SLR-K – 1

Seat No.	

B.Arch. (Semester – I) (CGPA Pattern) Examination, 2015
THEORY OF STRUCTURE – I

Day and Date : Monday, 7-12-2015 Total Marks : 70

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

Instructions : *1) Q.* ***1*** *and Q.* ***2*** *are* ***compulsory****.*

2) Solve ***any 3*** *questions from remaining.*

SECTION – I

1. Select correct option for the following : **7**

I) 1 MN force is equal to _____

a) 10^6 b) 10^4 c) 10^9 d) 10^3

II) The force which meet at a single point is known as _____

a) Collinear force system b) Concurrent force system

c) Non-concurrent force system d) Parallel force system

III) The equation used to evaluate type of truss is _____

a) m = 2j + 3 b) m + 3 = 2j

c) m – 2j = 3 d) m = 2j – 3

IV) Following which type of beam is _____

a) Simply supported beam b) Fixed beam

c) Cantilever beam d) Overhang beam

V) Lamis theorem can be used only when body is in _____

a) motion b) equilibrium

c) no such limitation d) none

P.T.O.

VI) The support shown below is known as _____

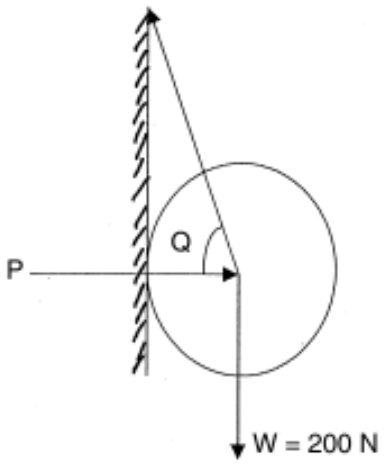
a) hinge support
b) fixed support
c) roller support
d) simple support

VII) Moment of force = Force X _____
a) Parallel distance
b) Fixed distance
c) Perpendicular distance
d) None of above

2. A) Write a note on system of forces. **6**

B) Five forces 10, 20, 30, 40 and 50 KN are acting at angle of 40°, 100°, 210°, 280° and 340° in anticlockwise direction from X-axis at a point all are acting away from the point find resultant force. **12**

3. A) A sphere of 200 N weight is suspended by wire as shown calculate reaction at wall and tension in wire if diameter of sphere = 40 cm tension in wire 50 cm long. **10**



B) Explain the term coplanar, concurrent and non-collinear forces. **5**

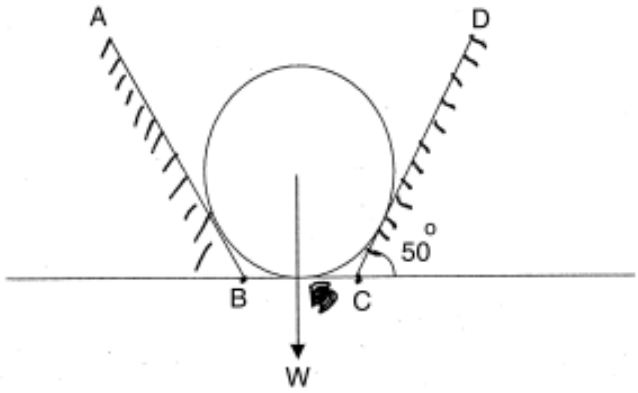
4. A) Two forces 60 N and 70 N are acting at and away from the point if angle between them is 50° find their resultant in magnitude and direction. **10**

B) Write a note on type of load considered in structure. **5**

5. A) Write a note on type of load considered in structure. **5**

   B) A simply supported beam of 8m span has U.D.L. 25 KN/m throughout the length and four point loads 100 KN, 75 KN, 50 KN, 25 KN at 1m, 3m, 5m, 7m from left hand support find end reaction. **10**

6. A) A sphere of 300 N is resting between two surfaces AB and CD as shown in fig. calculate reaction at surfaces. **10**



   B) What do you mean by perfect, imperfect and redundant frame ? Explain with example. **5**

SLR-K – 2

Seat No.	

B.Arch. (Semester – I) Examination, 2015
HISTORY OF ARCHITECTURE – I (CGPA Pattern)

Day and Date : Wednesday, 9-12-2015 Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

***Instructions** : 1) Figures to **right** indicates **full** marks*
*2) Q. No. **1** and Q. No. **2** are **compulsory.***
*3) Solve **any four** questions from the remaining.*
*4) Draw **neat** sketches **wherever** necessary.*

1. Fill in the blanks : **7**
   1) Source for food for prehistoric man was _____
   2) Building material used during Vedic period _____
   3) Egyptians believed that _____ shall return to dead body.
   4) Land between river Tigris and Euphratus known as _____
   5) _____ was main hall in citadel of Tiryns.
   6) _____ were mysterious sculptures in Egypt.
   7) Public buildings in Mohenjodaro _____

2. Write short notes on the following **(any 3)** : **15**
   1) Obelisk
   2) Houses in Mohenjodaro city
   3) Apadana Hall
   4) Clerestory in Egyptian temple.

3. Explain the term “Pre History”. Sketch and elaborate “Stone Henges”. **12**

4. Highlight the layout of palace of Sargon at Khorshabad and explain the same in detail. **12**

5. Briefly discuss the features of a Vedic Village and Vedic Huts. **12**

6. Describe constructional features of the great pyramid of Cheops at Giza. **12**

7. Explain how the river valley settlements depend on river for their development. **12**

_____

SLR-K – 3

Seat No.	

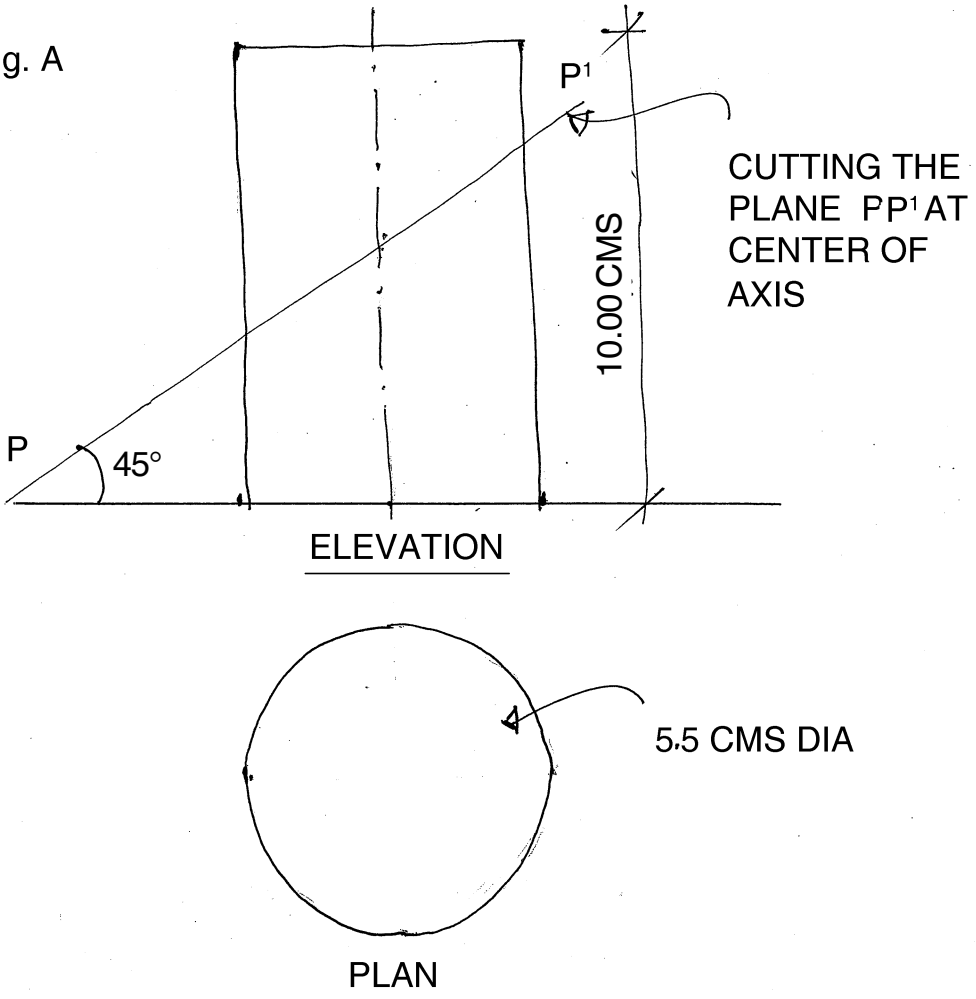
B.Arch. (Semester – II) (New CGPA) Examination, 2015
ARCHITECTURAL GRAPHICS – II

Day and Date : Tuesday, 8-12-2015 Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions *: 1)* ***All*** *questions are* ***compulsory****.*
2) Retain ***all*** *construction lines.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*
4) ***Five*** *marks are* ***reserved*** *for* ***neatness*** *and* ***good drafting****.*

1. A plane cuts the object as shown in Fig. A at PP^1. Draw plan and sectional elevation (front and side) of the cut object (scale –1 : 1). **25**

Fig. A



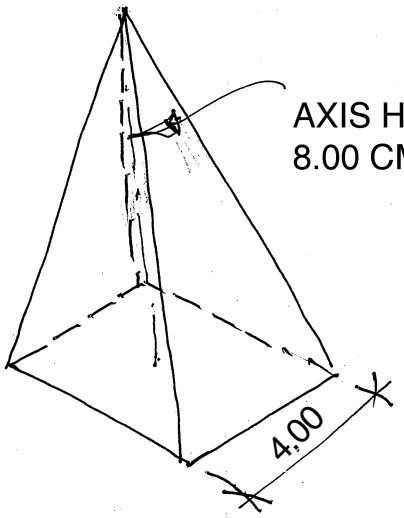
2. Draw true cut portion or development of surface of cut object from Q. No. 1 of Fig. A (Scale – 1 : 1). **10**

P.T.O.

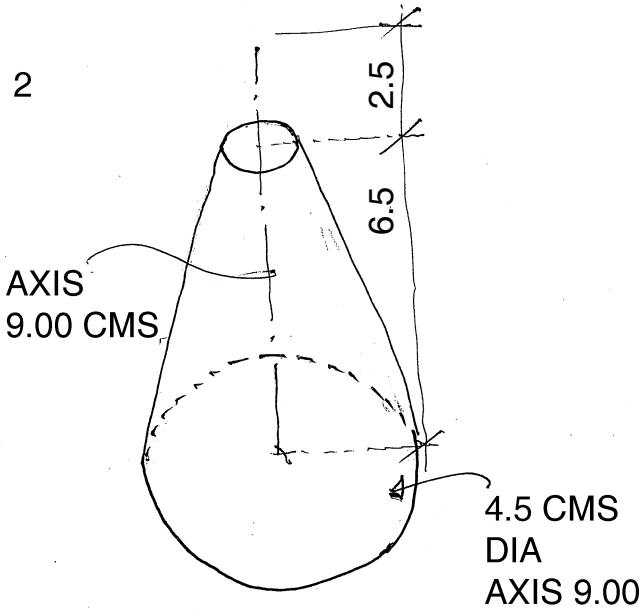
3. Draw the development of surfaces of the following objects in Fig. B (Scale – 1 : 1). **10**

Fig. B

1

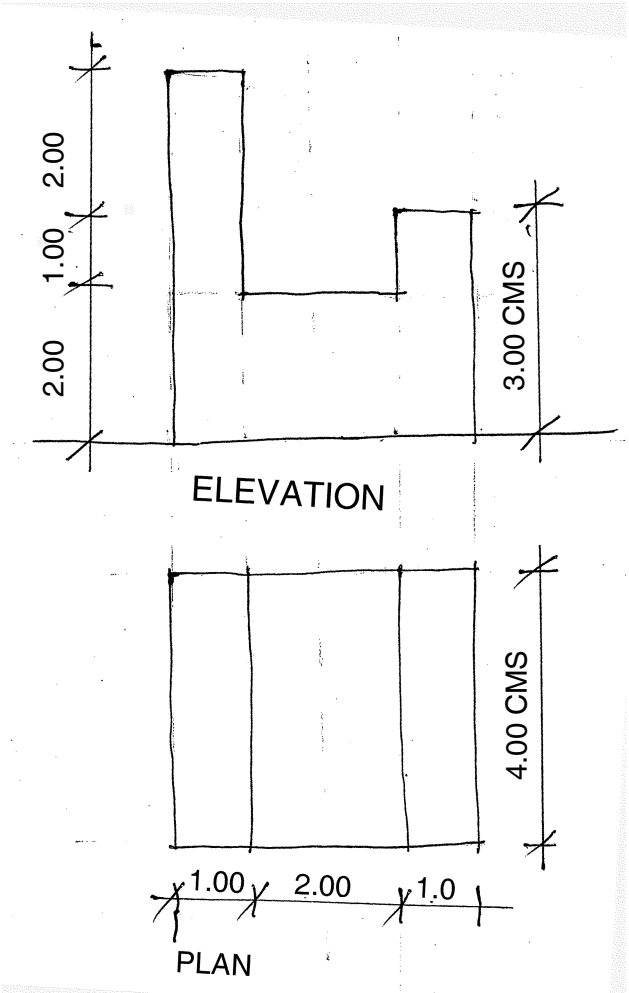


2



4. Draw isometric view of the object shown in Fig. C. **15**

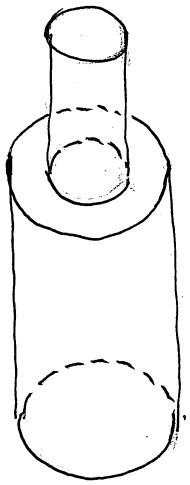
Fig. C



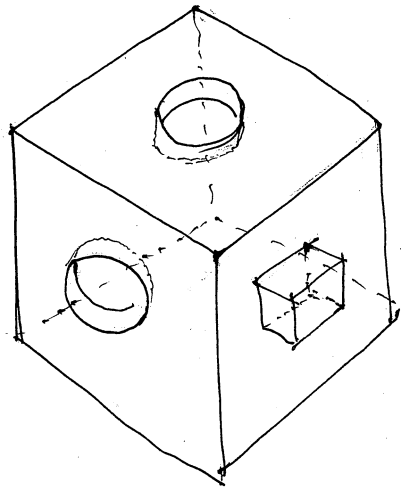
5. Mention the no. of surfaces of the following objects as shown in Fig. D. **5**

Fig. D

1



2



SLR-K – 4

Seat No.	

B.Arch. (Semester – II) (CGPA) Examination, 2015
THEORY OF STRUCTURE – II (New)

Day and Date : Thursday, 10-12-2015 Total Marks : 70

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

***Instructions**: 1) Use of Scientific Calculator is **allowed**.*
*2) Q. No. **1** and Q. No. **2** are **compulsory**. From remaining questions solve **any four**.*
*3) Figures to the **right** indicates **full** marks.*
*4) Assume suitable data **if necessary**.*

1. Select the correct option for the following : **7**

1) The ratio of direct stress to volumetric strain is known as
   a) Bulk modulus b) Shear strain
   c) Modulus of Elasticity d) None of above

2) Bending moment with point load "P" at free end for cantilever beam is
   a) Pl/4 b) Pl c) Pl^2 d) None of above

3) In Hooks law, Stress is directly proportional to
   a) strain b) bending moment
   c) both d) none

4) The maximum bending moment at centre with S.S beam carries Point load "w" at Centre is
   a) wl/4 b) wl/2 c) $wl^2/4$ d) None of above

5) The moment of inertia for a circular section about its CG is
   a) $pi \times d^4/64$ b) $pi \times b^3/12$ c) $b^3d^3/12$ d) $bd^2/12$

P.T.O.

6) The force of resistance offered by a body against the deformation is called as
   a) Strain
   b) Elasticity
   c) Stress
   d) None of above

7) The moment of inertia for a rectangular section about its CG is
   a) $b\,d^4/64$
   b) $b \times d^3/12$
   c) $b^3d^3/12$
   d) $bd^2/12$

2. Write a short note on : **15**

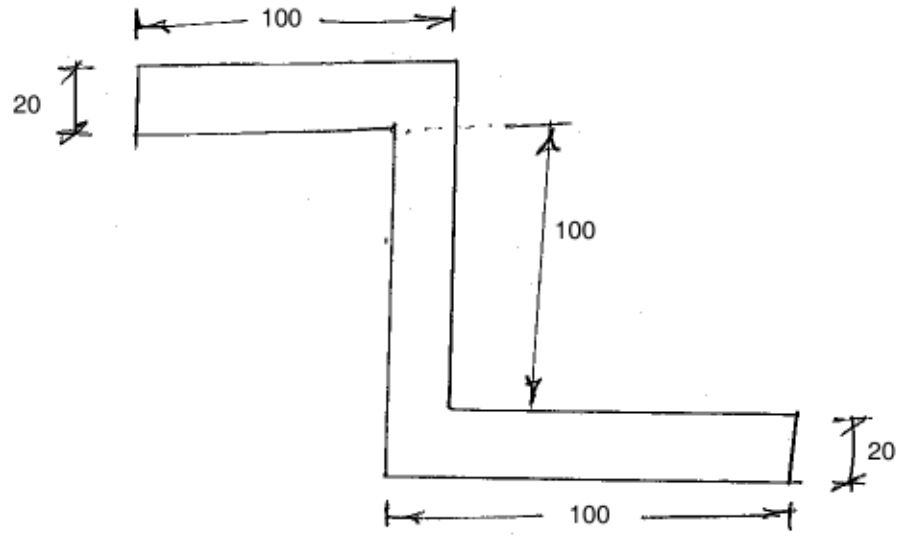
   a) Steps for finding shear force and bending moment.

   b) Parallel axis theorem.

