V**  
**Theory of Design (Intro. to Landscape)**

Day and Date : Friday, 6-6-2014

Total Marks : 100

Time : 10.00 a.m. to 4.00 p.m.

Day and Date : Saturday, 7-6-2014

Time : 10.00 a.m. to 4.00 p.m.

- Instructions :**
- i) *The candidates are required to remain in the examination hall continuously for **six** hours and eatables to be arranged by Supervisor.*
  - ii) *The candidate should be allowed to do colouring work upto last minute and paper should be collected after they are dried while students may leave **the examination hall after the time is over.***
  - iii) ***All** students shall submit their concept sheet on tracing paper at the end of the day.*
  - iv) *The above said drawings shall not be returned to them **next** day.*
  - v) *Any serious deviation from original scheme is **not permitted.***
  - vi) ***All** other rough/fair sheets shall be given back to the candidate along with the paper on the second day for continuing the work.*
  - vii) ***Assume** suitable data and scale **where** necessary.*

**MULTIPURPOSE HALL FOR A HOUSING SOCIETY – SOLAPUR**

The chairman and the members of V.L. society have felt the need of a multipurpose hall. The purpose behind constructing the hall is to fulfill the needs of the society at times of marriage, birthdays, meetings, get-togethers, Bhajans and Kirtans etc. The building is expected to be eco-friendly with maximum use of natural light and ventilation. Following are the architectural requirements :

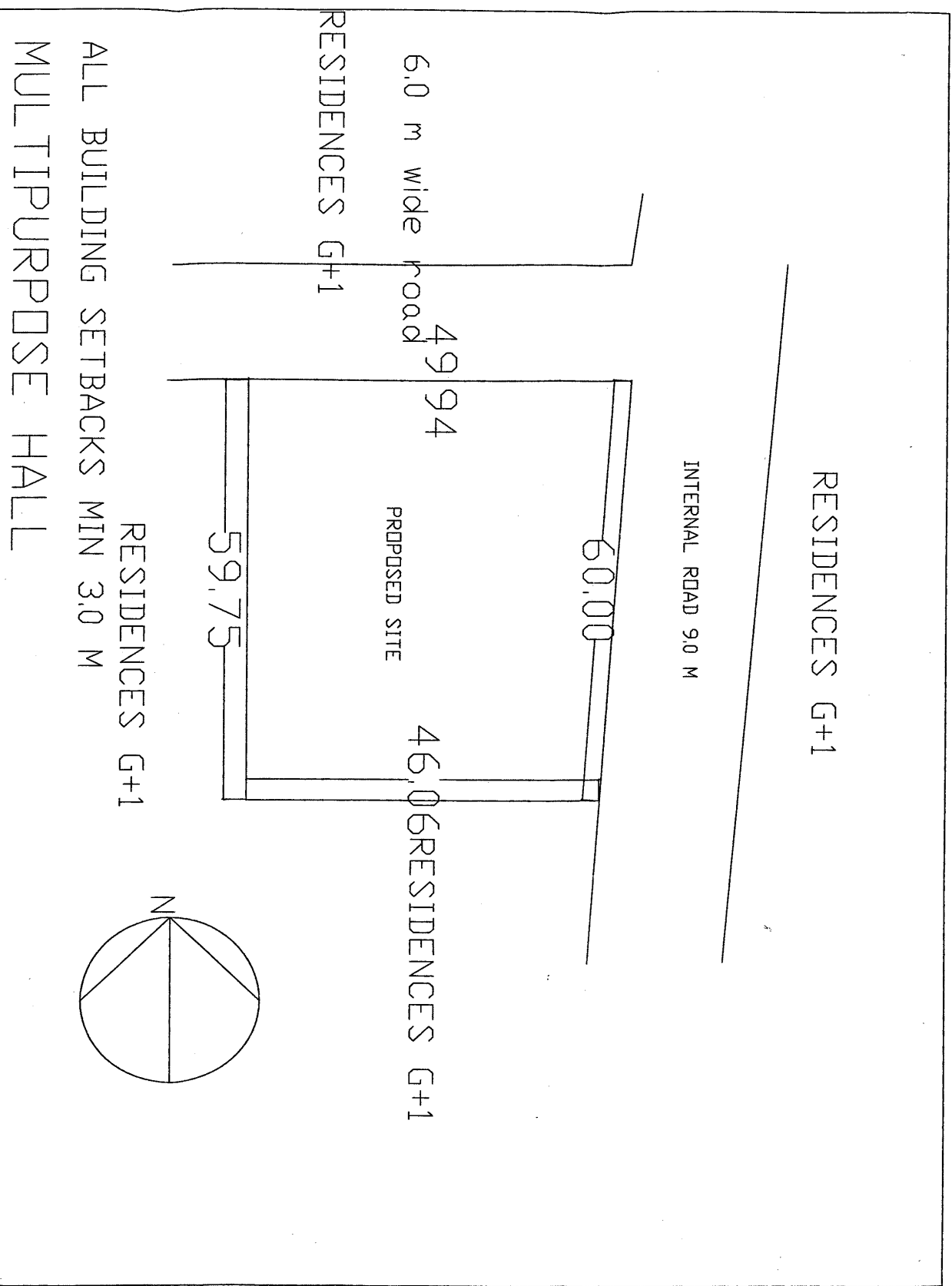
- i) Entrance foyer
- ii) Office – 15.0 sqm



iii) General store			– 20.0 sqm
iv) Hall			– 250.0 sqm
v) Green rooms with at toilet – 2 in No.			– 15.0 sqm each
vi) Rooms with at toilet – 4 in No.			– 12.0 sqm each
vii) Dormitory – 2 in No.			– 60.0 sqm each
viii) Dining			– 150.0 sqm
Kitchen			– 80.0 sqm
Store, Utility, Wash			
ix) Common Toilet for Gents and Ladies			
		Gents	Ladies
Bath		4	4
W. C.		4	4
Wash Basin		4	4
x) Drinking water facility			
xi) Party lawn on site			
xii) Parking			
four wheelers			– 20
two wheelers			– 50

#### Drawings required

i) Concept	= 10
ii) Site plan, site analysis, site section (1 : 00)	= 20
iii) All floor plans (1 : 100)	= 30
iv) Elevations – 2	= 15
v) Sections – 2	= 15
vi) View	= 10





Seat No.	
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**B.Arch (Semester – VI) Examination, 2014**  
**BUILDING CONSTRUCTION AND MATERIALS – VI**

Day and Date : Friday, 23-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 50

**Instructions:** 1) Make suitable assumptions *wherever* necessary and mention **clearly** in your answer book.  
2) Figures to **right** indicates **full** marks.

1. Fill in the blanks : 5
    - a) Bloom is the \_\_\_\_\_ in painting.
    - b) Anticorrosive paint essentially consists of \_\_\_\_\_ and drier.
    - c) Internal tanking is a method of \_\_\_\_\_
    - d) Riveting and bolting joints are used in \_\_\_\_\_ structures.
    - e) P.V.C. is abbreviation of polyvenyl chloride used to make \_\_\_\_\_ in plumbing.
  
  2. Draw plan, elevation, section and 2 details for the BANK VAULT measuring 4 m × 3 m and 3 m in Height, for a bank in the basement of bank building. 15
  
  3. Write short notes (**any 3**) : 15
    - a) Ferrocement
    - b) Precast concrete in construction
    - c) Curtain wall
    - d) Basement waterproofing.
  
  4. State and explain DEFECTS in painting. 15
-



Seat No.	
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**B.Arch. (Semester – VI) Examination, 2014  
THEORY OF STRUCTURES – VI**

Day and Date : Monday, 26-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 80

- Instructions :** 1) Q. 1. and Q. 3. are **compulsory**.  
2) Solve **any two** questions from **remaining**.  
3) **Right** sketch indicates **full** marks.