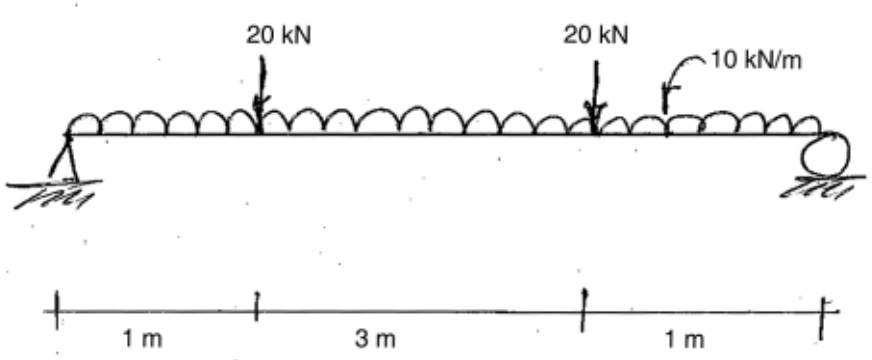
   c) Elastic constants, Youngs modulus, Poissions ratio, shear and bulk modulus.

3. A bar shown in sketch subjected to axial tensile force of 100 KN. Calculate total elongation of $\in = 1.5 \times 10^5$ MPa. Also calculate stress in AB, BC, CD. **12**

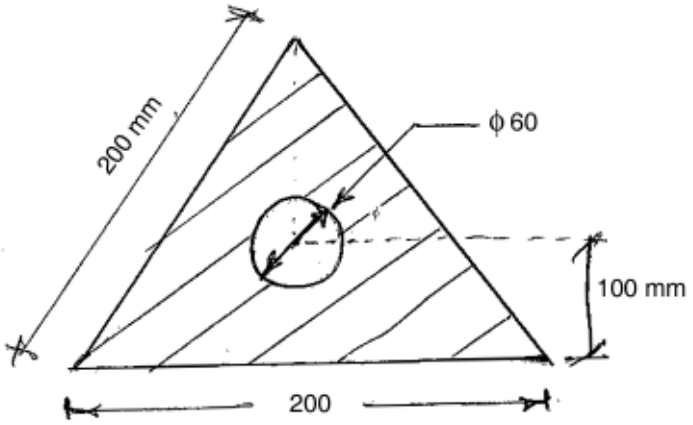
4. Calculate the centroid of following : **12**



5. Draw SFD and BMD for the following beam. **12**



6. Calculate the moment of inertia at its horizontal and vertical axis passing through its C.G. **12**



7. Explain in detail stress – strain curve and Hooks law. **12**

SLR-K – 5

Seat No.	

B.Arch. (Semester – II) Examination, 2015
HISTORY OF ARCHITECTURE – II (New CGPA)

Day and Date : Saturday, 12-12-2015 Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

***Instructions** : 1) Question No. **1** and **2** are **compulsory**.*
*2) Solve **any 4** questions from the **remaining**.*
*3) Draw **neat** sketches **wherever** necessary.*

1. Fill in the blanks : **7**

   1) Free standing rock cut rathas are located in _____
   2) The place Sanchi in Madhya Pradesh is known for _____
   3) _____ holds up the central dome of hagia sophiya.
   4) Classical Greek orders are Doric, ionic and _____
   5) Lowest division of classic entablature is _____
   6) _____ is the hall of justice in Rome.
   7) Constantinople had declared _____ as a State religion.

2. Write short notes on **any 3** : **15**

   A) Ashokan pillars
   B) Chaitya arch/window
   C) Composite order
   D) Nave and Aisles.

3. Sketch and explain any three orders of Roman Architecture. **12**

4. Sketch and describe Parthenon in Greek. **12**

5. Draw a neat sketch and explain Stupa at Sanchi. **12**

6. Explain with neat sketches Early temple shrines during Gupta Period. **12**

7. Explain architectural features of Byzantine Architecture. Explain with suitable example. **12**

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SLR-K – 7

Seat No.	

B. Arch. (Semester – II) Examination, 2015
THEORY OF STRUCTURE – II (Old)

Day and Date : Thursday, 10-12-2015 Total Marks : 80
Time : 10.00 a.m. to 1.00 p.m.

Instructions *: 1)* ***Use*** *of scientific calculator is* ***allowed****.*
2) Q. No. ***1*** *and Q. No.* ***5*** *are* ***compulsory****. From* ***remaining*** *questions solve* ***any two*** *from* ***each*** *Section.*
3) Figures to the ***right*** *indicates* ***full*** *marks.*
4) Assume suitable data ***if*** *necessary.*

SECTION – I

1. Select the correct option for the following : **8**

1) At point of contra flexure
   a) B. M. is zero b) B. M. is maximum
   c) Both d) None

2) The force of resistance offered by a body against the deformation is called as
   a) Strain b) Elasticity c) Stress d) None of above

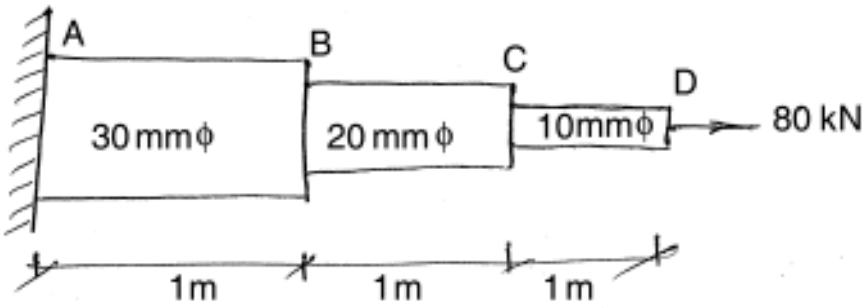
3) The maximum bending moment at centre with S. S. beam carries Point load "w" at centre is
   a) wl/4 b) wl/2 c) $wl^2/4$ d) None of above

4) The ratio of direct stress to volumetric strain is known as
   a) Bulk modulus b) Shear strain
   c) Modulus of Elasticity d) None of above

5) The moment of inertia for a circular section about its is
   a) $Pi \times d^4/64$ b) $Pi \times b^3/12$ c) $b^3d^3/12$ d) $bd^2/12$

P.T.O.

2. a) A bar shown is sketch subjected to axial tensile force of 80 KN. Calculate total elongation of $\in = 1.5 \times 10^5$ MPa. Also calculate stress in AB, BC, CD. **12**



b) A bar of 500 mm length of 20 mm ϕ is subjected by 0.8 mm due to axial pull of 20 KN. Calculate stress, strain and also modulus of elasticity. **4**

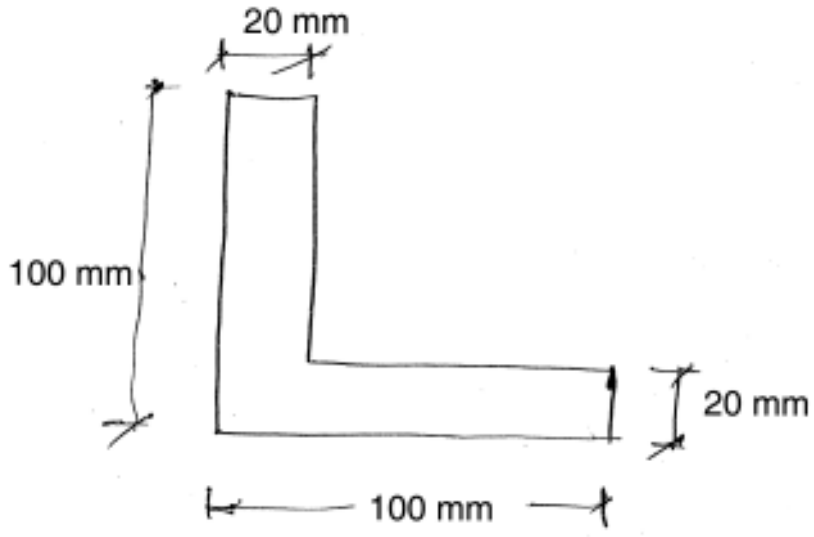
3. A metal bar 50 mm × 40 mm thick in section is subjected to axial compression of 600 KN. Contraction was found to be 0.75 mm for length of 300 mm whereas increases in thickness was 0.05 mm. Find value of Poisson ratio and also E, K and G. **16**

4. a) What do you mean by stress ? Explain the type of stresses. **4**

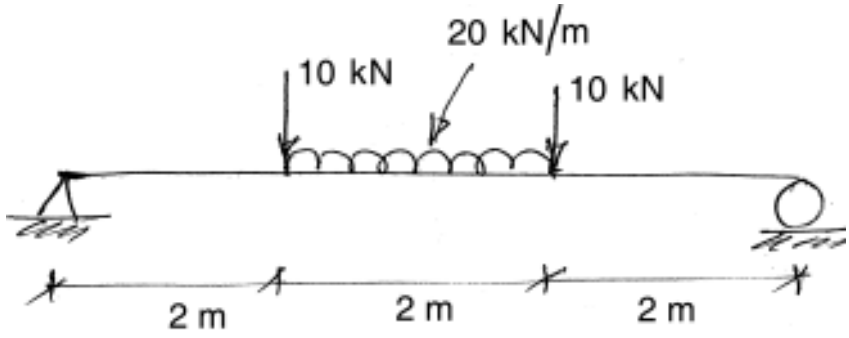
b) Explain analytical and graphical methods of finding CG of different sections. **12**

SECTION – II

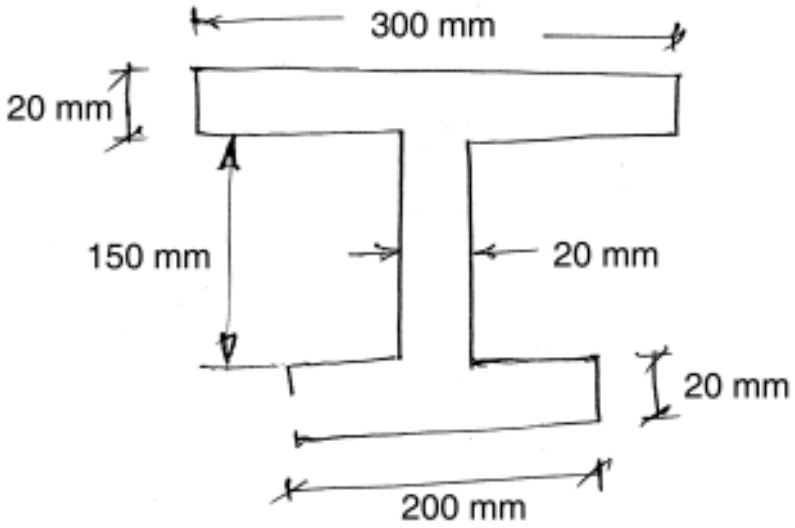
5. Calculate the centroid of following **8**



6. Draw SFD and BMD for the following beam **16**



7. a) Calculate the Moment of Inertia at its horizontal and vertical axis passing through its C.G. **12**



b) Write a note on Parallel axis theorem. **4**

8. a) Explain in detail point of contra flexure for SS beam with point load and UDL. **12**

b) Explain in detail Hooks Law. **4**

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SLR-K – 8

Seat No.	

B.Arch. (Semester – II) (Old) Examination, 2015
HISTORY OF ARCHITECTURE – II

Day and Date : Saturday, 12-12-2015 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 Roman order _____
   2) The term Nirwana Associated with _____ religion.
   3) Ladkhan and Durga temple found in the state of _____
   4) Open air market in Greek termed as _____
   5) _____ is the greatest and most splendid Church in Byzantine.
   6) Entablature consists of _____ , Frieze and Cornice.
   7) Greek temple consists of eight column in front termed as _____ temple.
   8) Arjun Ratha and _____ Ratha are situated on the same platform in Mahabaripuram.
2. Discuss characters of early Christian architecture. Explain with one example. **12**
3. Explain with neat sketch Greek orders. **12**
4. Explain with sketch constructional features of Saint Sophia at Constantinopal. **12**
5. Explain with neat sketch Roman Collosium. **12**
6. Draw plan and elevation of Great Stupa at Sanchi. Write detailed note on the same. **12**
7. Write short notes on **any three** : **12**
   A) Chaitya Arch
   B) Agora
   C) Vimana
   D) Ashokan Pillars.
8. Discuss evolution of Hindu temple architecture with reference to Gupta period in India. **12**

SLR-K – 9

Seat No.	

B.Arch. (Semester – II) Examination, 2015
BUILDING CONSTRUCTION AND MATERIAL – II (Old)

Day and Date : Monday, 14-12-2015 Max. Marks : 50
Time : 10.00 a.m. to 1.00 p.m.

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

1. Draw an elevation of brick arch for a span of 1.5 m showing all its nomenclature and define any five. **15**

2. Fill in the blanks : **5**
   i) _____ are the pieces of timber which extend form the eaves to the ridge.
   ii) _____ piers are independent of the walls.
   iii) _____ is the vertical member fixed between string and handrail to give support to the handrail.
   iv) _____ is the vertical member of the shutter of a door or window.
   v) _____ is a sloping or stepped pier provided to work as lateral support of the wall.

3. Explain the classification of lime. **10**

4. Classify various types of sand. **10**

5. Define the following terms batten, eaves, hip, ridge, valley. **10**

6. Differentiate between : **10**
   i) Transom and mullion
   ii) Frame and style
   iii) Ledged battened and ledged battened braced.

SLR- K – 10

Seat No.	

B.Arch. (Semester – III) Examination, 2015
(New CGPA)
ARCHITECTURAL GRAPHICS – III

Day and Date : Monday, 7-12-2015 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N. B. *: 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 quality.*
5) ***Make*** *suitable assumptions* ***wherever*** *required.*

1. Draw the ONE POINT perspective view of the object by observing following points/conditions. (Figure - A) : **15**

   a) A plane makes angle as shown in the figure.

   b) The picture plane touches the object at point 'X'.

   c) The station point is 12.00 cms away from 'x'.

   d) The eye level is 12.00 cms above ground level.

2. Draw the TWO POINT perspective view of the object by observing following points/conditions (Figure-B) : **30**

   e) A plane makes angle as shown in the figure.

   f) The picture plane touches the object at point 'X'.

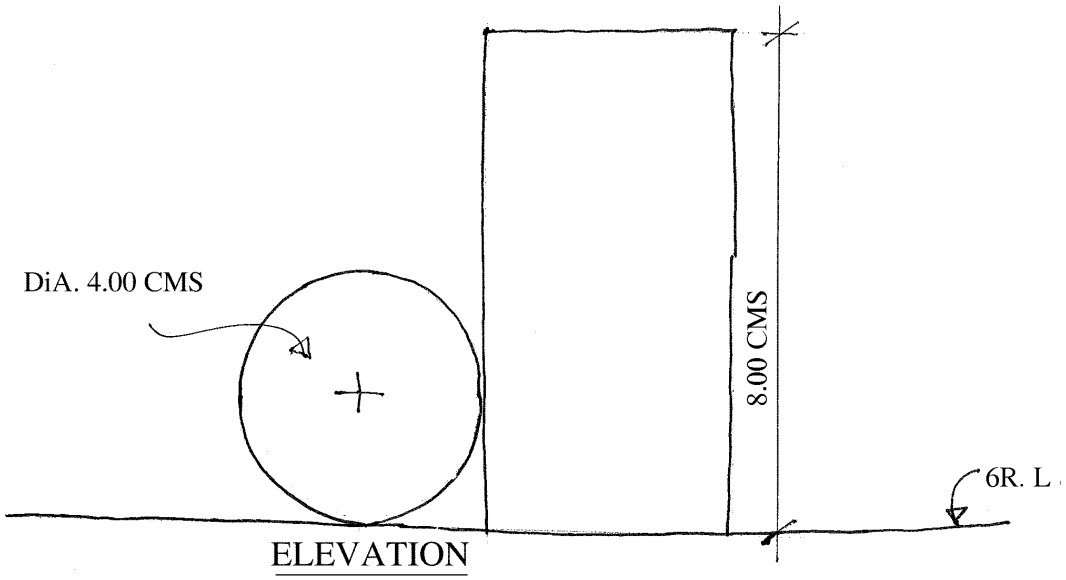
   g) The station point is 15.00 cms away from 'x'.

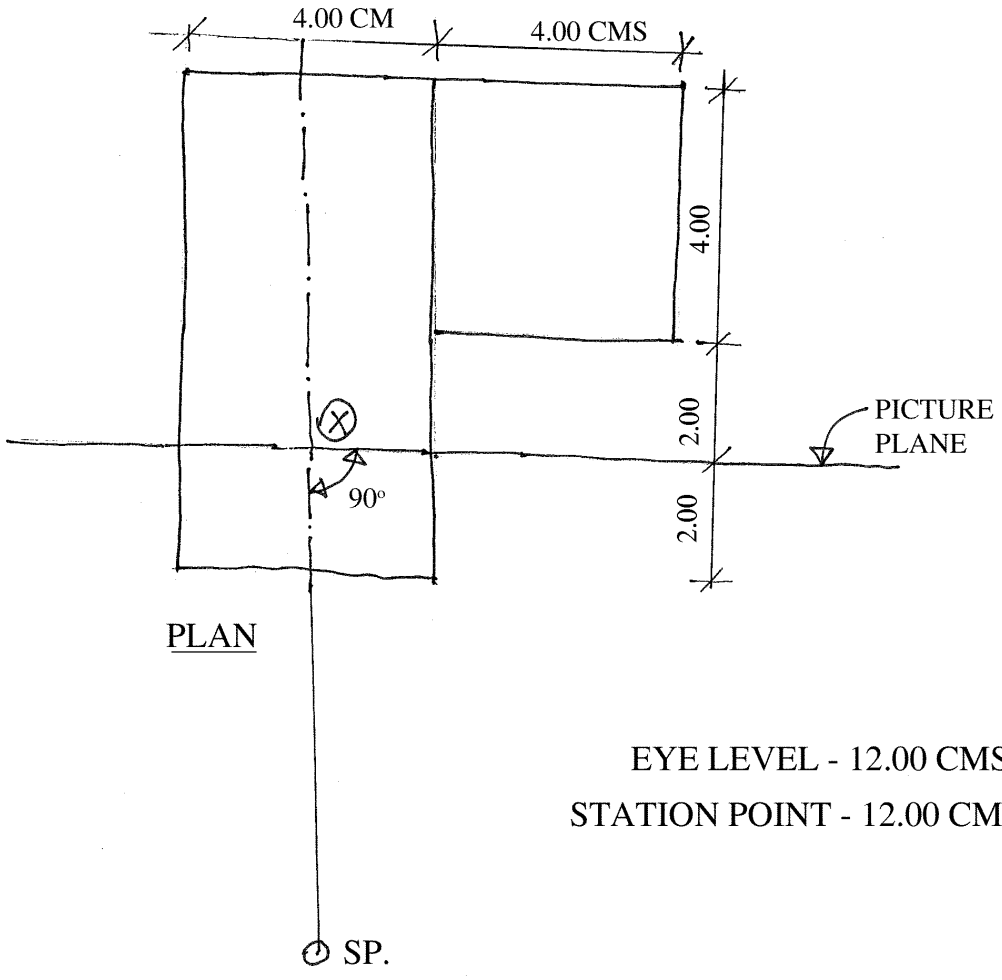
   h) The eye level is 13.00 cms above ground level.

3. Draw shade and shadow of the object in (Figure C) in plan and elevation considering the source of light is in conventional direction on the vertical and horizontal planes of the object. **20**

P.T.O.

FIG. A

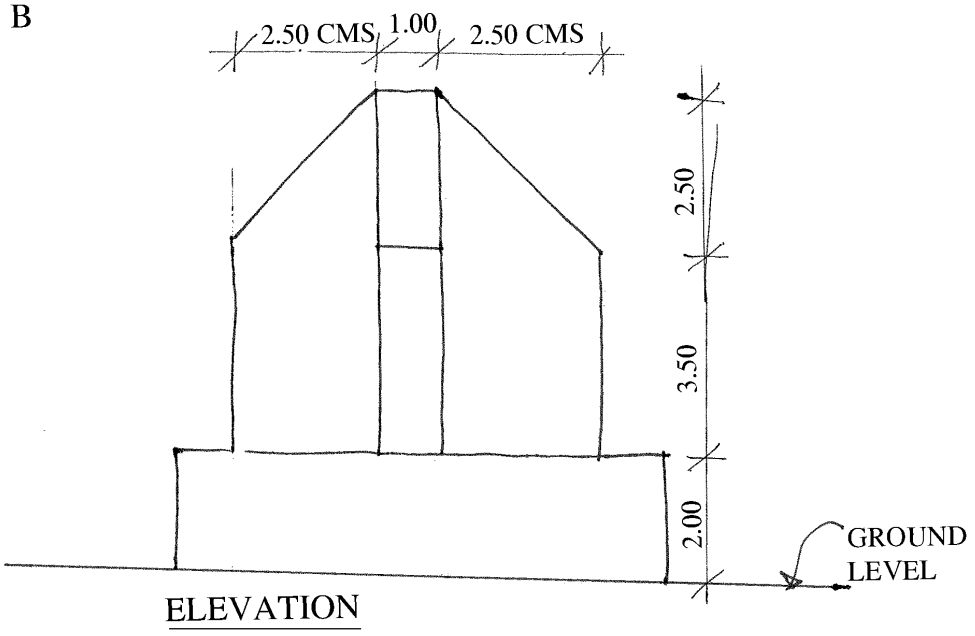




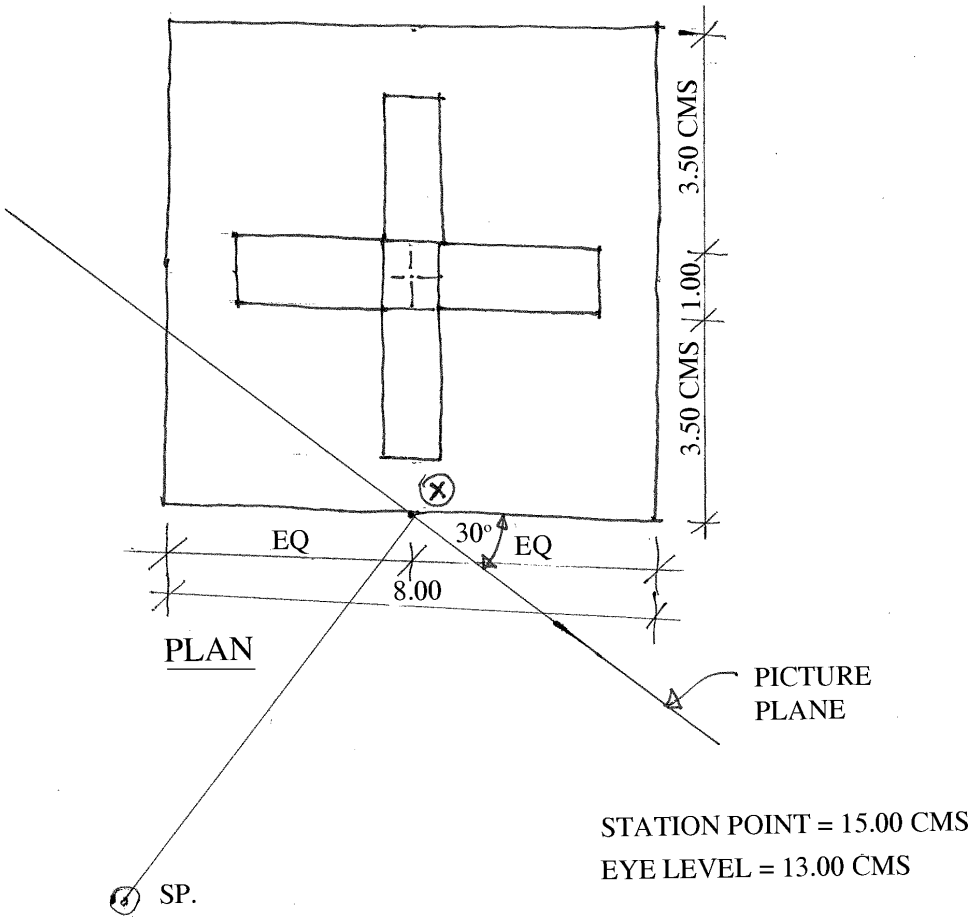
EYE LEVEL - 12.00 CMS

STATION POINT - 12.00 CMS

FIG. B



ELEVATION

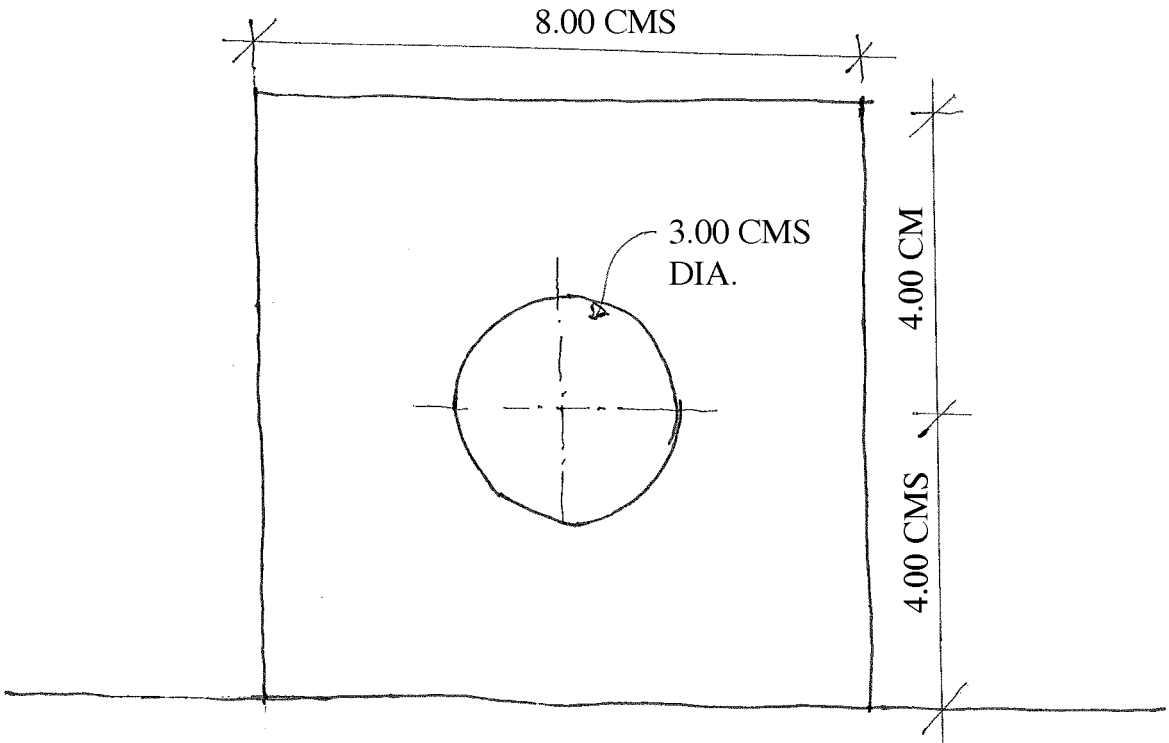


PLAN

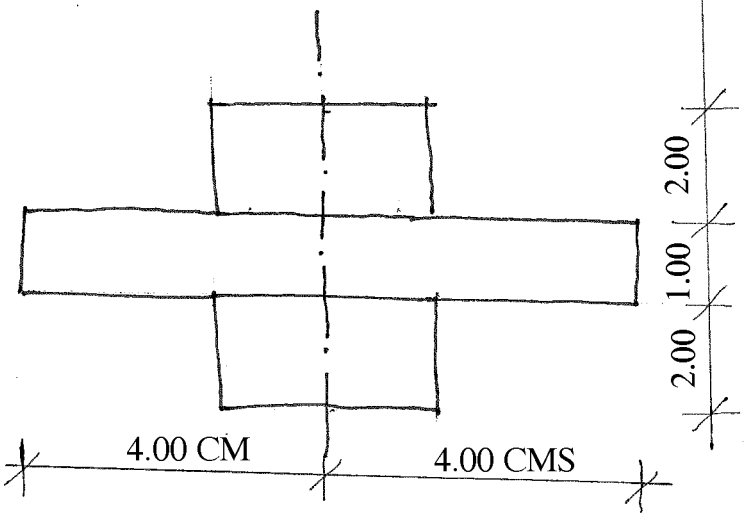
STATION POINT = 15.00 CMS

EYE LEVEL = 13.00 CMS

FIG. C



ELEVATION



PLAN

SLR-K – 11

Seat No.	

B.Arch. (Semester – III) Examination, 2015
BUILDING SERVICES – I (CGPA) (New)

Day and Date : Wednesday, 9-12-2015 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

***Instructions** : 1) Q. No. **1** and Q. No. **2** are **compulsory**.*
*2) Answer **any 4** from the following.*
*3) Draw **neat** sketches **wherever** necessary.*

1. Fill in the blanks. **7**

   1) Anti-siphonge pipe is installed in the house _____ to preserve water seal.

   2) Soil pipe carries discharges from _____ fittings such as urinals, wc.

   3) Invert is the _____ level of sewer.

   4) Waste pipe carries water discharge from _____, _____

   5) The underground conduits or drains through which _____ is conveyed are known as sewers.

   6) Garbage is _____ refuse.

   7) Cowl is a _____ part of a ventilation shaft.

2. Write short notes on **(any 3)** : **15**

   1) wash basin

   2) bowl type urinal

   3) bath tub

   4) w.c.

P.T.O.

3. Explain with neat sketches : **12**
   a) perpendicular pattern
   b) radial pattern
   c) interceptor pattern of

4. Explain combined and separate system of sewerage. **12**

5. Explain any three sections of sewers with neat sketches. **12**

6. Explain working of flushing tank with neat sketch. **12**

7. Explain with neat sketch P, Q, S TRAP. **12**

SLR-K – 12

Seat No.	

B.Arch. (Semester – III) Examination, 2015
THEORY OF STRUCTURE – III (New – CGPA)

Day and Date : Friday, 11-12-2015 Total Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***Use*** *of Scientific Calculator is* ***allowed****.*
2) Q. No. ***1*** *and* ***2*** *are* ***compulsory****. From remaining questions solve* ***any four****.*
3) Figures to the ***right*** *indicates* ***full*** *marks.*
4) Assume suitable data ***if necessary****.*

1. Select the correct option for the following : **8**

   1) A rectangular bar of width *b* and height *h* is being used as a cantilever. The loading is in a plane parallel to the side *b*. The section modulus is

      A) $\frac{bh^3}{12}$ B) $\frac{bh^2}{6}$ C) $\frac{b^2h}{6}$ D) None of these

   2) A three-hinged arch is said to be
      A) Statistically determine structure
      B) Statistically indeterminate structure
      C) A bent beam
      D) None of these

   3) If the shear force along a section of a beam is zero, the bending moment at the section is
      A) zero B) maximum C) minimum D) none

   4) The shear stress formula is given by
      A) SAY/Ib B) SAY/ZB C) SAY/Ab D) None of these

2. Explain the concept of soil mechanics and what are different types of soils. **6**

3. a) Derive the equation for modulus of circular section of diameter "D". **6**

   b) What is length of the beam if it has moment of inertia 70×10^7 mm and depth 600 mm. The simply supported beam is carrying UDL of 70 kN/m^2 and its maximum stress does not exceed 100 N/mm^2. **8**

P.T.O.

4. a) Explain the concept of pure bending. **4**

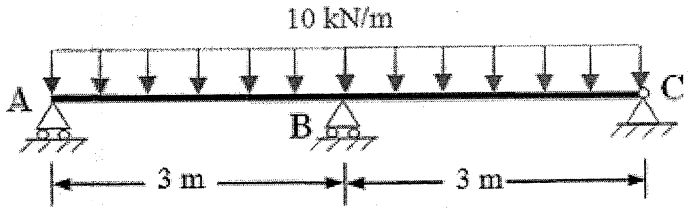
   b) Draw the shear stress diagram for the "T" section of flange 20 mm × 500 mm and web 20 mm × 600 mm when acted by maximum shear force of 30 kN. **10**

5. Write a short note on : **14**

   a) Arches and Domes

   b) Normal and Tangential stresses when a member is subjected to axial load.

6. Draw the shear force and bending moment diagram for following beam. **14**



7. a) The principle stresses at point in bar are 200 N/mm^2 (Tensile) and 150 N/mm^2 (Compressive). Determine resultant stress in magnitude and direction on a plane inclined at angle of 45 degree to the axis of major principle stresses. **10**

   b) Show graphically, the relation between normal, tangential and resultant stresses. **4**

———————

SLR-K – 13

Seat No.	

B. Arch. (Semester – III) Examination, 2015
HISTORY OF ARCHITECTURE – III
(New – CGPA)

Day and Date : Monday, 14-12-2015 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Question no.* ***1*** *is* ***compulsory****.*
2) Draw ***neat*** *sketches* ***wherever*** *necessary.*

I. Fill in the blanks : **7**

a) The temple Shikhara uses _____ technique for its building.

b) The pavilion for assembly in Indian temple architecture is known as _____ mandapa.

c) Jain temples were based on the _____ principle of planning.

d) The windows in Gothic architecture were decorated with _____ glass.

e) _____ mandir was the part of Indo-Aryan temple where dance was performed as an offering to the gods.

f) The entrance gateways in a Dravidian temple are known as _____

g) _____ temples are called as star temples.

II. Write short notes on **(any 3)** : **15**

1) Evolution of the Hindu temple.

2) The thousand pillared hall of Madurai.

3) Make a comparative analysis of Gothic and Renaissance architectural style.

4) Characteristics of Pida deul and Jagamohana.

III. Explain in brief with neat sketches **(any 4)** : **(12 marks each)**

1) Khanderiya Mahadeva temple at Khajuraho.

2) Gothic church and its structure.

3) Sun temple at konark.

4) Kailasha temple at Ellora.

5) Vaikuntha perumal temple at Kanchipuram.

_____

SLR-K – 14

Seat No.	

B. Arch. (Semester – III) Examination, 2015
CLIMATOLOGY AND ENVIRONMENT – I (New – CGPA)

Day and Date : Wednesday, 16-12-2015 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Make **suitable** assumptions **wherever** necessary and mention in your answer book.*
*2) Figures to **right** indicates **full** marks.*
*3) Question **1** and **2** are **compulsory**, answer **any 4** from **remaining**.*

1. Fill in the blanks : **7**

1) Addition of moisture in air _____ temperature.
   a) decrease b) neutral
   c) increase d) no change

2) Wind velocity is measured by _____
   a) pitot tube b) wind guage
   c) wind graph d) bioclimatic chart

3) Stack effect refers to _____
   a) cross ventilation b) window
   c) courtyard d) duct

4) Air temp (DBT) at day time varies between _____ degC in hot and dry climates.
   a) 32-43 b) upto 27 c) 21-27 d) Nov-22

5) _____ is measured by Stevenson screen.
   a) DBT b) WBT
   c) Radiation d) humidity

6) _____ is due to heat transmission from body to air in contact with skin.
   a) Evaporation b) Reflection
   c) Convection d) None of the above

7) DBT is measured in _____.
   a) outdoor b) bottle
   c) shade d) none of the above

P.T.O.

2. Write short note on **any 3** : **15**

   1) Body's heat loss.

   2) Explain wind flow.

   3) Humidity.

   4) Psychometric chart.