1. Objectives : 10

- 1) Minimum number of bars required in a circular column are \_\_\_\_\_  
i) 4 bars      ii) 8 bars      iii) 6 bars      iv) 9 bars
- 2) In two way action of the footing, the critical section of shear shall be at a distance \_\_\_\_\_ from periphery of column.  
i)  $d$       ii)  $d/4$       iii)  $d/8$       iv)  $d/2$
- 3) Distribution steel in one way slab for  $F_y 250$ .  $A_{std} =$  \_\_\_\_\_  
i) 0.12% of  $A_g$       ii) 0.17% of  $A_g$   
iii) 0.15% of  $A_g$       iv) 0.8% of  $A_g$
- 4) Development length is given by  $L_d =$  \_\_\_\_\_  
i)  $L_d = \frac{3\phi\delta s}{4\tau bd}$       ii)  $L_d = \frac{\phi\delta s}{4\tau bd}$       iii)  $L_d = \frac{4\phi\delta s}{3\tau bd}$       iv)  $L_d = \frac{3\phi\delta s}{6\tau bd}$
- 5) In a balanced Section NA \_\_\_\_\_  
i)  $x_n = x_n \max$       ii)  $x_n > x_n \max$       iii)  $x_n < x_n \max$       iv) None of above

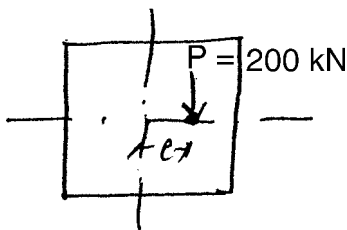
2. 1) State and explain three moment theorem. 8

2) A simply supported beam of span 7 m. AB carries a Udl of 14 kN/M. BC carries a Udl of 10 kN/M. AB = 3.5 m. BC = 3.5 m. Supported at A, B and C. Draw SFD and BMD. 9

3) Assumptions made in limit state of collapse in Flexure. 8



3. 1) State and draw the sketches of different types of trusses along with span. **6**
- 2) Draw sketch of L beam and T beam formation in a continuous beam. **6**
- 3) Calculate load carrying capacity of Column. It size of column is  $230 \times 380$  mm reinforced with 6 bars of 12 mm dia. Use  $M_{20}$  and Fe 415. **8**
4. 1) A square column of 400 mm side carries a axial load of 200 kN at an eccentricity of 50 mm. Calculate maximum and minimum stresses at base. **8**



- 2) Design one way slab with following data : **12**
- Span = 3 m
- LL =  $2 \text{ kN/m}^2$
- FF =  $1 \text{ kN/m}^2$
- Use  $M_{20}$  and Fe 415.
- 3) Write design steps for cantilever slab in detail. **5**
5. 1) Design a column rooting for following data :
- Load on column – 400 kN
- Size of column –  $300 \times 300$  mm
- SBC –  $150 \text{ kN/m}^2$
- Use  $M_{20}$  and Fe 415.
- 1) Check for one way action of shear
- 2) Check for two way action of shear
- 3) Check for bending moment. **20**
- 2) Write a note on Ratt rooting in detail. **5**





Seat No.	
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**B.Arch. (Semester – VI) Examination, 2014**  
**BUILDING SERVICES – IV**

Day and Date : Wednesday, 28-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 80

- Instructions:** 1) Q. No. 1 is **compulsory**, solve **any six** questions from the remaining.  
2) Figures to the **right** indicate **full** marks.  
3) **Draw** neat sketches **wherever** necessary.

1. Fill in the blanks : **8**
- 1) The process of setting of suspended particle is known as \_\_\_\_\_
  - 2) \_\_\_\_\_ tanks are provided to remove grease and fat of the sewage.
  - 3) Name any one system of sewerage \_\_\_\_\_
  - 4) Non putrescible waste is termed as \_\_\_\_\_
  - 5) \_\_\_\_\_ tanks are provided for the sludge to digest.
  - 6) Hospital waste is burnt in \_\_\_\_\_
  - 7) Partly or completely treated waste is termed as \_\_\_\_\_
  - 8) \_\_\_\_\_ is the method in which decomposable organic matter from solid waste is converted into stable form under the action of microorganism.
2. A) Discuss ventilation of sewer with neat sketch. **8**  
B) What are the characteristics of Industrial waste ? **4**
3. Write short notes on the following (**any 3**) : **12**
- 1) Soak pit
  - 2) Grit chamber
  - 3) Aerobic and anaerobic process
  - 4) Filtration of swimming pool water.



- 4. A) Enlist methods of disposal of solid waste and explain any one method in detail. **8**
  - B) Define the term B.O.D. State its importance in sewage analysis. **4**
  - 5. Draw general layout of waste water treatment plant ? Explain the purpose of each component ? **12**
  - 6. A) State the objectives of sewage treatment ? **6**
  - B) Explain the term rural sanitation and explain its necessity. **6**
  - 7. Explain why garbage chutes are installed in high rise building ? Discuss the garbage collection units – inlet hopper, collection chamber and chute ? **12**
  - 8. What type of disposal of night soil do you propose for the following : **12**
    - 1) Rural area
    - 2) Factory located in the outskirts of the city.
-



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**B.Arch. (Semester – VI) Examination, 2014  
ACOUSTICS**

Day and Date : Friday, 30-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 80

- Instructions:** 1) *Q. 1 is compulsory.*  
2) *Solve any three from remaining.*  
3) *Make suitable assumptions wherever necessary.*

1. a) Calculate using given information Acoustical design treatment for auditorium having 650 seating capacity. Consider  $R_t = 1.25$  sec  $2.5$  m<sup>3</sup>/person volume.
- i) P.O.P. – 0.26
  - ii) Plaster – 0.04
  - iii) Glass wool – 0.15
  - iv) Occupied seats – 0.42
  - v) Unoccupied seats – 0.18
  - vi) Curtain – 0.12.

27

b) Fill in the blanks :

- i) Velocity of sound is denoted by \_\_\_\_\_
- ii) Frequency of sound is denoted by \_\_\_\_\_
- iii) Amplitude of sound is denoted by \_\_\_\_\_
- iv) P.O.P. is applied on walls to \_\_\_\_\_ sound.
- v) Wooden battens are applied on walls to \_\_\_\_\_ sound.
- vi) Optical model test is for \_\_\_\_\_
- vii) Uncounted sound is \_\_\_\_\_
- viii) When sound passes through opening is \_\_\_\_\_ phenomenon.

8

**SLR-I – 37**



2. Explain Amphitheatre with sketches. **15**
3. Explain :
- 1) Refraction of sound
  - 2) Diffraction of sound. **15**
4. Explain optical model test. **15**
5. Short notes (**any three**) :
- 1) Acoustical treatment
  - 2) Reverberation
  - 3) Noise
  - 4) Sound pressure level. **15**
-



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**B.Arch. (Semester – VI) Examination, 2014  
URBAN AND REGIONAL PLANNING – I**

Day and Date : Tuesday, 3-6-2014  
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 80

**Instructions:** i) Q. No. 1 is **compulsory**.  
ii) Attempt **any 6** from **remaining** questions.  
iii) Draw **neat sketches wherever necessary**.