3. A) Find WBT VP AH when RH-60% and DBT is 18°C using psychometric chart. **6**

   B) Write in brief - Bio climatic chart. **6**

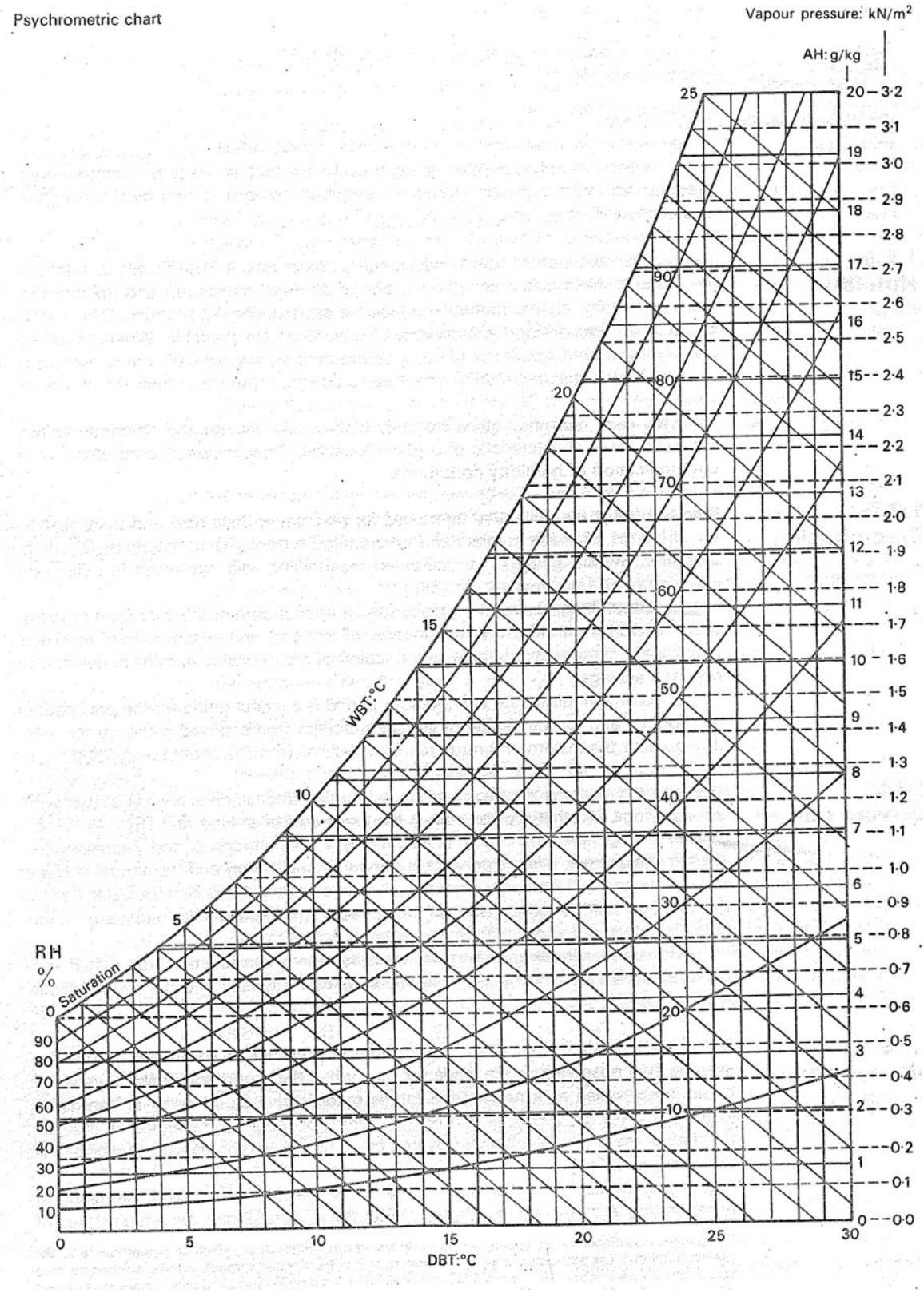
4. Explain composite climate. **12**

5. A) Explain tilt of the earths axis. **6**

   B) Explain earth's thermal balance. **6**

6. How to select design strategies for Cold and cloudy climate ? **12**

7. Explain orientation and placing building at site context according to climate **12**


Psychrometric chart
Vapour pressure: kN/m²
AH: g/kg
WBT:°C
RH
%
Saturation
DBT:°C
0
5
10
15
20
25
30
90
80
70
60
50
40
30
20
10
1·0
0·9
0·8
0·7
0·6
0·5
0·4
0·3
0·2
0·1
0·0
1·1
1·2
1·3
1·4
1·5
1·6
1·7
1·8
1·9
2·0
2·1
2·2
2·3
2·4
2·5
2·6
2·7
2·8
2·9
3·0
3·1
3·2

SLR-K – 15

Seat No.	

B.Arch. (Semester – III) Examination, 2015
ARCHITECTURAL GRAPHICS – III (Old)

Day and Date : Monday, 7-12-2015 Max. Marks : 50
Time : 3.00 p.m. to 6.00 p.m.

N.B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Retain ***all*** *construction lines.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*
4) ***Five*** *marks are reserved for neatness and good drafting* ***quality****.*
5) Make suitable assumptions ***wherever*** *required.*

1. Draw the perspective view of the object by observing following points/conditions (Figure - A) :

   a) A plane makes angle as shown in the figure

   b) The picture plane touches the object at point 'X'

   c) The station point is 150 MM away from 'x'

   d) The eye level is 130 MM above around level. **25**

2. Draw shade and shadow of the object in (Figure B) in plan and elevation considering the source of light is in conventional direction on the vertical and horizontal planes of the object. **20**

P.T.O.

Fig. A

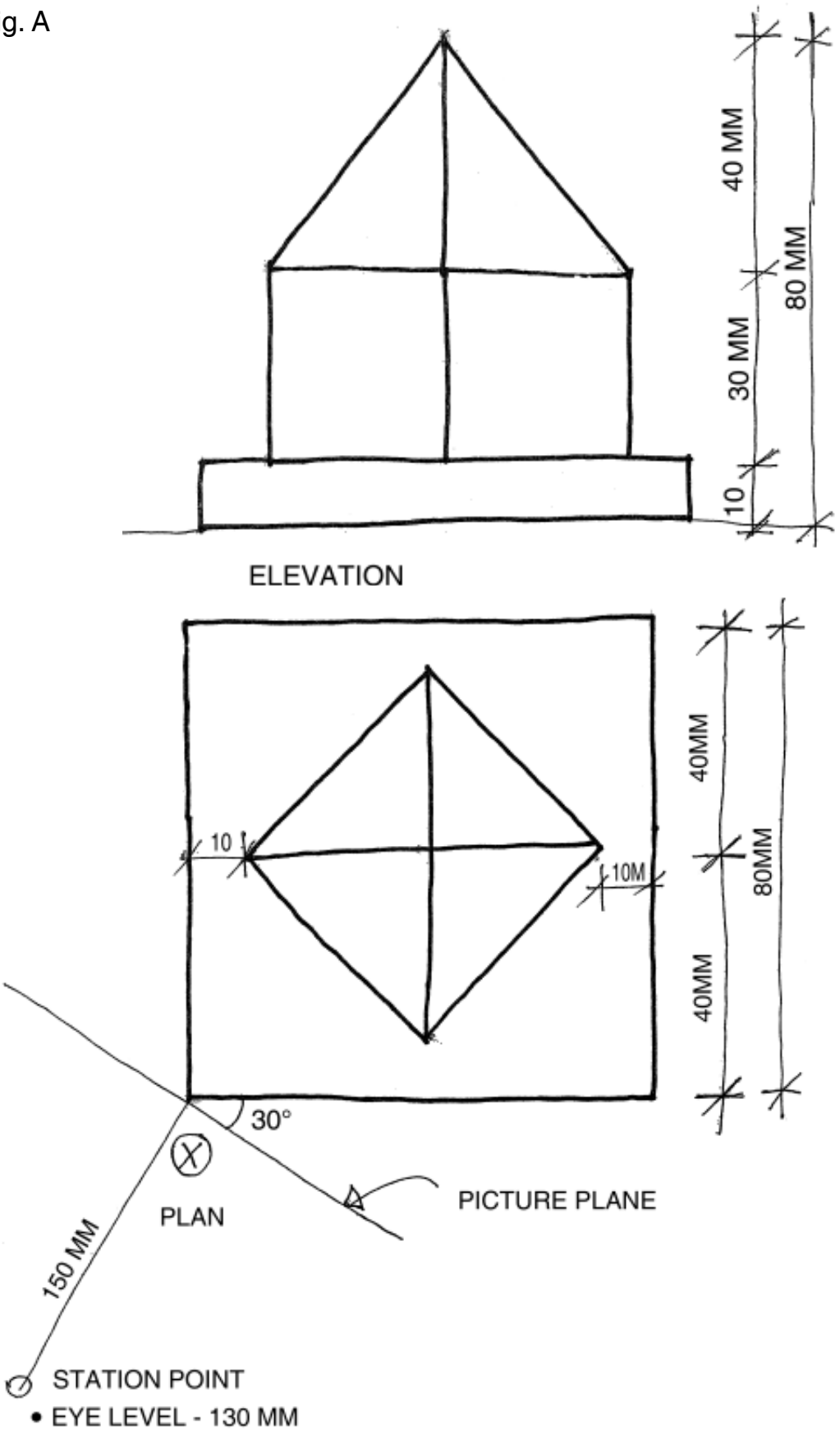
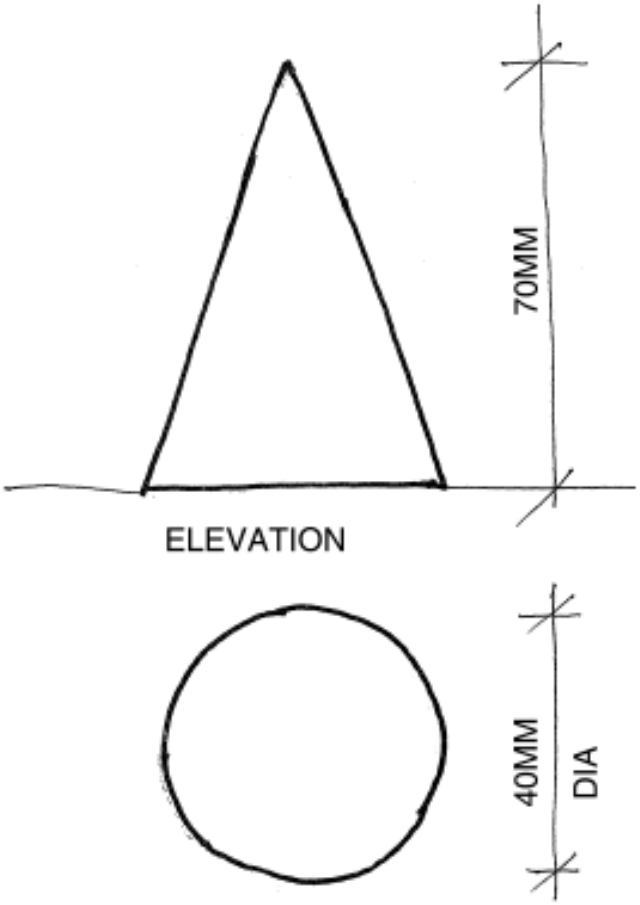
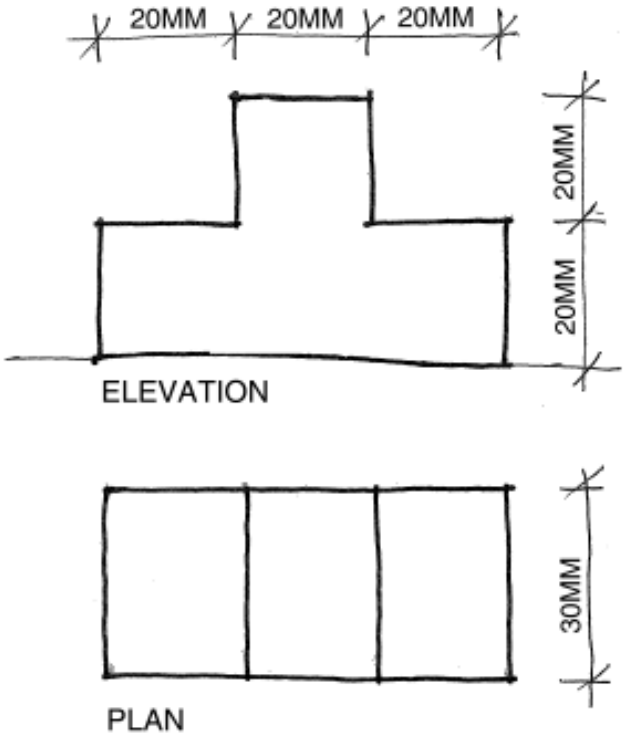

40 MM
80 MM
30 MM
10
ELEVATION
40MM
80MM
40MM
10
10M
30°
PLAN
PICTURE PLANE
150 MM
STATION POINT
• EYE LEVEL - 130 MM

Fig. B

1.


70MM
ELEVATION
40MM
DIA
PLAN

2.


20MM
20MM
20MM
20MM
20MM
ELEVATION
30MM
PLAN

SLR-K – 16

Seat No.	

B.Arch. (Semester – III) (Old) Examination, 2015
BUILDING CONSTRUCTION AND MATERIAL – III

Day and Date : Wednesday, 9-12-2015 Max. Marks : 50
Time : 3.00 p.m. to 6.00 p.m.

1. Fill in the blanks :
   1) Upper portion of a step is known as _____
   2) A combination of tread and riser is _____
   3) _____ is an example of natural flooring.
   4) Thickness of structural slab in case of RCC stair is known as _____
   5) For 1:3:6 concrete, 1 is cement, 3 is sand and 6 is _____
2. Draw a teak wood paneled door of size 1.50 m × 2.40 m, draw plan, elevation, section to the scale 1 : 10.
3. a) Block board and its use.
   b) Function of mortar.
4. Explain properties of cement mortar and its application.
5. Write short note on :
   1) Types of staircase based on material.
   2) Different types of flooring material.
   3) Explain water proofing treatment.

OR

5. Explain use and application of timber in building construction.

_____

SLR-K – 17

Seat No.	

B.Arch. (Semester – III) (Old) Examination, 2015
THEORY OF STRUCTURE – III

Day and Date : Friday, 11-12-2015 Max. Marks : 80

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

***Instructions**: 1) Q. **1** and Q. **5** are **compulsory**.*

*2) Solve (**any 2**) questions from remaining in Section **I** & **II**.*

*3) Assume suitable data **wherever** necessary.*

SECTION – I

1. Solve the following objectives : **8**

   i) In assumption of theory of simply bending "Each layer of beam is free to expand and contract is _____

   a) True b) False c) May be true d) N.A.

   ii) The shear stress formula _____

   a) $\frac{SA\bar{Y}}{\in B}$ b) $\frac{SA\bar{Y}}{7B}$ c) $\frac{SA\bar{Y}}{B}$ d) N.A.

   iii) The principle stress with greater magnitude is called _____

   a) Minor b) Major c) Greater d) N.A.

   iv) There are mainly _____ types of Arches.

   a) Six b) Three c) Four d) N.A.

2. A) A simply supported beam with regular cross section, 300 $\times$ 500 mm carries UDL of 15 kN/m over span of 6 m. Find the maximum bending stress induced in beam. **12**

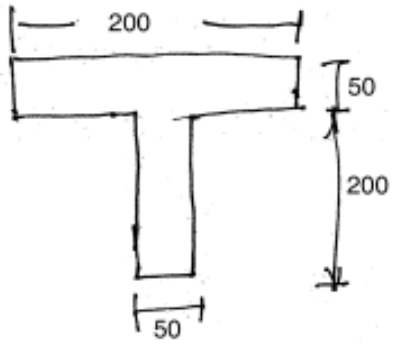
   B) Explain modulus of section and write a formula for modulus of section of rectangular section. **4**

P.T.O.

3. A) Write the formula and explain the concept of member subjected to principle stresses. **6**

   B) The principal stresses at the certain point in strained material 150 N/mm^2 and 48 N/mm^2 both tensile. Find the normal and tangential stresses on plane inclined at 20° with major principle plane. **10**

4. T section is as shown in sketch which carries a shear force of 100 kN. Draw shear stress distribution diagram. **16**



SECTION – II

5. Explain the concept of three hinged Arches. **8**

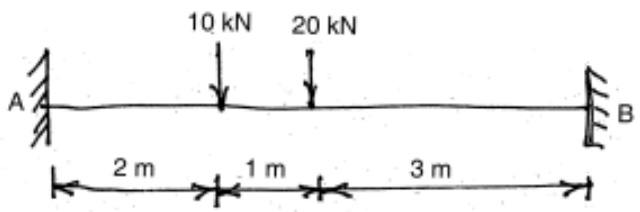
6. A) Explain the concept of earth pressure and types of earth pressure. **8**

   B) What are different types of soil and their properties. **8**

7. A) Explain concept of fixed and continuous beams. **8**

   B) Explain concept of chimneys and domes. **8**

8. Draw SFD and BMD for fixed beam having 6 m span shown in fig. **16**



SLR-K – 18

Seat No.	

B.Arch. (Semester – III) Examination, 2015
HISTORY OF ARCHITECTURE – III (Old)

Day and Date : Monday, 14-12-2015 Total Marks : 80

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

***Instructions**: 1) Q. No. **1** is **compulsory**.*
*2) Answer **any 6** question from the remaining.*

1. Fill in the blanks : **8**

   a) The most striking feature of Brihadeshwar temple is _____

   b) Hoysala temples are also known as _____

   c) Mandapa in indo-aryan style is known as _____

   d) The perfect example of Hoysala style is _____

   e) _____ is the hall for dance.

   f) The building material used for Hoysala temples is _____

   g) _____ devices are used to counter the outward thurst of domes in Gothic architecture.

   h) The first Tirthankar of Jain religion is _____

2. Explain in detail with sketches (**any 6**) : **(6×12=72)**

   i) Write short notes with sketches (**any 3**) :

      a) Columns of the Hoysala temple

      b) The bronze sculpture of the cholas

      c) Thousand pillared hall of Madurai

      d) The buttress of gothic architecture

      e) Stained glass windows of gothic churches and cathedrals.

P.T.O.

ii) Explain the Lingaraj temple in Bhubaneswar.

iii) Explain the great temple of Brihadeshwar temple at Tanjore.

iv) Explain with sketches the Westminister Abbey in London.

v) Discuss the method of construction of Indo Aryan shikaras.

vi) Explain with neat sketch the buttress of gothic architecture.

vii) Sketch only : The Saint Peters at Rome.

viii) Discuss various characters of Jain temples with a suitable example.

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SLR-K – 19

Seat No.	

B.Arch. (Semester – III) Examination, 2015
CLIMATOLOGY AND ENVIRONMENT – I (Old)

Day and Date : Friday, 18-12-2015 Max. Marks : 80

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

***Instructions** : 1) Make suitable assumptions **wherever** necessary and mention in your answer book.*

*2) Figures to **right** indicate **full** marks.*

*3) **All** questions are **compulsory**.*

1. A) Fill in the blanks. **8**

1) _____ on 23.5 N latitude experienced longest day on earth.
   a) 21 June b) 21 September
   c) 21 May d) 23 March

2) Wind velocity is measured by _____.
   a) pitot tube b) wind guage
   c) wind graph d) bioclimatic chart

3) Temperature is measured in _____.
   a) Degree Celsius b) BTU
   c) Watts d) Celsius

4) DBT is measured in _____.
   a) Outdoor b) Bottle
   c) Shade d) None of the above

5) _____ is due to heat transmission from body to air in contact with skin.
   a) Evaporation b) Reflection
   c) Convection d) None of the above

6) SI unit of radiation is _____.
   a) w/m^2 b) BTU
   c) w/hr d) none of the above

7) Air temp. (DBT) at day time veries between _____ deg C in hot and dry climates.
   a) 32 – 43 b) up to 27
   c) 21 – 27 d) Nov. 22

8) _____ is measured by Stevenson screen.
   a) DBT b) WBT
   c) Radiation d) Humidity

B) Answer in **one** sentence. **7**

1) Evaporative cooling.
2) What is DBT ?
3) What is Diurnal Range ?
4) Equinox days.
5) Cosine law.
6) What is radiation ?
7) Transmittance.

2. A) Find WBT RH AH when VP-1.6 kN/kg and DBT is 20° C using psychometric chart. **8**

   B) What is micro climate ? Explain in short. **7**

3. A) Give three design strategies for hot and dry climate. **8**

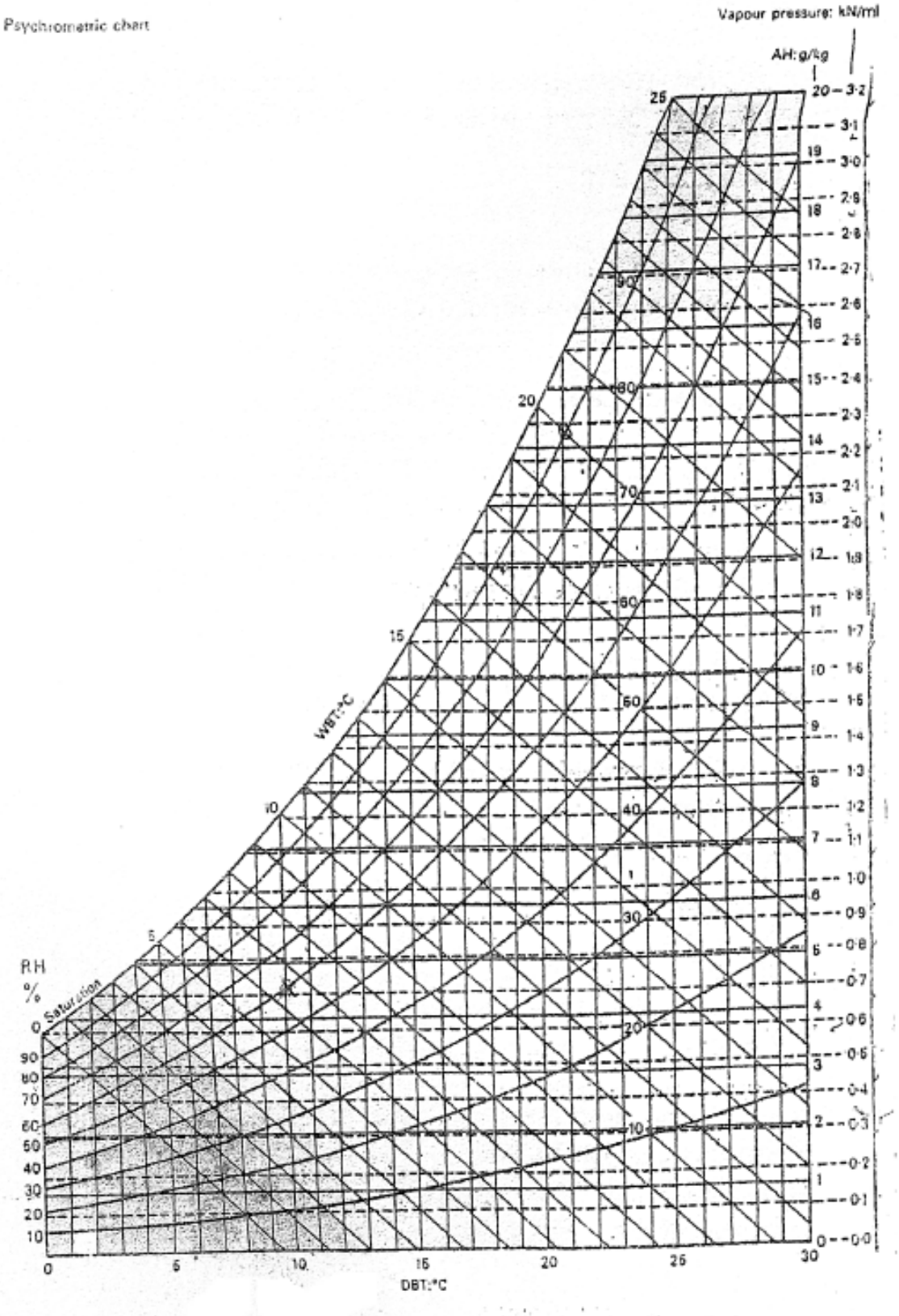
   B) Explain how sun path diagram will help in shading device design. **7**

4. Explain wind as thermal forces with global wind pattern. **15**

5. Write short note on **any 4** : **20**

   1) Humidity.
   2) How to derive bioclimatic strategies ?
   3) The Stevenson Screen.
   4) The Kata thermometer.
   5) Composite climate.

Psychrometric chart



SLR-K – 20

Seat No.	

B.Arch. (Semester – III) (Old) Examination, 2015
BUILDING SERVICES – I

Day and Date : Monday, 21-12-2015 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

1. A) Fill in the blanks : **4**
   1) A trap provided at junction house sewer and municipal sewer is _____
   2) _____ pipe is installed for purpose of ventilation in the sewer.
   3) Name any one pattern of sewage collection system _____
   4) Top of vent pipe is covered with _____

   B) Answer in **one** sentence : **4**
   1) Waste pipe
   2) Garbage
   3) Sewage
   4) Trap.

2. Enlist the various types of sanitary fittings. Describe any one with neat sketch. **12**

3. Enlist different types of privy's. Explain pit privy with neat sketch. **12**

4. a) State merits and demerits of conservancy system. **6**
   b) State merits and demerits of water carriage system. **6**

5. Write short notes : **12**
   1) Man hole
   2) Flushing tank
   3) Stall type urinal.

6. a) Define antisiphonge pipe. Discuss where and why it is used. **8**
   b) Explain in detail designing of septic tank. **7**

7. Explain with neat sketches systems of plumbing. **9**

SLR-K – 21

Seat No.	

B.Arch. (Semester – III) Examination, 2015
ARCHITECTURAL DESIGN – III (Old)

Day and Date : Wednesday, 16-12-2015 Total Marks : 100

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

Instructions *: 1) The candidates are required to submit the concept and rough scheme and final presentation.*

2) ***Assume*** *suitable data* ***wherever*** *necessary.*

PRE-SCHOOL AND DAY CARE CENTER AT SOLAPUR

Wonder Kids, a Pre-School chain wants to set up a Pre-School and Day Care center in Solapur city for the Kids of age group 2 – 5 years. The Center will have a Pre-School in the morning from 8:00 a.m. – 11:00 a.m. and later in the day will cater to the requirement of the working mothers by providing them with 'Day Care' facility where they can safely leave their children in playful and hygienic environment the entire day when they are out for work.

Brief :

A) PRE-SCHOOL :

1) Entrance Lobby and reception desk – 5 SQM
2) Store for bags and shoes – 5 SQM
3) Class room :
    i) Playgroup – 20 kids – 30 SQM
    ii) Nursery – 20 kids – 30 SQM.
4) Toilet as per requirements for boys and girls – 10 SQM
5) Outdoor semi-covered play area.

P.T.O.

B) DAY-CARE :

1) Activity room – 30 SQM
2) Sleep Room for 20 kids – 30 SQM
3) Two Toilets with bathing – 10 SQM

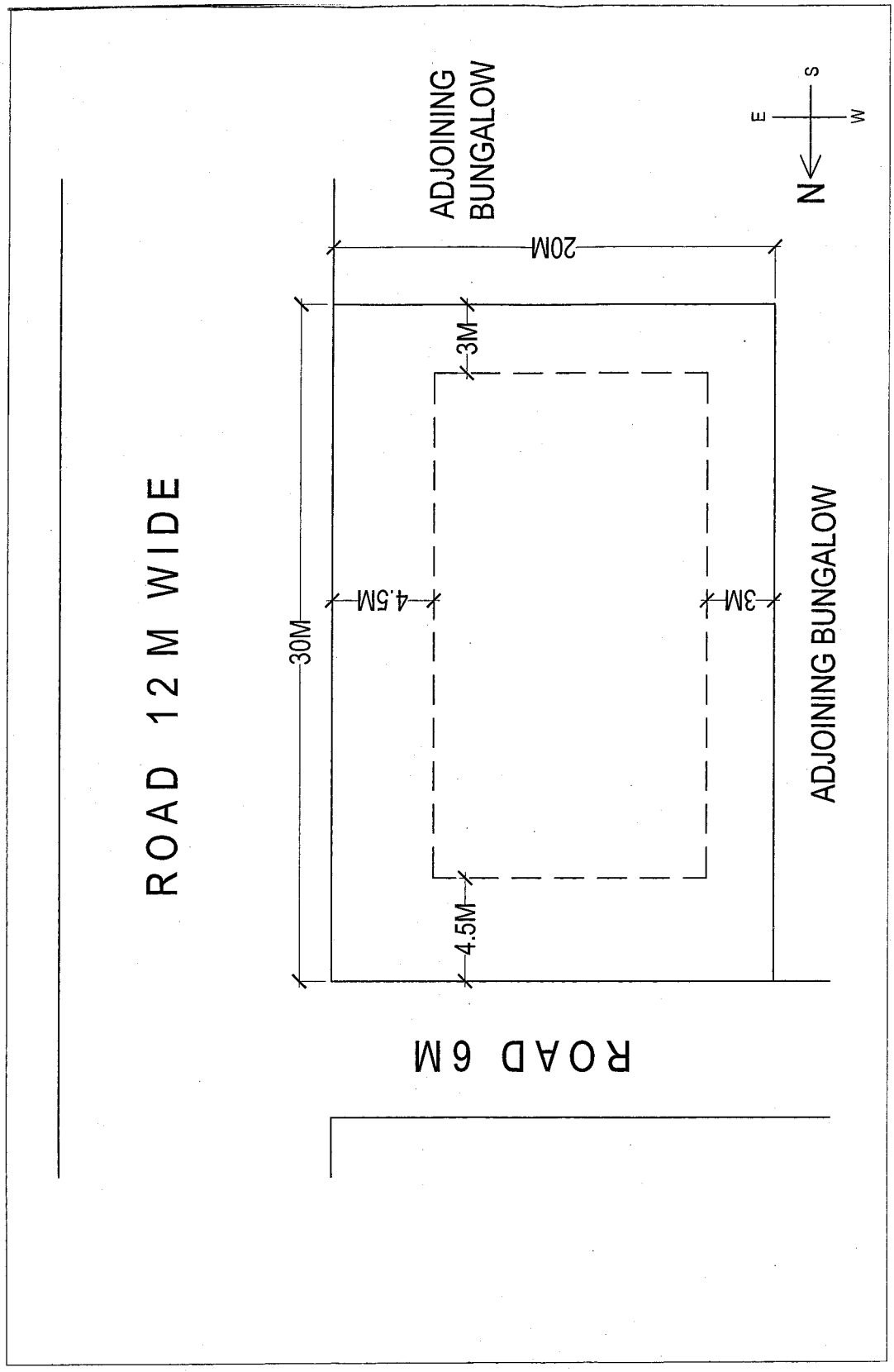
Drawing requirements and scheme of marking :

1) Design Concept	**10**
2) Site Analysis	**10**
3) Site Plan, Floor plans and terrace / roof plan	**30**
4) Two elevations	**15**
5) Two sections	**15**
6) View	**10**
7) Presentation	**10**

Note :

The drawing to be drawn at the following scales :

1) Site Plan – 1 : 100 scale
2) All Floor Plan, Sections and Elevations – 1 : 50.


ADJOINING BUNGALOW
N
S
E
W
20M
3M
ROAD 12 M WIDE
4.5M
3M
30M
ADJOINING BUNGALOW
4.5M
ROAD 6M

SLR-K – 22

Seat No.	

B.Arch. (Semester – IV) Examination, 2015
ARCHITECTURAL GRAPHICS – IV (New)

Day and Date : Tuesday, 8-12-2015 Total 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** indicate **full** marks.*
*4) **Five** marks are **reserved** for neatness and good drafting quality.*
*5) Make suitable assumptions **wherever** required.*

1. Draw shades and shadows of the Dia. A in plan and elevation considering the source of light is in conventional direction on the vertical and horizontal planes of the object. **10**

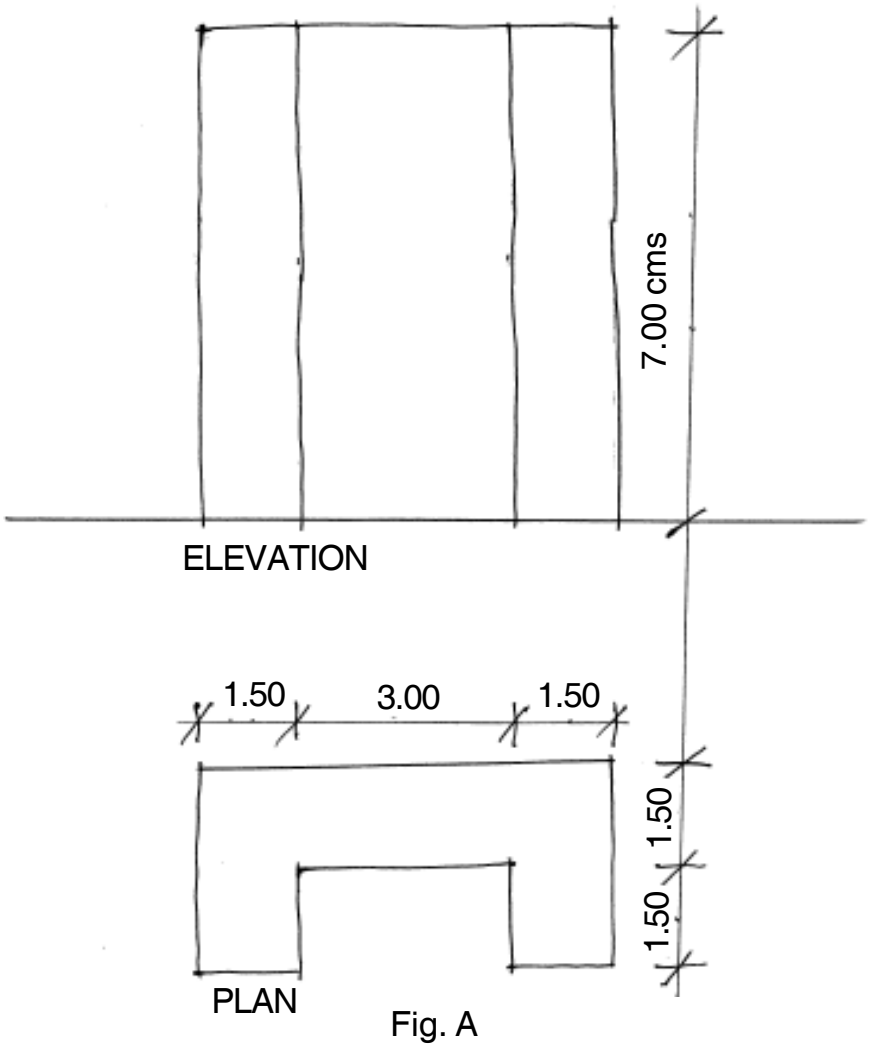
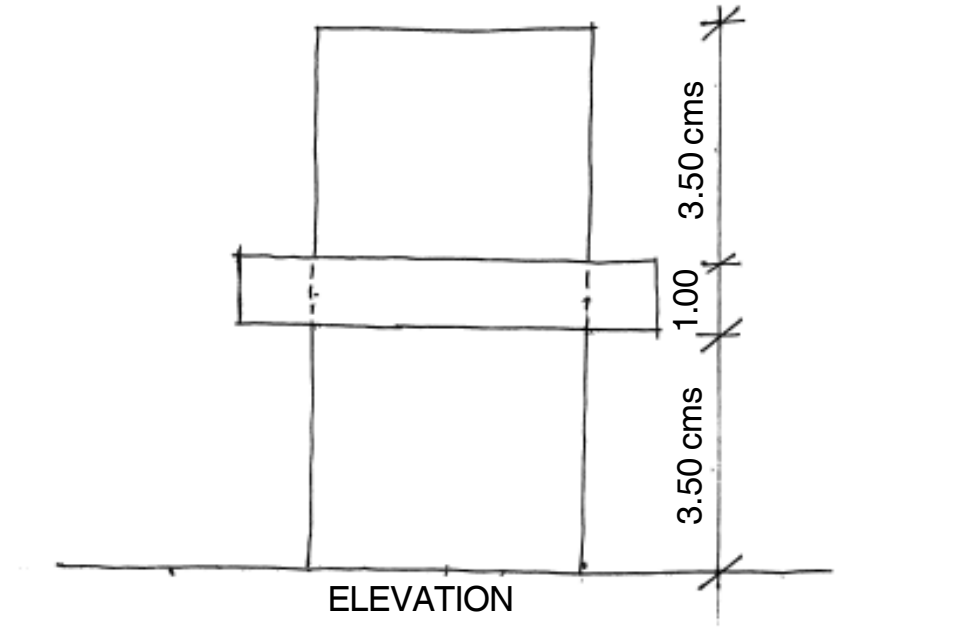


Fig. A

P.T.O.