1. Fill in the blanks : (1×8=8)
    - i) Sir Patrick Geddes laid emphasis on \_\_\_\_\_
    - ii) In case of height zoning, the ratio of the height to the width of road will be \_\_\_\_\_ in case of 45° air plane rule.
    - iii) In Grid-iron pattern, the roads meet at \_\_\_\_\_
    - iv) The length of the cul-de-sac should not be more than \_\_\_\_\_
    - v) Clarence stein and clarence percy advocated the concept of \_\_\_\_\_
    - vi) New Delhi was planned by an Eminent town planner \_\_\_\_\_
    - vii) F.A.R. is the ratio of \_\_\_\_\_
    - viii) The By-pass roads are also known as \_\_\_\_\_
  2. Explain the principles and concepts advocated by C.A. Doxidas. 12
  3. Explain with neat sketches the planning principles of “Gandhi Nagar”. 12
  4. Explain in detail the influence of topography, features on land etc. on town planning. 12
  5. Explain the principles and advantages of zoning. 12
  6. “Slum is an social evil”. Explain. 12
  7. Explain the disadvantages of traffic congestion and measures taken to avoid traffic congestion. 12
  8. Write short notes on (**any 3**) : (4×3=12)
    - i) Horizontal growth
    - ii) Satellite town
    - iii) Apartments and skyscrapers
    - iv) Concentric street system.
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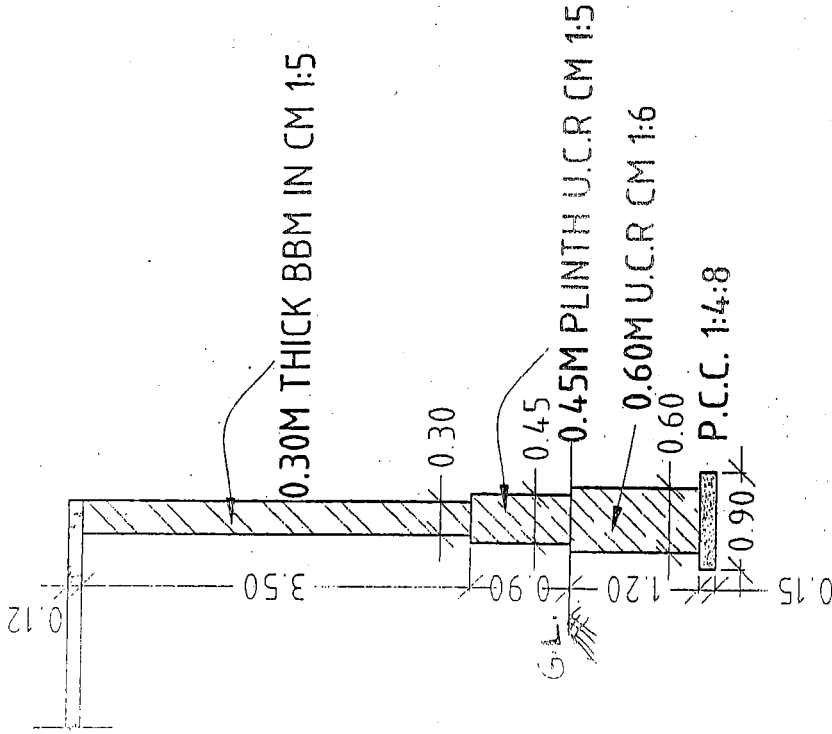
**B.Arch. (Sem. – VI) Examination, 2014**  
**ESTIMATING, SPECIFICATION AND COSTING – I**

Day and Date : Thursday, 5-6-2014  
Time : 10.00 a.m. to 1.00 p.m.

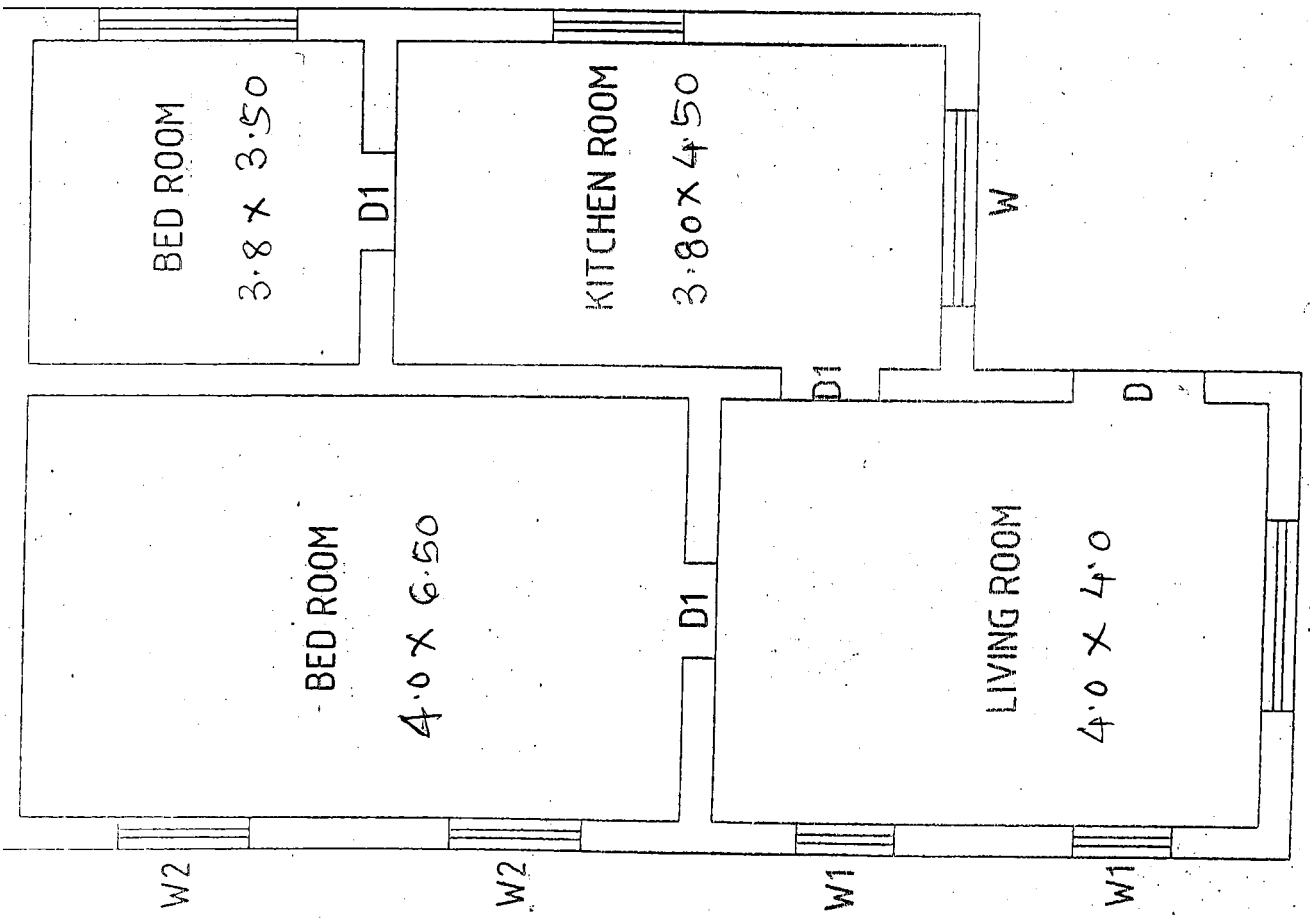
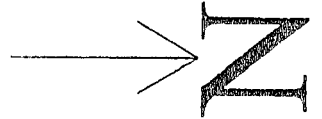
Max. Marks : 80

- N.B. :** 1) Q. 1 to Q. 4 **all** questions are **compulsory**.  
2) Calculators are **allowed to use**.  
3) Figures to **right** indicate marks.  
4) **Assume** any suitable data **if** necessary.