2. Draw perspective view of the given object by observing points in Dia. B **15**
   a) A plane makes an angle as shown in Figure
   b) The picture plane touches the object
   c) Station point is 15.00 cm away from the 'X'
   d) The eye level is 12.00 cm above ground level



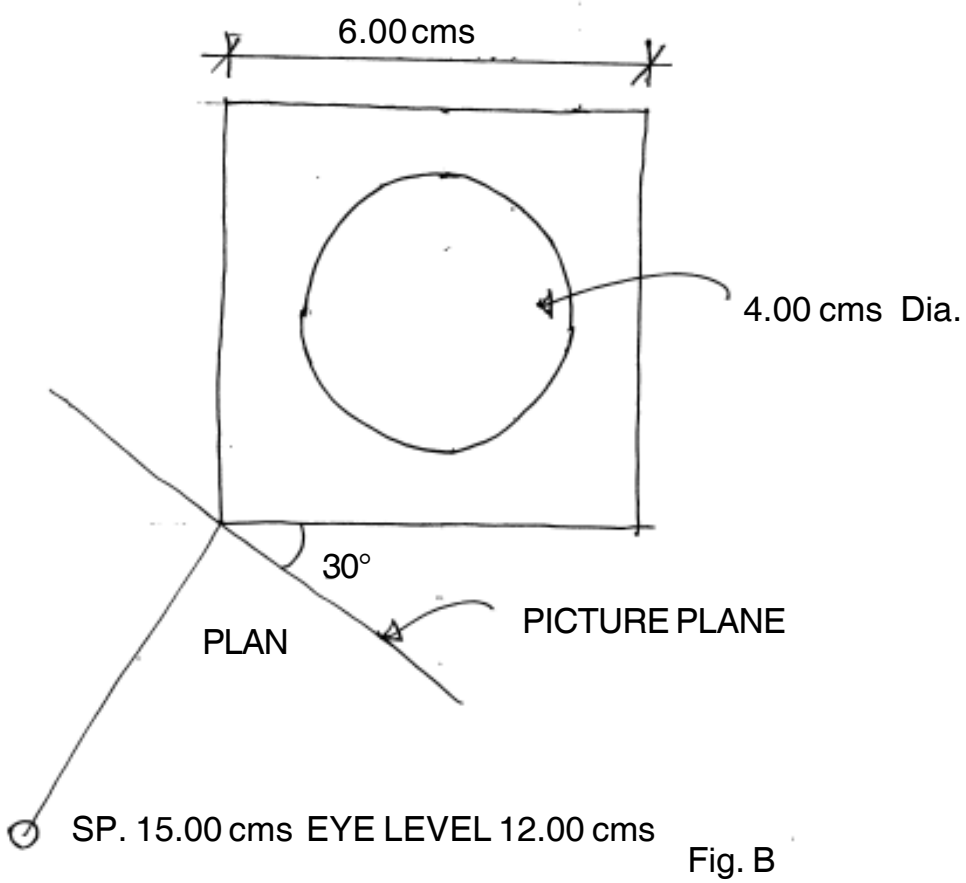


Fig. B

3. Dia. C shows plan and elevation of the object as shown in figure. Draw perspective sciography view observing the following points. **20**

   a) Picture plane passes through 'X'

   b) Station point is 15.00 cm away from picture plane

   c) Eye level is 12.00 cm away and above ground level and draw shades and shadows in perspective view.

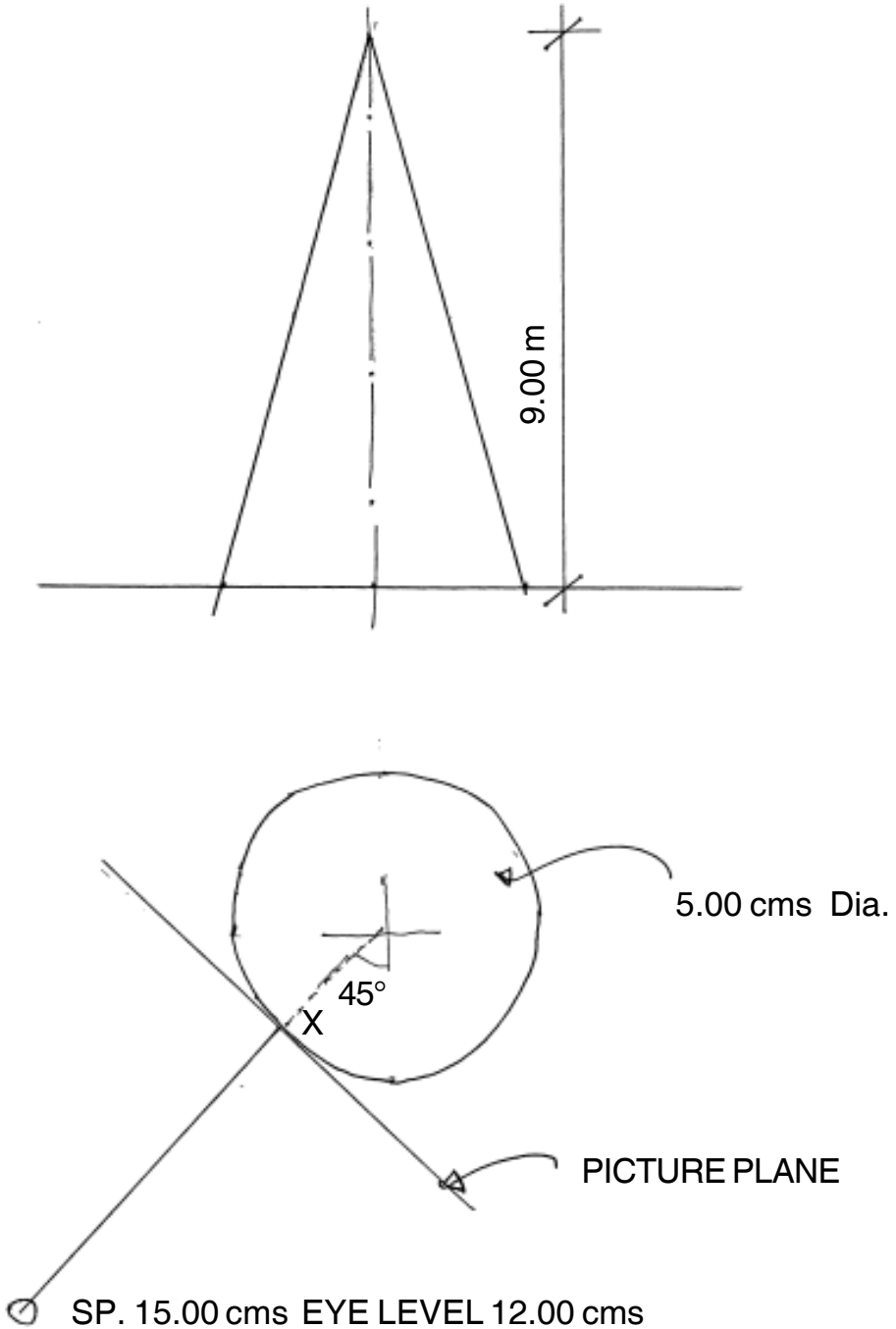


Fig. C

———————

SLR-K – 23

Seat No.	

B.Arch. (Semester – IV) (New) Examination, 2015
BUILDING CONSTRUCTION AND MATERIAL – IV

Day and Date : Thursday, 10-12-2015 Max. Marks : 50
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Assume suitable data* ***wherever*** *necessary.*
2) Draw ***neat*** *sketches.*

1. Fill in the blanks : **5**

   a) _____ are used as sash bars in metal windows.

   b) Initial setting time for ordinary cement is _____

   c) The proportion of concrete mix used for RCC slab is _____

   d) In cast iron, the carbon content is about _____

   e) For one way slab, the ratio of length to breadth is less than _____

2. Draw plan, elevation, section of MS window of size 1.5 m × 1.2 m and explain how the window is fixed in the opening of brick, RCC wall. **15**

3. Solve **any three** questions. **10 marks each**

   a) What are the advantages and disadvantages of flat roofs over with other roofs ?

   b) Describe the properties of cement.

   c) What is meant by curing of concrete ? What are its purposes ?

   d) Explain the uses of cast iron.

_____

SLR-K – 24

Seat No.	

B.Arch. (Semester – IV) Examination, 2015
THEORY OF STRUCTURE – IV (New)

Day and Date : Saturday, 12-12-2015 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Use of scientific calculator is* ***allowed****.*
2) Q. No. ***1*** *and Q. No.* ***5*** *are* ***compulsory****. From remaining questions solve* ***any two*** *from* ***each*** *Section.*
3) Figures to the ***right*** *indicates* ***full*** *marks.*
4) ***Assume*** *suitable data if* ***necessary****.*

SECTION – I

1. Select the correct option for the following : **8**

   1) The effective length of the column one end free and other end fixed
      a) Leff = l b) Leff = 2l c) Leff = l/2 d) Leff = 3l

   2) The maximum slope for the cantilever beam point load at free end is
      a) $WL^2/2EL$ b) $WL^2/3EL$ c) $WL^3/6EL$ d) $WL^2/4EL$

   3) For working stress method, permissible or working stress is given by
      a) Ultimate stress/factor of safety
      b) Ultimate stress/partial factor of safety
      c) Ultimate stress/(1.2 × factor of safety)
      d) None of above

   4) The core of the square column section is at
      a) 1/6 × Breadth b) 1/2 × Breadth c) 1/6 × Length d) None of above

2. a) Explain the assumptions made in the Eulers Column Theory. **6**
   b) A column 3 long is 400 mm in diameter. One end of the column is hinged and other end fixed. Find the crippling load of the column if $E = 2.1 \times 10^5$ N/mm^2. **10**

3. a) Write a note on No Tension condition of the for retaining walls. **6**
   b) Explain axial, uniaxial and biaxial concept of the column and stress diagrams. **10**

4. a) What do you mean by retaining wall and explain its types. **6**
   b) A solid circular column of diameter 300 mm carries vertical load of 100 KN at outer edge. Calculate maximum and minimum stress and also the additional load for no tensile stress condition. **10**

P.T.O.

SECTION – II

5. Explain the concept of working and limit state methods. **8**

6. Derive the expression for the maximum deflection and maximum slope equation for cantilever beam with UDL all over. **16**

7. a) Explain the relation between loading, bending moment, shear force, slope and deflection. **10**

   b) Write a note on Masonry structures and their properties. **6**

8. a) Explain all the support conditions of the columns and effective length of the columns. **6**

   b) Explain core of the standard section (circular section) and no tension conditions. **10**

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SLR-K – 25

Seat No.	

B.Arch. (Semester – IV) (New) Examination, 2015
HISTORY OF ARCHITECTURE – IV

Day and Date : Tuesday, 15-12-2015 Total Marks : 80

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

Instructions *: 1) Question 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) Prayer in Islam is termed as _____

   2) The founder of slave dynasty is _____

   3) Ibrahim Rauza was designed by Ar. _____

   4) _____ was the first mughal who invaded India.

   5) First Mosque built in India is _____

   6) Muslim religion was founded by _____

   7) Southern Gateway of Jami-Masjid at Fatehpur Sikri _____

   8) Name any one building material used by Moghals _____

2. Write short notes on **any 3** : **12**

   1) Minarets

   2) Squinch

   3) Kiosks

   4) Five pillars of Islam.

P.T.O.

3. Explain formation and development of Islamic Architecture in India with reference to geological, political and religious conditions. **12**

4. Explain with neat sketch Qutub Minar. **12**

5. Sketch and explain Raja Birbals house in Fatehpur Sikri. **12**

6. Explain the spaces and building elements of a typical Tomb. State the name of its parts. **12**

7. Explain architectural features of covered Mosque at Gulbarga. **12**

8. Explain the architectural characters of colonial architecture in India. Explain with suitable example. **12**

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SLR-K – 26

Seat No.	

B.Arch. (Semester – IV) (New) Examination, 2015
CLIMATOLOGY AND ENVIRONMENT – II

Day and Date : Thursday, 17-12-2015 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

1. A) Fill in the blanks : **8**

1) U value is reciprocal of
a) W b) R c) K d) None of above

2) Removal of moisture in air _____ temperature.
a) decrease b) neutral c) increase d) no change

3) _____ is heat flow rate through unit area of body.
a) resistance b) conductance
c) diffusion d) no change

4) Difference between day and night temp. gives
a) time b) DBT
c) diurnal range d) percentage

5) _____ city experiences cold and cloudy climate.
a) Mumbai b) Delhi c) Pune d) Simla

6) Human perception of light ranges between _____ nm.
a) 380-780 b) 450-1500
c) 500-1000 d) none of above

7) Ratio of outdoor and indoor illumination is
a) day light factor b) K factor
c) percentage d) natural light

8) Radiation is measured in
a) % b) watts/sqm
c) degC d) none of above

B) Answer in **one** sentence : **7**

1) Altitude angle.
2) Predominant wind.
3) Sea wind.
4) Chajja projection.
5) Light well.
6) Reflectance.
7) Principal Hues.

2. A) Find out Horizontal and Vertical shadow angle for 4° North latitude on 21 June at 4 p.m. and 21 Sept. 10 a.m. along with sketches. **8**

   B) Find solar altitude and azimuth angle for given chart at 4 p.m. on 21st March and 11 a.m. on 21st Feb. for 4° North latitude. **7**

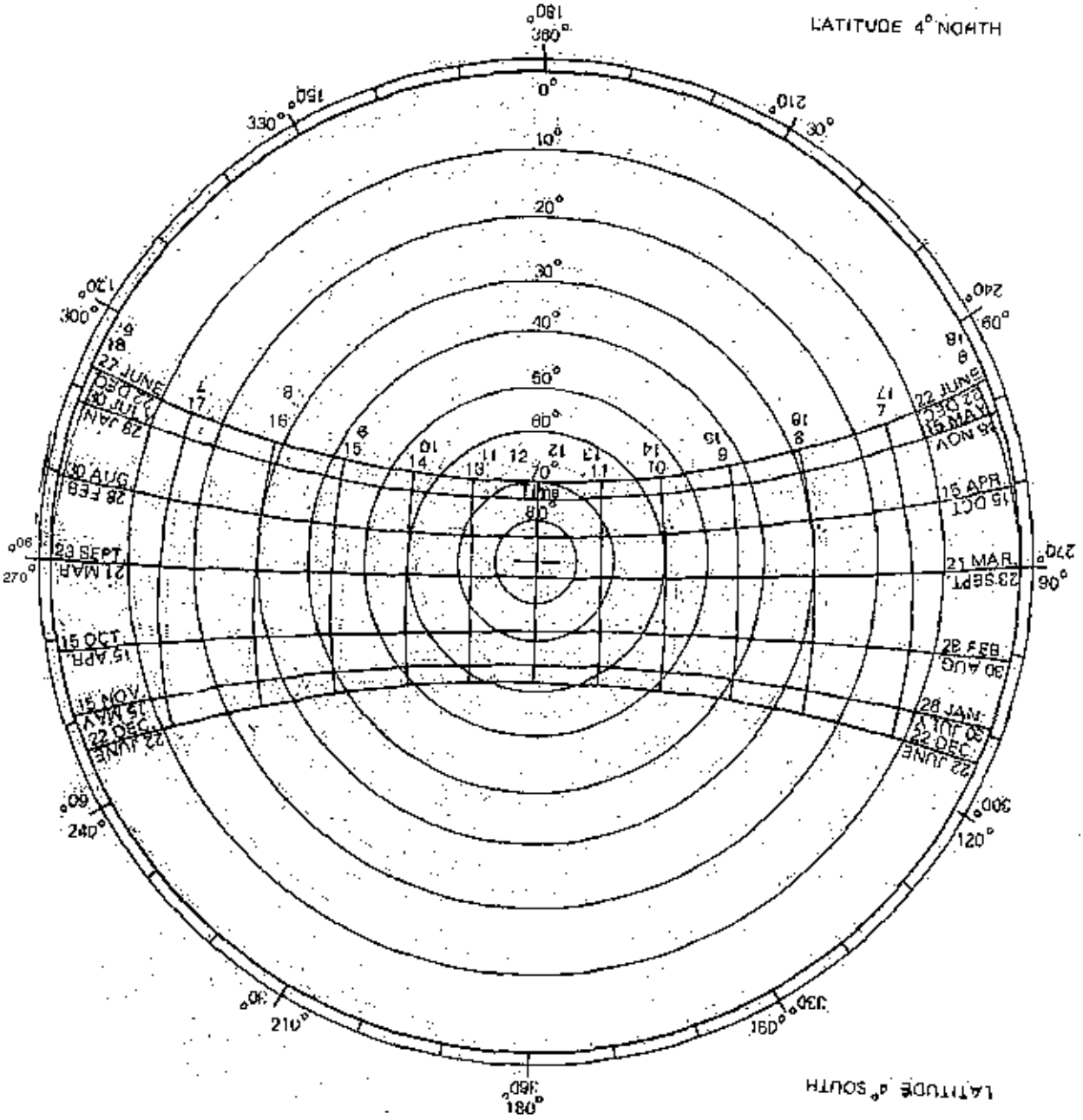
3. A) Sketch and explain evaporative cooling tower and stack ventilation. **8**

   B) Explain Warm and humid climate and sketch any three strategies at building scale along with sketches. **7**

4. Explain with sketches internal and external heat gain. **15**

5. Write short note on **any 4** : **20**

   1) Light shelves.
   2) Body's heat loss.
   3) Bio Climatic chart.
   4) High thermal mass.
   5) Shading devices.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LATITUDE 4° SOUTH
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60°
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Time
22 JUNE
23 SEPT.
21 MAR.
15 APR.
15 OCT.
28 FEB.
30 AUG.
28 JAN.
30 JULY
22 DEC.
15 MAY
15 NOV.

SLR-K – 27

Seat No.	

B.Arch. (Semester – IV) (New) Examination, 2015
BUILDING SERVICES – II

Day and Date : Saturday, 19-12-2015 Total Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

1. a) Fill in the blanks : **4**

1) Slow sand filters are used _____ of water.
a) Physical test b) Filtration c) Bacterial test

2) Meters are used to determine _____of water.
a) Quantity b) Quality c) Flow

3) Colour is_____type of test for analysis of water.
a) Physical b) Chemical c) Bacteriological

4) Recommended PH range for treated potable water is_____
a) 1 – 2 b) 7 – 8 c) 15 – 18

b) Explain in **one** sentence : **4**

1) Valves
2) Aeration
3) Potable water
4) Chlorination.

2. Write a short note on **any 3** : **12**

1) Water softening
2) Fire hydrants
3) Bib cock
4) Solar water heater.

P.T.O.

3. Explain in detail pumping and gravity-pumping method of distribution system. **12**

4. Explain with neat sketches, the layout of water treatment plant. **12**

5. a) Discuss in detail domestic water demand. **6**

   b) Explain various uses of water. **6**

6. Explain grid iron method and radial method of layout of distribution pipe. **12**

7. Design an overhead water tank for 10 tenements. Draw neat sketches with all necessary sections. **12**

8. Explain advantages and disadvantages of any 3 pipes used for water distribution system. **12**

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SLR-K – 28

Seat No.	

B. Arch. (Semester – IV) Examination, 2015
ARCHITECTURAL GRAPHICS – IV (Old)

Day and Date : Tuesday, 8-12-2015 Total 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*** *indicate* ***full*** *marks.*

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

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

1. Draw shades and shadows of the objects in Fig. A in plan and front elevation considering the conventional direction of light source. **10**

2. Draw perspective view of the given objects observing the following points in Fig. B : **15**

   a) The picture plane making 30 angle at "X"

   b) The station point is – 15.00 cm away from the "X"

   c) The eye level is 12.00 cm above ground level.

3. Draw the perspective view of the object with sciography as in Fig. A with following points : **20**

   a) The picture plane is touching the object at "X" and making 60 angle at "X"

   b) The station point 12.00 cm away from "X"

   c) The eye level is 12.00 cm above ground level.

OR

3. Draw the isometric view of the object with shade and shadow of the Fig. A.

P.T.O.

SLR-K – 28

Fig. A

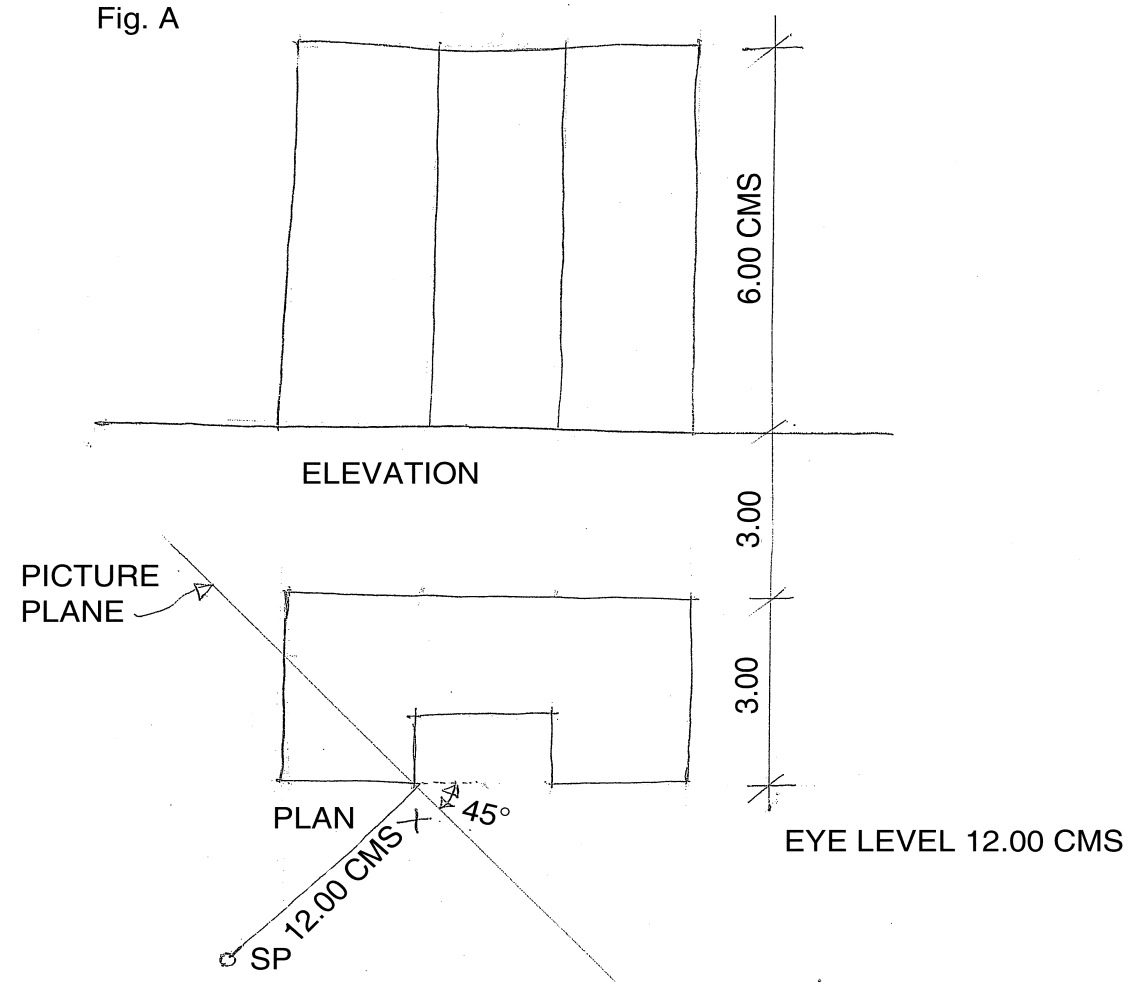
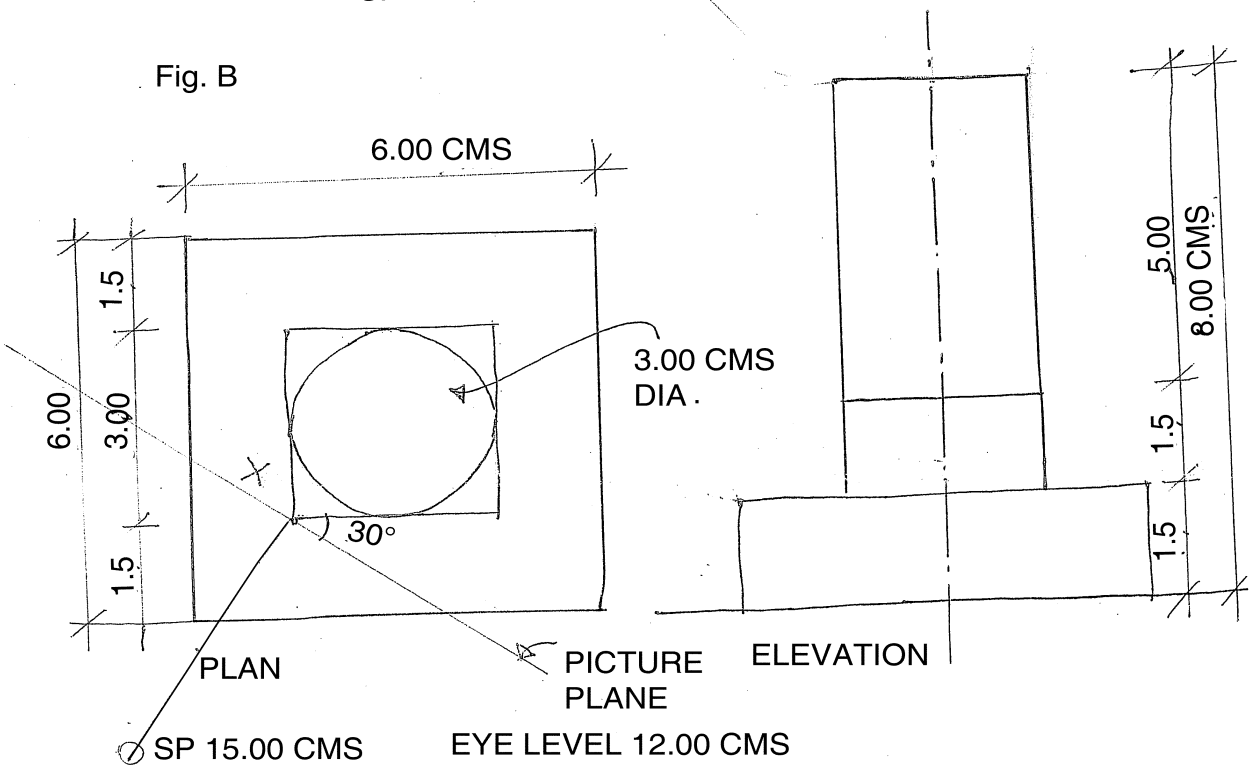


Fig. B



SLR-K – 29

Seat No.	

B. Arch. (Semester – IV) (Old) Examination, 2015
BUILDING CONSTRUCTION AND MATERIALS – IV

Day and Date : Thursday, 10-12-2015 Total Marks : 50

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

Instructions *: 1) Draw* ***neat*** *sketches* ***wherever*** *necessary.*
2) Assume suitable data ***wherever*** *necessary.*

1. Fill in the blanks : **5**
   a) If ordinary Portland cement is used in cement concrete, the maximum curing period is about _____ days.
   b) _____ is the trunk of tree obtained after the removal of branches.
   c) _____ is the entire assembly of styles, panels and rails.
   d) Horizontal distance between the internal faces of wall/support is known as _____
   e) The temporary casing used for supporting when _____ is placed is known as formwork.

2. Explain with neat sketches (in plan and elevation) details of reinforcement used in L, C, T type of column. **15**

3. What are the different materials used in RCC work ? Explain in detail. **10**

4. State the uses of timber in building construction. **10**

5. Write short notes on (**any two**) : **10**
   a) Difference between king post and queen post.
   b) Advantages of lintel and chajja.
   c) Difference between frame and style.

SLR-K – 30

Seat No.	

B.Arch. (Semester – IV) Examination, 2015
THEORY OF STRUCTURE – IV (Old)

Day and Date : Saturday, 12-12-2015 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1)* ***Use*** *of scientific calculator is* ***allowed****.*
2) Q. No. ***1*** *and Q. No.* ***5*** *are* ***compulsory****. From remaining questions solve* ***any two*** *from* ***each*** *Section.*
3) Figures to the ***right*** *indicates* ***full*** *marks.*
4) ***Assume*** *suitable data* ***if necessary****.*

SECTION – I

1. Select the correct option for the following : **10**

   1) The crushing stress of timber is
      a) 250 N/mm^2 b) 550 N/mm^2 c) 50 N/mm^2 d) 320 N/mm^2

   2) The ratio of weight of water to the weight of solid is known as
      a) Moisture content b) Air content
      c) Porosity d) Degree of saturation

   3) The effective length of the column of one end fixed one end free is
      a) Leff = 2l b) Leff = l
      c) Leff = l/2 d) Leff = l/$\sqrt{2}$

   4) The unit bulk density of soil is
      a) g/cm^3 b) g/m^3 c) kg/mm^3 d) kg/cm^3

   5) The ratio of effective length to the least radius of gyration is known as
      a) Stability ratio b) Slenderness ratio
      c) Voids ratio d) Capacity ratio

2. a) Write a note on limitations of Euler's column theory. **8**

   b) Calculate the safe compressive load on a hollow cast iron column (one end rigidly fixed and other is hinged) of 150 mm and external diameter and 12 m in length. Use Euler's formula with factor of safety 5 and E = 95 kN/mm^2. **12**

P.T.O.

3. a) Describe the theory of Euler's long column. **8**

   b) An ISMB 250 Rolled Steel Joist is to be used as a column 4.5 m long with one end fixed and other end hinged. Find the safe axial load on the column allowing a FOS of 3. Take Fc = 320 N/mm^2 and $\alpha = \frac{1}{7500}$. Properties of column section are as follows :
   1) Area = 4755 mm^2 2) $I_{xx} = 5.1316 \times 10^7 mm^4$ 3) $I_{yy} = 3.345 \times 10^6$ mm^4 **12**

4. a) Write a note on SBC of soil. **8**

   b) A brick pier 350 × 350 mm is high and carries an axial load of 375 kN. The SBC of soil is 200 kN/m^2 angle of repose 25°C. Weight of brick masonry is 19 kN/m^3 and weight of soil 16 kN/m^3. Design the suitable foundation to the pillar. **12**

SECTION – II

5. Write a note on soil as an engineering construction material. **10**

6. a) What is meant by retaining wall and explain its types. **8**

   b) A soil sample has a porosity of 42%. The specific gravity of solids is 2.70. Calculate :
   a) Voids ratio
   b) Dry density
   c) Unit weight if the soil is completely saturated. **12**

7. A dam section is 8 m high. The maximum depth of water impounded being 7.5 m. The top width of the section is 1 m. The wt of masonry is 24 kN/m^3 while the wt of water is 10 kN/m^3. Find the minimum bottom width required. Coefficient of friction between masonry and soil is 0.6. The water face of the dam is vertical. **20**

8. a) Define :
   i) Specific gravity
   ii) Dry Density
   iii) Void Ratio
   v) Air content. **8**

   b) A masonry dam 8 m high has top width of 1.75 m and base width 5.10 m; retain water to a depth of 7.25 m. The water face of the dam being vertical. Find the maximum and minimum stress intensities at the base. The wt of water is 9.8 kN/m^3 and wt of masonry is 23 kN/m^3. **12**

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SLR-K – 31

Seat No.	

IV Semester B. Arch. (Old) Examination, 2015
HISTORY OF ARCHITECTURE – IV

Day and Date : Tuesday, 15-12-2015 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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

1. a) Fill in the blanks : **5**
   1) The month of fasting in Islam is _____
   2) Victoria Terminus is now known as _____
   3) Public hall of audience in Fatehpur Sikri _____
   4) Akbar was succeeded by his son _____
   5) Domes in Islamic architecture was supported by _____ and squinches.

   b) Match the pairs. **5**

1) Holy book of Islam	a) Madrasa
2) Slender towers	b) Harem
3) School of Islam	c) Kiosk
4) Womans quarters	d) Koran
5) Open pavilion	e) Minarets

2. Write short notes on **any 5** : **25**
   A) Rajpath
   B) Buland Darwaza
   C) Minarets
   D) Tomb of Salim Chisti
   E) Arches used in Islamic Architecture
   F) Panch Mahal.

P.T.O.

3. Explain a typical Mosque. State the name of its different parts. **25**

4. Explain in detail with neat sketch Taj Mahal at Agra. **25**

5. Explain the plan, elevation and decorative elements of Gulbarga mosque. **20**

6. Explain the plan and exterior features of Ibrahim Rauza at Bijapur. **20**

7. a) Explain with neat sketch V.T. Terminus Station. **10**

   b) Explain with neat sketch Rashtrapati Bhawan. **10**

SLR-K – 32

Seat No.	

B.Arch. (Semester – IV) (Old) Examination, 2015
CLIMATOLOGY AND ENVIRONMENT – II

Day and Date : Thursday, 17-12-2015 Max. Marks : 50
Time : 3.00 p.m. to 5.00 p.m.

***Instructions** : 1) Question No. **1, 2, 5** are **compulsory**.*
*2) Solve **any one** out of Q.**3** and Q.**4**.*

1. A) Fill in the blanks. **5**

1) Interval or difference between temperature is _____

a) degC b) °C c) deg d) none of above

2) Stack effect refers to _____

a) cross ventilation b) window

c) courtyard d) duct

3) Difference between day and night temp gives _____

a) time b) DBT c) diurnal range d) percentage

4) Ratio of outdoor and indoor illumination is _____

a) day light factor b) K factor

c) percentage d) natural light

5) Addition of moisture in air _____ temperature.

a) decrease b) neutral c) increase d) no change

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

1) Altitude angle

2) DBT

3) Sea wind

4) Courtyard

5) Convection.

P.T.O.

2. Find solar altitude and azimuth angle for given chart at 4 pm on 21st March and 11 am on 28th Jan. for 4° North latitude. **5**

3. A) Find out Horizontal and Vertical shadow angle for 4° North latitude on : 15 May at 4 pm and 28 Feb. 10 am. **10**

   B) Explain conductance and convection. **7**

4. Explain Heat Exchange of building. **13**

5. Write short note on **any 4** : **20**

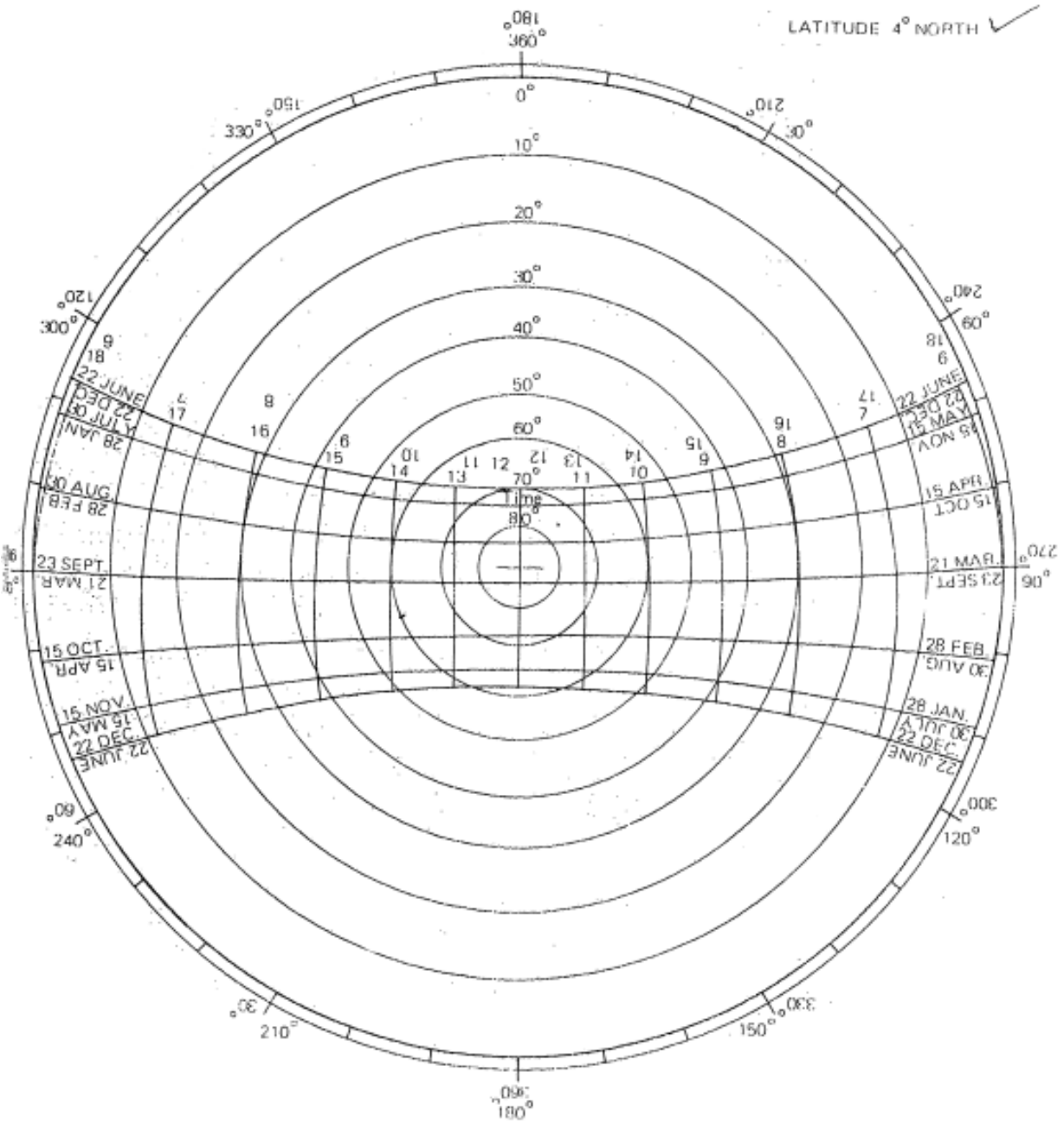
   1) Internal heat gain

   2) Explain Evaporative cooling tower

   3) Egg crate devices

   4) Stevenson's screen

   5) Day light factor.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22 JUNE
22 DEC
15 MAY
28 JAN
30 JULY
28 FEB
30 AUG
23 SEPT
21 MAR
15 OCT
15 APR
15 NOV
22 JUNE

SLR-K – 33

Seat No.	