1. Figure shows a building plan with necessary details, calculate the quantities of given items and enter them in the measurement sheet – 5 items. **45**
  - a) Excavation – 9 marks each.
  - b) II<sup>nd</sup> class Burnt Brick masonry in CM 1 : 6 for super structure work only.
  - c) Internal cement plaster in CM 1 : 4
  - d) R.C.C. slab
  - e) Doors and windiows.
2. Prepare an abstract sheet of all the above items mentioned in question No. 1, assuming the following : **10**
  - a) Excavation – Rs. 200/m<sup>3</sup>
  - b) Burnt Brick masonry – Rs. 2,500/m<sup>3</sup>
  - c) Internal cement plaster – Rs. 300/m<sup>2</sup> in CM 1 : 4
  - d) R.C.C. slab – Rs. 7,000/m<sup>3</sup>
  - e) Door and windows – Rs. 5,000/m<sup>2</sup>.
3. Calculate rate analysis in detail of following items : **18**
  - i) 1 : 1  $\frac{1}{2}$  : 3 concrete
  - ii) Full Brick masonry in CM 1 : 5
  - iii) 12 mm thick cement plaster in CM 1 : 4.
4. State the units of measurements : **7**
  - i) Earth work filling in plinth
  - ii) Cutting of trees
  - iii) Quarrying of stones
  - iv) String course, weather course
  - v) Sun dried briekwork
  - vi) Dampproof course (thickness specified)
  - vii) Iron grills.



- D = 1.0 X 2.15 M
- D1 = 0.90 X 2.15 M
- W = 1.80 X 1.20 M
- W1 = 0.90 X 1.20 M
- W2 = 1.20 X 1.20 M
- W3 = 1.20 X 0.75 M





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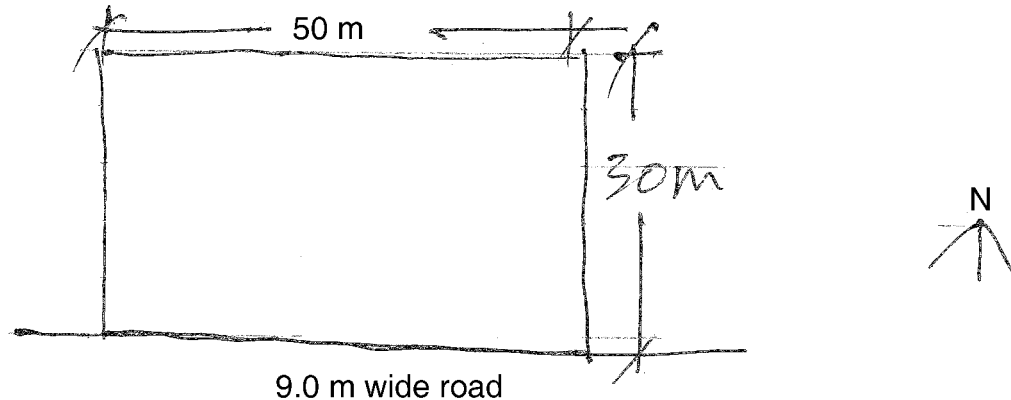
**B.Arch. (Sem. – VII) Examination, 2014  
ENVIRONMENTAL DESIGN (New)**

Day and Date : Thursday, 22-5-2014  
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions :** 1) Solve **any 5** questions from the **ones** given below.  
2) **Assume** suitable data **wherever** necessary.  
3) **Draw** neat sketches **wherever** necessary.

1. Propose a cluster of row houses in the site given below measuring 50x30m. Plot for single unit-60 sq.m.



Draw sketch plans, sections elevations.

20

2. Describe the Saat Rasta Chonk. Describe the problems faced there and the surroundings. 20
3. Explain the various aspects of environmental design. What is its importance in the present day living conditions ? 20
4. Describe any eco-friendly methods of construction for your own architectural studio at Solapur. State methods for walls, roofs, sanitation etc. 20
5. What is FSI/FAR ? State its importance. How does it affect our surroundings ? 20
6. What is meant by land use ? What is a land use plan ? State its importance in shaping an environment. 20
7. Explain the concept of 'neighbourhood'. What are the amenities you would propose for a neighbourhood unit of 10,000 population Solapur ? 20





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**B.Arch. (Sem. – VII) Examination, 2014**  
**BUILDING CONSTRUCTION AND MATERIAL – VII (New)**

Day and Date : Saturday, 24-5-2014  
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 50

**Instructions :** i) Make suitable assumptions **wherever** necessary.  
ii) Draw **neat** sketches.

1. Fill in the blanks : (1×5=5)
- a) A continuous or rigid frame with a rigid joint between the column and beam is defined as \_\_\_\_\_
  - b) \_\_\_\_\_ is an appliance designed to transport men and material between 2 or more floors.
  - c) \_\_\_\_\_ is a three-dimensional truss like-assembly.
  - d) In Post-tensioning method steel wires/tendons are laid after \_\_\_\_\_ is hardened.
  - e) \_\_\_\_\_ cement is used in concrete in underpinning.
2. Provide a structure lift with lift lobby in a hospital building of ground and three upper floors.
- Draw plan, section and enlarged details of machine room, pit and lift well. 15
3. a) Describe various materials for covering of false ceiling. 8  
b) Explain use of false ceiling in various types of building. 7
- OR
- a) Write a note in detail with sketches on sound insulating materials. 8
  - b) Write a note in detail on different types of adhesives used in building construction. 7
4. Write short notes on (**any 3**) : 15
- a) Gantry girder
  - b) Precautions for demolition of buildings
  - c) Portal frame
  - d) Shells
  - e) Cold storage.
-



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**B.Arch. (Semester – VII) Examination, 2014**  
**THEORY OF STRUCTURE – VII (New)**

Day and Date : Tuesday, 27-5-2014  
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 80

- Instructions:** 1) *Use of scientific calculator and IS 456 is allowed.*  
2) *Q. 1 and Q. 5 are compulsory. From the remaining questions solve any 2 from Section I and II.*  
3) *Figures to the right indicate full marks.*

SECTION – I

1. Choose the correct option for the following : 10
- 1) The thickened portion of the slab around the column is called \_\_\_\_\_  
a) Drop                                      b) Column head                      c) Capital
  - 2) Clear spacing between adjacent ribs should not be more than \_\_\_\_\_ the thickness of the top slab.  
a) 24 times                                      b) 12 times                                      c) 1/8 times
  - 3) \_\_\_\_\_ piles are used to resist inclined and horizontal forces.  
a) Uplift                                      b) Batter                                      c) Fender
  - 4) Stresses developed in the member at the time of transportation or erection are known as \_\_\_\_\_  
a) Handling stresses  
b) Shear stresses  
c) Tensile stresses
  - 5) Waffle slabs are also known as \_\_\_\_\_  
a) Grid slab                                      b) Flat slab                                      c) Cantilever slab
2. a) Explain with sketches behaviour of rectangular water tank. 8  
b) Explain the structural behaviour of raft foundation. 7

P.T.O.

**SLR-I – 42**

- |  |          |
|--|----------|
| 3. a) Explain the different mixes used in R.C.C. construction with their effect on permissible stresses. | <b>8</b> |
| b) Explain the design concept of under reamed pile foundation.   | <b>7</b> |
| 4. a) Explain about the grid slab and its types.   | <b>8</b> |
| b) Explain in detail flat slab.  | <b>7</b> |

**SECTION – II**

- |   |           |
|---|-----------|
| 5. Write short notes on :   | <b>16</b> |
| 1) Post-tensioning and pre-tensioning system  |           |
| 2) Bunkers and silos  |           |
| 3) Stiffeners in plate girder   |           |
| 4) Portal frame.  |           |
| 6. a) Explain in detail the design concept for earthquake proof construction.   | <b>6</b>  |
| b) Explain the structural behaviour of verandaed girders.   | <b>6</b>  |
| 7. Explain the structural behaviour of gantry girder in industrial bldgs. and describe the different loads that act on gantry girder. | <b>12</b> |
| 8. a) Difference between rigid frame and portal frame.  | <b>6</b>  |
| b) Write a note on space frame.   | <b>6</b>  |
-



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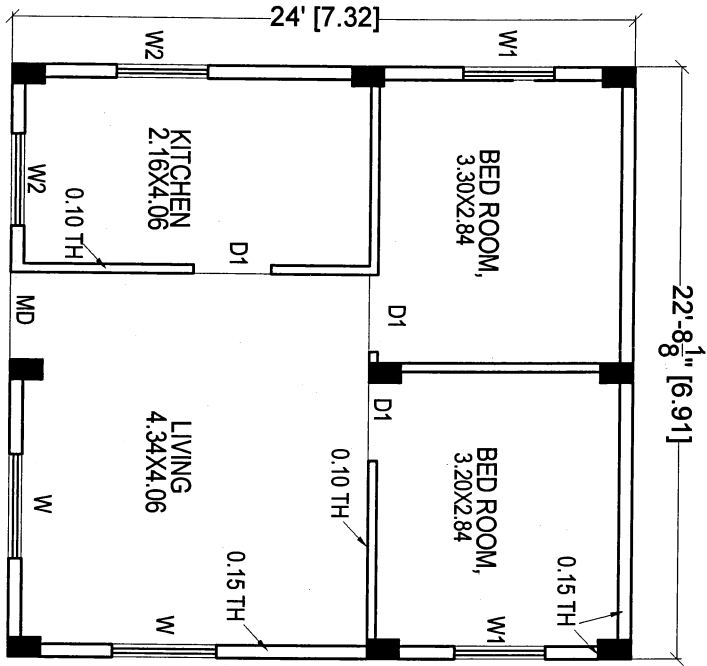
**B.Arch. (Semester – VII) Examination, 2014**  
**ADVANCED ESTIMATING SPECIFICATION AND COSTING – II (New)**

Day and Date : Thursday, 29-5-2014  
Time : 3.00 p.m. to 6.00 p.m.

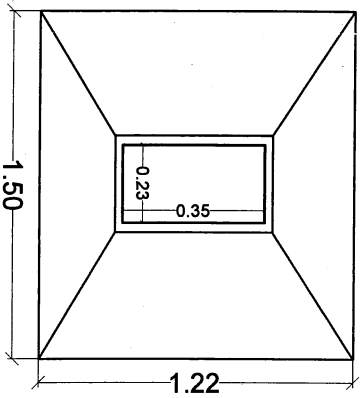
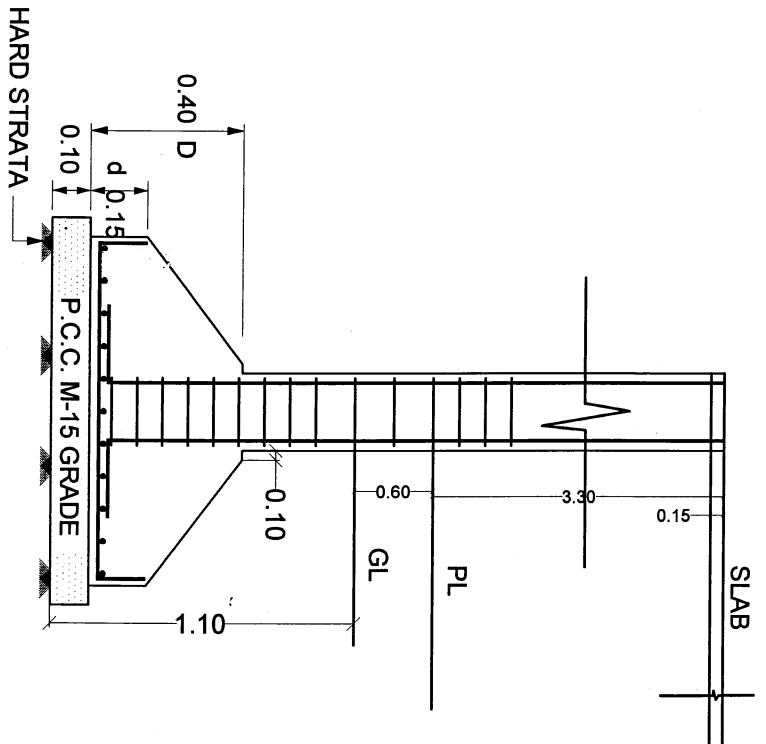
Max. Marks : 80

- Instructions:** 1) Q. 1 to Q. 5 are **compulsory**.  
2) **All** questions are to be solved.  
3) Calculators are **allowed** to use.  
4) **Assume** any suitable data **if necessary**.

1. a) From the given sketch, calculate the quantities of following item : 30  
i) Excavation and footings of columns  
ii) R.C.C. slab  
iii) External plaster  
iv) Flooring.
- b) Prepare abstract of above items using following rates : 10  
i) EXCV – Rs. 200/m<sup>3</sup>  
ii) RCC slab – Rs. 7,000/m<sup>3</sup>  
iii) External plaster – Rs. 500/m<sup>2</sup>  
iv) Flooring – Rs. 700/m<sup>2</sup>.
2. Write short notes on : 10  
Valuation of building, types, purposes etc.
3. Write in short : 10  
i) Earnest money deposit  
ii) Security money deposit  
iii) District Schedule Rates (DSR).
4. Write in detail : 10  
General and particular (Detailed) specifications, its uses, importance etc.
5. Explain estimates, its types and uses in detail. 10



DOOR & WINDOWS SCHEDULE		
TYPE	SIZE	DISCRPTION
MD	1.03 X 2.40	M.S. SHUTTER
D1	0.91 X 2.10	THICK WOOD
D2	0.75 X 2.10	THICK WOOD
W1	1.83 X 1.22	STEEL WINDOW
W2	1.10 X 0.75	STEEL WINDOW
V	0.60 X 0.60	STEEL VENTI



TYPICAL SECTION OF COLUMN & FOOTING



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**B.Arch. (Semester – VII) Examination, 2014  
ADVANCED ARCHITECTURAL DESIGN (New)**

Day and Date : Monday, 9-6-2014

Max. Marks : 150

Time : 10.00 a.m. to 4.00 p.m.

Day and Date : Tuesday, 10-6-2014

Time : 10.00 a.m. to 4.00 p.m.

Day and Date : Wednesday, 11-6-2014

Time : 10.00 a.m. to 4.00 p.m.

- Instructions :** 1) *The candidates are required to submit the concept and rough scheme 4 final presentation at the end of day.*  
2) **Assume** suitable data **wherever** necessary.

**RESIDENTIAL APARTMENT, AT SOLAPUR**

A group of young interpreneur want to build a Residential Apartment building to cater the residential needs of middle class and higher middle class people.

F.S.I. in the Jule Solapur area is given as 1 and no T.D.R. etc. are applicable for this scheme.

Service areas, staircases, parking, passages and lifts are to be free of F.S.I.

**Architectural Programme :**

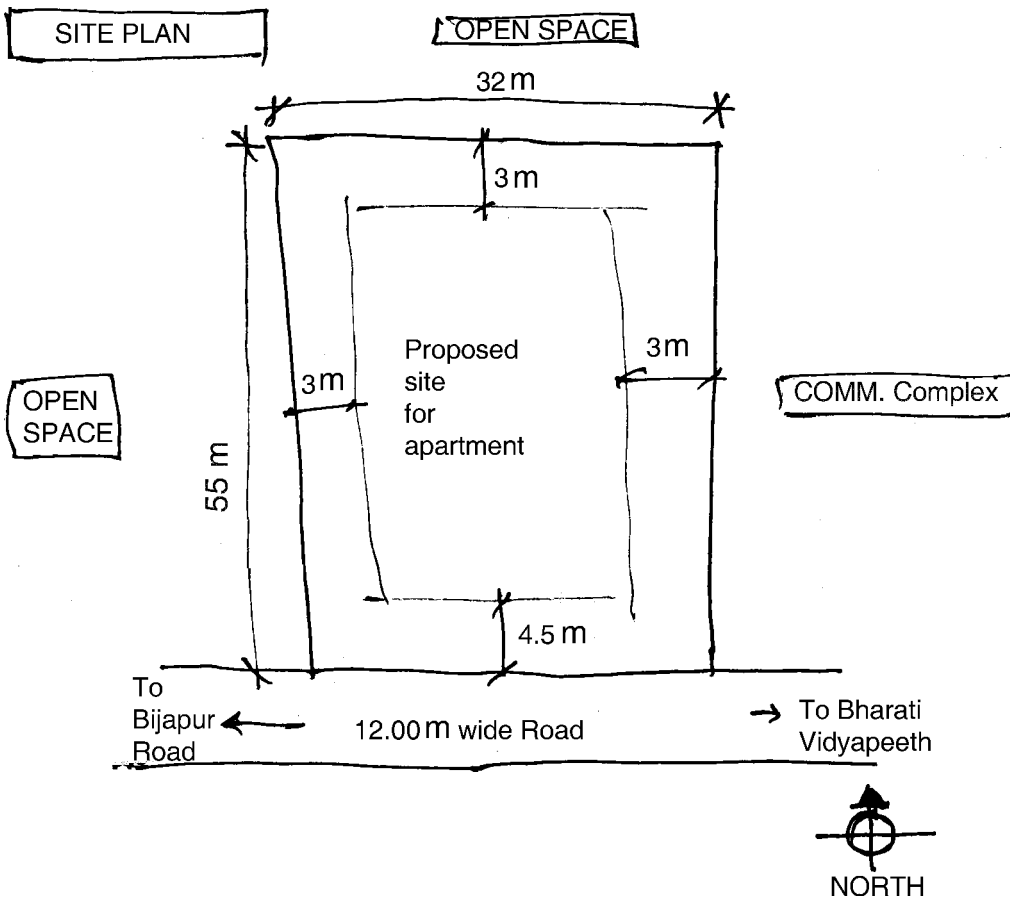
- 1) 1 B.H.K. units of 55 sq. m. each – 550 sq. m. – 10 nos.
- 2) 2 B.H.K. units of 110 sq. m. each – 1100 sq. m. – 10 nos.
- 3) Services, staircases, passages and lifts – adequate
- 4) Security cabin and parking for owner and visitors – adequate

**Drawing requirements :**

- |                           |    |
|---------------------------|----|
| 1) Concept – not to scale | 15 |
| 2) Site plan (1 : 200)    | 25 |



- 3) All floor plans (1 : 100) 50
- 4) 2 sections (1 : 100) 25
- 5) 2 elevations (1 : 100) 20
- 6) 3D. view (not to scale) 15





SLR-I – 47

Seat No.	
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**B.Arch. (Sem. – VIII) Examination, 2014**  
**PROFESSIONAL PRACTICE – II**

Day and Date : Friday, 23-5-2014

Max. Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

***N.B.*** : Q. No. 1 and 2 are ***compulsory***.

*Draw neat sketches wherever necessary.*

*Answer any five from Q. No. 3 to Q. No. 8.*

1. A) Fill in the blanks. 5
- a) The method of inviting the tender by selected contractors is \_\_\_\_\_
  - b) Retention amount is nothing but \_\_\_\_\_
  - c) Property is acquired free from all \_\_\_\_\_
  - d) The type of tender is suitable for repair works, New buildings etc. is \_\_\_\_\_
  - e) Architect's Act \_\_\_\_\_
- B) Answer in **one** sentence. 5
- a) Explain open competition.
  - b) What is Earnest money ?
  - c) What are different type of invitation to tender ?
  - d) Explain contract.
  - e) Explain arbitral award.

P.T.O.





2. Write short notes on **any four** : **20**
- 1) Guidelines of CoA for Architectural competitions.
  - 2) Explain Labour Act.
  - 3) Procedure and remedies for the land acquisition.
  - 4) Advantage and disadvantage of arbitration.
  - 5) Explain National building code.
3. Explain the terms, Earnest money, security deposit, retention amount, mobilization fund, variations in rate analysis. **10**
4. Difference between Conciliations and Mediation. **10**
5. Principal requirements and conditions for conducting Architectural competitions. **10**
6. What is the characteristics of Easement ? **10**
7. What are powers and duties of Arbitral Tribunal ? **10**
8. What is tender ? Name the different types of tender . Explain any two types of tender in detail. **10**
-

Code No. **SLR-I – 48**



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Signature of Jr. Supervisor
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Seat No. _____ Centre _____	For Office Use Only
Seat No. in words _____	Code No.

**B.Architecture (Semester – IV) Examination, 2014**  
**ENVIRONMENTAL STUDIES**

Day and Date : Sunday, 25-5-2014      Time : 10.00 a.m. to 12.00 noon      Max. Marks : 50

Day & Date _____	Language of Answer _____
Examination _____	Paper No. _____
Subject _____	Section _____

Marks -	Out of	_____ Examination _____	For Office Use only
Signature of Examiner		_____ (Paper - _____)	Code No.

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

**MCQ/Objective Type Questions**

Marks : 10

1. Choose the correct answer : **10**

1) Earth day is celebrated on \_\_\_\_\_

- |                           |                          |                          |                          |
|---------------------------|--------------------------|--------------------------|--------------------------|
| A) 22 <sup>nd</sup> April | <input type="checkbox"/> | B) 22 <sup>nd</sup> May  | <input type="checkbox"/> |
| C) 22 <sup>nd</sup> June  | <input type="checkbox"/> | D) 22 <sup>nd</sup> July | <input type="checkbox"/> |

P.T.O.



DO NOT WRITE HERE

II) The environment word come from \_\_\_\_\_ language.

A) Roman  B) French

C) Greek  D) Latin

III) The greatest source of energy on the earth is \_\_\_\_\_

A) Wind  B) Water

C) Sun  D) Coal

IV) \_\_\_\_\_ is renewable natural resources.

A) Coal  B) Iron-ore

C) Natural oil  D) Water

V) \_\_\_\_\_ percent of earth geographical area is under water.

A) 71%  B) 81%

C) 61%  D) 51%

VI) The main source of air pollution in India is \_\_\_\_\_

A) Automobiles  B) Industrialization

C) Forest fire  D) Nuclear explosion



VII) "Save Silent Valley" Movement occurred in \_\_\_\_\_

- |            |                          |              |                          |
|------------|--------------------------|--------------|--------------------------|
| A) Goa     | <input type="checkbox"/> | B) Kerala    | <input type="checkbox"/> |
| C) Gujarat | <input type="checkbox"/> | D) Tamilnadu | <input type="checkbox"/> |

VIII) Mention the year of Earth Summit.

- |         |                          |         |                          |
|---------|--------------------------|---------|--------------------------|
| A) 1952 | <input type="checkbox"/> | B) 1962 | <input type="checkbox"/> |
| C) 1972 | <input type="checkbox"/> | D) 1982 | <input type="checkbox"/> |

IX) The Air Prevention and Control Act was passed by central government in the year \_\_\_\_\_

- |         |                          |         |                          |
|---------|--------------------------|---------|--------------------------|
| A) 1974 | <input type="checkbox"/> | B) 1981 | <input type="checkbox"/> |
| C) 1972 | <input type="checkbox"/> | D) 1982 | <input type="checkbox"/> |

X) Acid rain is a result of \_\_\_\_\_ pollution.

- |         |                          |          |                          |
|---------|--------------------------|----------|--------------------------|
| A) Land | <input type="checkbox"/> | B) Noise | <input type="checkbox"/> |
| C) Air  | <input type="checkbox"/> | D) Water | <input type="checkbox"/> |

\_\_\_\_\_



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**B.Architecture (Semester – IV) Examination, 2014  
ENVIRONMENTAL STUDIES**

Day and Date : Sunday, 25-5-2014  
Time : 10.00 a.m. to 12.00 noon

Marks : 40

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

2. Write short answer of the following (**any four** out of six) : **8**
- a) Importance of environmental studies
  - b) Causes of deforestation
  - c) Causes of land pollution
  - d) World food problem
  - e) Forest ecosystem
  - f) Food chains.
3. Write short notes of the following (**any four** out of six) : **12**
- a) Need of environmental awareness.
  - b) Causes of AIDS.
  - c) What is sustainable development ?
  - d) Nuclear hazards.
  - e) Remedies of air pollution.
  - f) Narmada Movement.
4. a) What is pollution ? Discuss the causes and effects of water pollution in India. **10**
- OR
- b) Elaborate various measures to protect the environment.
5. Explain the effect of Global Warming and suggest control measures of it. **10**
-



SLR-I – 6

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**B.Arch. (Semester – I) Examination, 2014**  
**HISTORY OF ARCHITECTURE – I (Old)**

Day and Date : Tuesday, 27-5-2014

Max. Marks : 100

Time : 10.00 a.m. to 1.00 p.m.

**Instructions:** 1) Figures to the **right** indicates **full** marks.  
2) Draw **neat** sketches **wherever** necessary.

1. Fill in the blanks : 10

- 1) Name any one settlement from prehistoric period.
- 2) Any one building material used by Indus Valley people.
- 3) Arthashastra was written by \_\_\_\_\_
- 4) Egyptians used \_\_\_\_\_ stone to built pyramid.
- 5) \_\_\_\_\_ civilisation is termed as credle of all civilisation.
- 6) Lion gate is the entrance gateway of palace of \_\_\_\_\_
- 7) Hanging gardens built in the city of \_\_\_\_\_
- 8) Temple of Khon's at Karnak dedicated to \_\_\_\_\_ god.
- 9) Palace of Sargon II built in the city of \_\_\_\_\_
- 10) Pecking man was also known as \_\_\_\_\_

2. Write short notes with relevant sketches (**any 6**) : 30

- 1) Corbelled Arch
- 2) Metal age
- 3) Grid iron pattern

P.T.O.



- 4) Java ape man
- 5) King Chandragupta Mourya
- 6) Kings chamber in pyramid of Cheops
- 7) Trabeated style.

3. Answer the following (**any 3**) :

**30**

- 1) Describe the changes that took place in the life of Neolithic man.
- 2) Sketch the plan and section of typical house in Egypt. Explain its design features.
- 3) Sketch and explain a typical Ziggurat.
- 4) Write detailed note on Vedic culture.

4. Answer the following (**any 2**) :

**30**

- 1) With the help of neat sketch (plan and section) explain the temple of Khon's at Karnak.
  - 2) Explain the characteristic features of Mycenaen Architecture. Explain with neat sketch 'Palace of Tiryns'.
  - 3) Elaborate the general contribution of Etruscan architecture with suitable example.
-



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**B.Arch. (Semester – II) Examination, 2014  
ARCHITECTURAL GRAPHICS – II (New)**

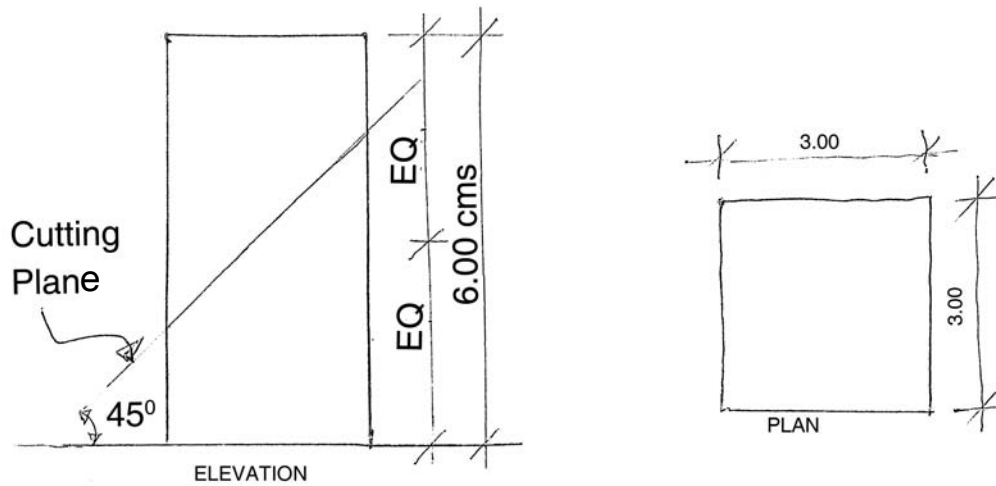
Day and Date : Friday, 23-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 100

- Instructions:** 1) **All** the questions are **compulsory**.  
2) Retain **all** construction lines.  
3) Figures to **right** indicates **full** marks.  
4) **Five** marks are reserved for neatness and good drafting.  
5) Make suitable assumptions **wherever** necessary.

1. A plane cuts an object as shown in the Figure “A” at xx. Draw plan and sectional elevations. (Front and side) of the object. (scale – 1 : 1).

35



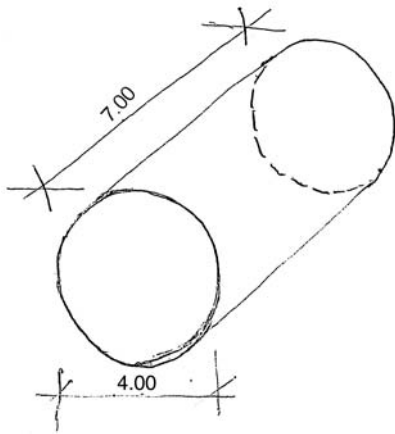
(Fig. A)



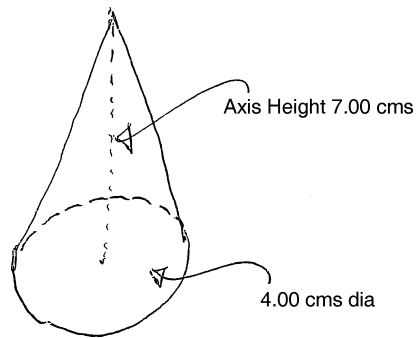


2. Draw development of surface of the cut object in Figure “A” or Draw true cut portion of the same object in Fig. “A”.

15



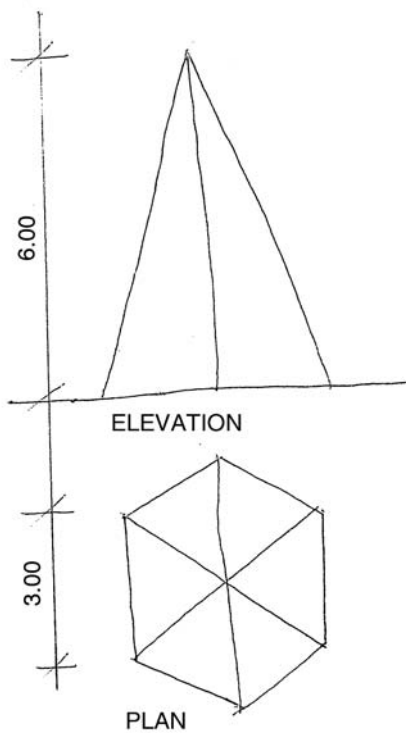
(1)



(2)

3. Draw the development of surface of the following objects in Fig. “C”.

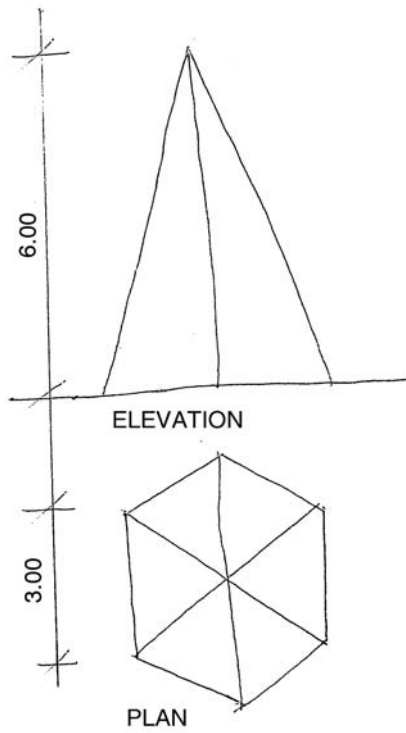
15





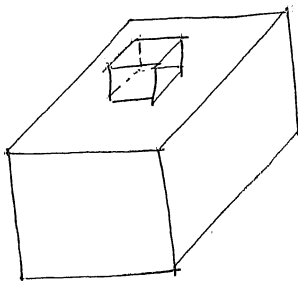
4. Draw the isometric view in isometric scale of the object in Figure “C”.

20

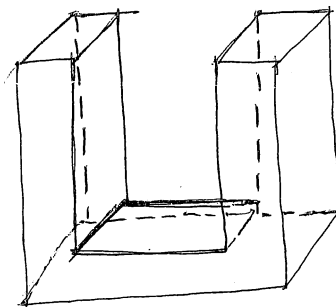


5. Mention the no. of surfaces of the following objects in Fig. D.

10



(1)



(2)





Seat No.	
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**B.Arch. (Semester – II) (New) Examination, 2014  
BUILDING CONSTRUCTION AND MATERIAL – II**

Day and Date : Monday, 26-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 50

**Instructions :** i) Q. No. 1 and Q. No. 2 is **compulsory**.  
ii) Solve **any three** from the **remaining**.  
iii) Draw **neat sketches wherever necessary**.

1. Draw Plan, elevation and section of ledged battened and braced door for an opening of span 1.00 m. Show enlarged details. **15**
  2. Fill in the blanks : **5**
    - i) \_\_\_\_\_ is the horizontal distance between the internal faces of the wall or supports.
    - ii) \_\_\_\_\_ is a course of stone provided at the top of wall to prevent seepage of water.
    - iii) A combination of tread and riser is known as \_\_\_\_\_
    - iv) \_\_\_\_\_ is a vertical member employed to sub divide a window vertically.
    - v) \_\_\_\_\_ is a horizontal member placed across an opening to support the portion of the structure above it.
  3. What are the uses of lime ? **10**
  4. Explain bulking of sand. Write the uses of sand. **10**
  5. Classify various types of roofs and describe any two with neat sketches. **10**
  6. Define rise, rafter, spandrel, haunch, arcade. **10**
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Seat No.	
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**B.Arch. (Semester – II) Examination, 2014  
THEORY OF STRUCTURE – II (New)**

Day and Date : Wednesday, 28-5-2014  
Time : 10.00 a.m. to 1.00 p.m.

Max. Marks : 80

- N. B. :** 1) Q. 1 and Q. 2 are **compulsory**.  
2) Solve **any 3** from remaining question.  
3) **Use of scientific calculator is allowed**.  
4) Figures to the **right** indicate **full marks**.

1. Select correct option for the following :

a) Moment of inertia for a quarter circular section it axis is \_\_\_\_\_

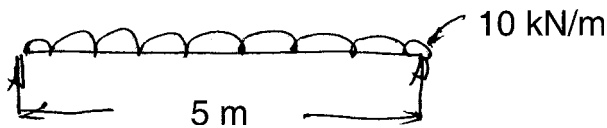
i)  $\frac{\pi}{128}d^4$

ii)  $\frac{\pi}{32}d^4$

iii)  $\frac{\pi}{64}d^4$

iv) None of above

b) Max<sup>m</sup> BM for following sketch is



i) 100 kN.m

ii) 31.25 kN.m

iii) 50 kN.m

iv) 25 kN.m

c) If the material undergoes considerable deformation without rupture is called as \_\_\_\_\_

i) Brittle

ii) Plastic

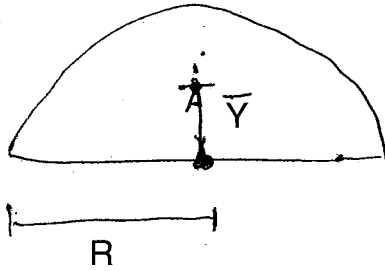
iii) Ductile

iv) Elastic



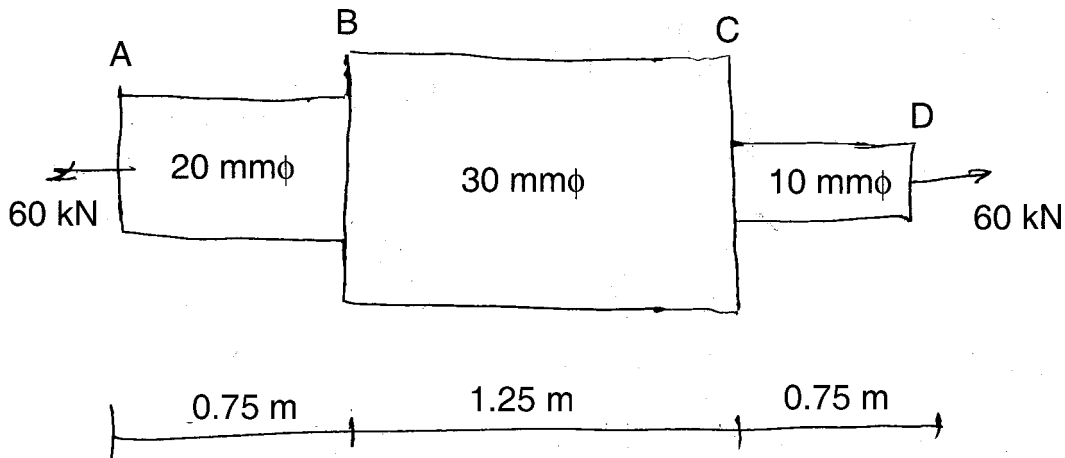
- d) The force of resistance offered by a body against deformation is called as
- i) Strain
  - ii) Modulus of elasticity
  - iii) Bulk modulus
  - iv) Stress

e) The  $\bar{y}$  for following sketch is \_\_\_\_\_



- i)  $\frac{3\pi}{4R}$
- ii)  $2\pi R$
- iii)  $\pi R^2$
- iv)  $\frac{3\pi^2}{4R}$

3. A bar is as shown in sketch subjected to axial tensile force of 60 kN. Calculate total encongation if  $\epsilon = 1.5 \times 10^5$  MPa also calculate stress in each section. **20**

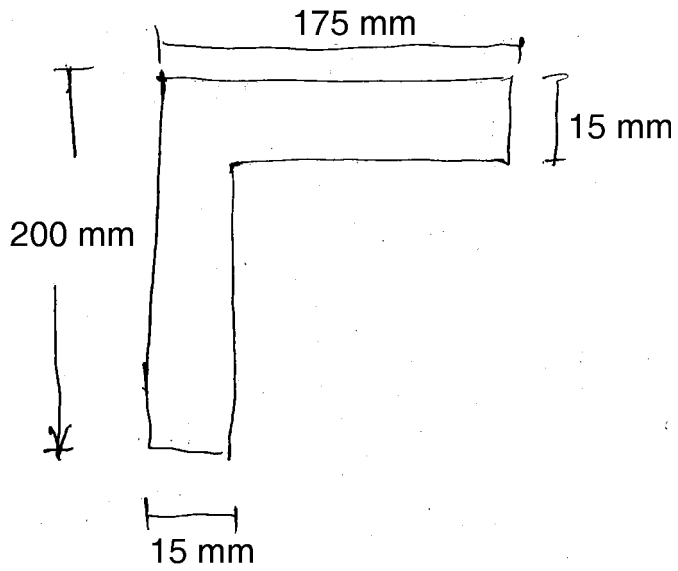


4. a) Explain behaviour of Brittle material under tension. **8**
- b) Explain in detail stress-strain diagram. **12**



5. Calculate MI at its horizontal and vertical axis passing through its C.G.

20



6. Draw SFD and BMD.