B.Arch. (Semester – IV) Examination, 2015
BUILDING SERVICES – II (Old)

Day and Date : Saturday, 19-12-2015 Max. Marks : 50

Time : 3.00 p.m. to 5.00 p.m.

Instructions *: 1) Solve* ***all*** *questions.*

2) Draw ***neat*** *sketches* ***wherever*** *necessary.*

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

1. A) Fill in the blanks. **5**

   1) Per capita water required for residential purpose is _____.

   2) _____ is added to raw water to control growth of algae and to remove the bacteria.

   3) Name any one material used for pipe for conveying water _____.

   4) Name any one underground source of water _____.

   5) Reflux valves are also known as _____.

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

   1) What is PH value of potable water ?

   2) Define sedimentation.

   3) Write any two uses of water in building industry.

   4) Define surface water sources.

   5) Define distribution system.

P.T.O.

2. Write short note on (**any 3**) **15**
   1) Fire hydrants
   2) Ball valve
   3) Boilers
   4) Hardness of water

3. A) Discuss ferrule connections in detail. **10**

   B) Explain in brief : **5**
      1) Continuous system of water supply
      2) Intermittent system of water supply

4. Calculate the size of overhead water storage tank for flat system of 20 tenements. **10**

   OR

   Write the necessity of pumps in water supply. Classify various types of pumps and explain any one in detail. **10**

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SLR-K – 34

Seat No.	

B. Arch. (Semester – V) Examination, 2015
BUILDING SERVICES – III (New)

Day and Date : Monday, 7-12-2015 Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

N. B. *: 1) Question No.* ***1, 2*** *are* ***compulsory****.*
2) Solve ***any 4*** *questions from the* ***remaining****.*

1. Fill in the blanks : **7**
   1) The unit for luminous flux is the _____
   2) _____ is the component that resist but does not stop flow of the current.
   3) _____ is a appliance designed to transport men or material between two or more floor in vertical direction.
   4) In air conditioning system _____ are used as airflow control devices used.
   5) Fires in reactive chemicals, active metals and the like are _____ of fire.
   6) The _____ are in the form of inclined bridge spanning between two floors.
   7) Electric current is measured in unit _____

2. Short notes (**any 3**) : **15**
   1) Artificial ventilation
   2) Dehumidification process in air conditioning
   3) Halogen lamps
   4) Domestic electric supply.

3. Explain the concept of Air conditioning in detail. **12**

4. Write a detail note with sketch of fire extinguishers. **12**

5. Explain electric installation in small residential building. Enumerate the steps followed. **12**

6. State the importance of ventilation in a building. **12**

7. Explain with neat sketch essential features of elevators. **12**

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SLR-K – 35

Seat No.	

B.Arch. (Semester – V) Examination, 2015
THEORY OF STRUCTURE – V (New)

Day and Date : Wednesday, 9-12-2015 Total Marks : 70

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

Instructions *: 1) Use of Scientific Calculator is* ***allowed****.*
2) Q. No. ***1*** *and* ***2*** *are* ***compulsory****. From remaining questions solve* ***any four****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*
4) Assume suitable data if ***necessary****.*

1. Select the correct option for the following : **8**

   1) Bolts are most suitable to carry
      a) shear b) bending
      c) axial tension d) shear and bending

   2) As compared to field rivets, the shop rivets are
      a) Stronger b) Weaker
      c) Equally strong d) None of these

   3) The effective length compression member effectively held in position at both ends but restrained against rotation at one end
      a) 0.8 L b) L c) 1.2 L d) 1.5 L

   4) In case of Zig-Zag or diagonal chain holes, the net cross sectional area along the chain of rivets is increased by an amount equal to
      a) $S^2 \times t / 4g$ b) $S^3 \times t / 4g$ c) $S^2 \times b / 4g$ d) None of these

2. Explain design procedure of laterally supported beam. **6**

3. a) What are the advantages and disadvantages of riveted joints ? **4**

   b) Determine strength and efficiency of joint when 20 mm diameters power driven rivets connecting 16 mm plates joined by double cover butt joints using 10 mm thick cover plate. Consider permissible tensile strength of 150 MPa. **10**

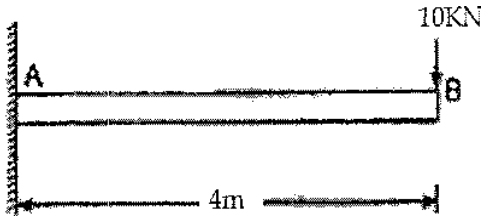
P.T.O.

4. a) Write a short note on tension members and various forms. **4**

   b) Design a tension member using two angle sections to carry 180 KN when both angle are connected both side of gusset plate. **10**

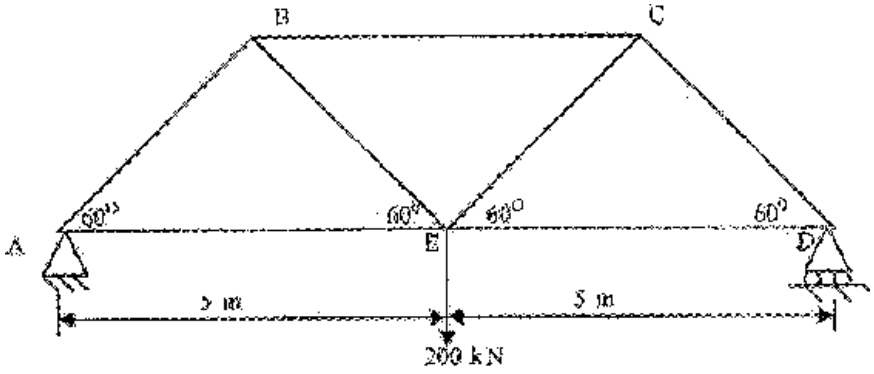
5. A strut in roof truss carries an axial compressive forces load of 175 KN. Determine a suitable double angle section for the compression member. The length of strut between center to center of intersection is 2.2 m and yield stress of steel is 250 MPa. **14**

6. Design a suitable section for following beam which is laterally supported. **14**



7. a) What are different methods of analysis of truss ? **4**

   b) Find the forces in the members of following truss. **10**



SLR-K – 36

Seat No.	

B.Arch. (Semester – V) (New) Examination, 2015
HISTORY OF ARCHITECTURE – V

Day and Date : Friday, 11-12-2015 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

***Instructions** : 1) Question no. **I** is **compulsory**.*
*2) **Draw** neat sketches **wherever** necessary.*

I. Fill in the blanks : **7**

a) Crystal palace is designed by _____

b) National Congress Complex is designed by _____

c) I.B.A. housing is designed by _____

d) The author of Complexity and Contradiction is _____

e) Red house is an example for _____ movement.

f) Villa Savoye is designed by _____

g) C.D.S. at Trivandrum is designed by _____

II. Write short notes on **(any 3)** : **15**

1) Louis Sullivan
2) Casa Mila Apartment
3) Deconstruction
4) Post modernism.

III. Answer in brief with neat sketch **(any 4)** : **(12 marks each)**

1) Explain the Bauhaus Movement and the school in detail.
2) Explain the works and philosophy of Philip Johnson.
3) Describe the philosophy of master architect Mies Van- Der-Rohe and explain two buildings of his in brief.
4) Explain the works and philosophy of Charles Correa and two works of his in brief.
5) Explain Arts and Crafts movement with one example.

_____

SLR-K – 37

Seat No.	

B.Arch. (Semester – V) (Old) Examination, 2015
BUILDING CONSTRUCTION AND MATERIALS – V

Day and Date : Monday, 7-12-2015 Total Marks : 50
Time : 10.00 a.m. to 1.00 p.m.

***Instructions** : 1) Make **suitable** assumptions **wherever** necessary and **mention** in your answer book.*
*2) Figures to **right** indicate **full** marks.*
*3) **All** questions are **compulsory**.*

1. Fill in the blanks : **5**
   1) Steel wire is used in _____ glass.
   2) Wrought iron contains _____ % carbon.
   3) _____ is purest form of steel.
   4) Lead is extracted from _____ ores.
   5) Brasses and Bronzes are _____ alloys.

2. Draw and design plan section elevation and two details of rolling shutter of size 3 m and height 2.1 for parking garage. Also give specifications and sizes of material. **15**

3. Give types and uses of market forms of steel with sketches. **15**

4. Write short note on **any 3** : **15**
   1) Give properties of Glass.
   2) Give measures to prevent corrosion in steel.
   3) Give properties of Cast iron.
   4) Give sketches and details of collapsible door.

_____

SLR-K – 38

Seat No.	

B.Arch. (Semester – V) Examination, 2015
THEORY OF STRUCTURES – V (Old)

Day and Date : Wednesday, 9-12-2015 Max. Marks : 80

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

Instructions *: 1) Q.* ***1*** *is* ***compulsory****.*
2) IS 456 and 800 is ***allowed****.*
3) Use of calculator is ***allowed****.*
4) Solve ***any 4*** *questions from* ***remaining****.*

1. Multiple Choice Questions. **10**

1) The process of welding takes _____ time than riveting.
a) more b) less c) nor more nor less

2) The strength of one rivet in single shear is
a) fs = $\pi d^4/4$ b) fs = $\pi d^2/4$ c) fs = $\pi d^2/2$

3) The modular ratio is given by
a) m = $280/3\sigma cbc$ b) m = $280/5\sigma cbc$ c) m = $280/2\sigma cbc$

4) Stress is given by
a) area/BM b) load/area c) strain/load

5) In the assumption of R.C.C. design of beam, the tensile strength of con. is
a) more b) less c) ignored

2. a) A singly reinforced beam 250×500mm in sec is reinforced with 4 bars of 16mmϕ with an effective cover of 50mm. Effective span of the beam is 6m. Assuming M 20 and fe415, determine the central concentrated load 'P' that can be carried by the beam in addition to its self wt. **9**

b) What do you mean by M.R. Explain in detail ? **8**

3. a) Calculate the M.R. of an R.C.C. beam 230×550mm overall. Reinforcement is $1521mm^2$ and is placed at a dist of 25mm form the bottom. σ6cbc = 7 mpa, σst = 140 mpa, m = 13.33. **11**

b) Differentiate between working stress method and limit state method. **7**

P.T.O.

4. a) Draw SFD and BMD for a simply supported beam with a pt. load at center and a UDL throughout the span. **8**

   b) Write a note on grades of con. and design mix con. **9**

5. a) Design tension and compression member for a load carrying capacity of 100 kn. **8**

   b) Select a suitable 'H' sec. for a col. carrying an axial load of 350 KN and an end mmt of 40 KN.M @ its major axis and 12 KN.M at its minor anis. The effective length of the col. is 6m use IS 800: 1984. Taking cm = 1.0 for bending at major anis and 0.6 for minor anis. **10**

6. a) Differentiate between welded joints and riveted joints. **8**

   b) Write a note an pitch and strength of rivet. **9**

7. a) Calculate the M.R. of an R.C.C. beam 230×550mm overall. Reinforcement is 1521 mm^2 and is placed at a dist. of 25 mm from the bottom. σ cbc = 7 mpa, σ st = 140 mpa, m = 13.33. **10**

   b) State the assumptions mode in limit state of collapse in flerume. **8**

SLR-K – 39

Seat No.	

B.Arch. (Semester – V) Examination, 2015
HISTORY OF ARCHITECTURE – V (Old)

Day and Date : Friday, 11-12-2015 Total Marks : 80

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

1. Fill in the blanks : **5**

   a) Kanchanjunga Apartments at Mumbai was designed by _____.

   b) Form Follows Function was the philosophy followed by Ar _____.

   c) Exposed brick is the architectural characteristic feature of _____.

   d) Any one famous building by Ar Zaha Hadid _____.

   e) An example of Prairie house is _____.

2. Answer in **one** word : **3**

   a) The most famous work of Ar Louis Sullivan.

   b) The most famous work of Ar Frank Gehry.

   c) The most famous work of Ar Mies Vander Rohe.

3. Explain in brief. **(3×6 = 18)**

   a) Write a note on Deconstructivism.

   b) Explain in brief IBA housing by Zaha Hadid.

   c) Draw a neat sketch of National Congress Complex at Brazilia.

4. Write short notes with sketches (**any 6**). **(6×4 = 24)**

   a) Art Noveau movement.

   b) CasaMila Apartments.

   c) Louis Sullivan.

   d) Ronchamp church.

P.T.O.

e) Falling water.

f) International style.

g) Kanchanjunga apartments.

5. Explain in detail with sketches (**any 2**). **(2×15 = 30)**

a) Explain the works and philosophy of Ar Laurie Baker with an example of centre for development studies in brief.

b) Explain how industrial revolution changed society and economy in Europe and the world and how it influenced material and technological changes in building construction and settlement planning.

c) Explain the school of Bauhaus by Walter Gropius at Dessau, its philosophy and works and how it shaped thought and architecture later on.

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SLR-K – 40

Seat No.	

B.Arch. (Semester – V) Examination, 2015
BUILDING SERVICES – III (Old)

Day and Date : Monday, 14-12-2015 Max. Marks : 80

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

1. Fill in the blanks : **8**
   1) The flow of electrons in metal is called _____.
   2) Choke and starter is required in _____ type of lamps.
   3) The relative humidity within the range of _____% at working temp. of 21° C is considered desirable.
   4) _____ Watts is considered as geyser point in calculating wattage.
   5) _____ is used for vertical transportation of passengers and goods.
   6) _____ Volts is obtained from 3 phase supply.
   7) _____ are nothing but moving staircase.
   8) According to Ohms law _____ = I × R.
2. Write short notes (**any 3**) : **12**
   1) Sodium discharge lamps.
   2) Automatic sprinkler system.
   3) Smoke detectors.
   4) Humidity in ventilation system.

Anser **any five** questions from Q. No. **3** to Q. No. **8** :

3. Explain with sketch earthing for safety and write note on pipe earth electrode. **12**
4. Give general considerations and rules for natural ventilation. **12**
5. Explain central air conditioning plant with neat sketch. **12**
6. Explain electrical wiring in small residential building with sketch. **12**
7. Describe different types of fire extinguishing arrangements. **12**
8. Explain single phase AC supply with sketch. **12**

_____

SLR-K – 41

Seat No.	

B.Arch. (Semester – V) Examination, 2015
ARCHITECTURAL DESIGN – V
Theory of Design (into to Landscape) (Old)

Day and Date : Tuesday, 22-12-2015 Total Marks : 100
Time : 10.00 a.m. to 4.00 p.m.

Day and Date : Wednesday, 23-12-2015
Time : 10.00 a.m. to 4.00 p.m.

***Instructions** : 1) Students are asked to submit **all** the sheets at the end of the **first day**.*
*2) **Assume** suitable data and scale **wherever** necessary.*

SHOPPING MALL at SOLAPUR.

Malls have become a part of not just cities but towns also. One stop providing a variety of goods from sweets to electronics coupled with an ambience that also provides an outing for all age groups. Some group of entrepreneurs want to set up a mall in the heart of city, Solapur.

Architectural Programme :

1. ENTRANCE LOBBY : As per design
   a) Space for trolley and basket – 15.00 sq. mts.
   b) Cloak room for male and female – 10.00 sq. mts.
   c) Waiting space. As per design.
   d) Sale's/billing counter – 6 in no – 5.00 sq. mts. each
   e) Security cabin, C. C. TV centre – 15.00 sq. mts. each.
2. STORE for goods delivery and distribution – 50.00 sq.mts.
3. MANAGERS cabin and general office – 50.00 sq.mts.
4. Grievance or exchange or PRO office – 15.00 sq.mts.

P.T.O.

5. DISPLAY AREA for – 1000.00 sq.mts.
   a) Grocery
   b) Daily use products
   c) Perishable goods
   d) Cosmetics
   e) Bakery foods
   f) Toys
   g) Sports equipments
   h) Stationary
   i) Furniture
   j) Electronic goods
   k) Clothes
   l) Utensils, crockery, plastic goods etc.
   m) Gift wrapping centre.

Pantry, changing room, toilet for staff and customers, trial room, staircases, lift, escalator. Service lift if any required are to be provided.

On site, sufficient parking area for 4-wheelers and 2-wheelers.

Drawing requirements :

a. Concept. **10**

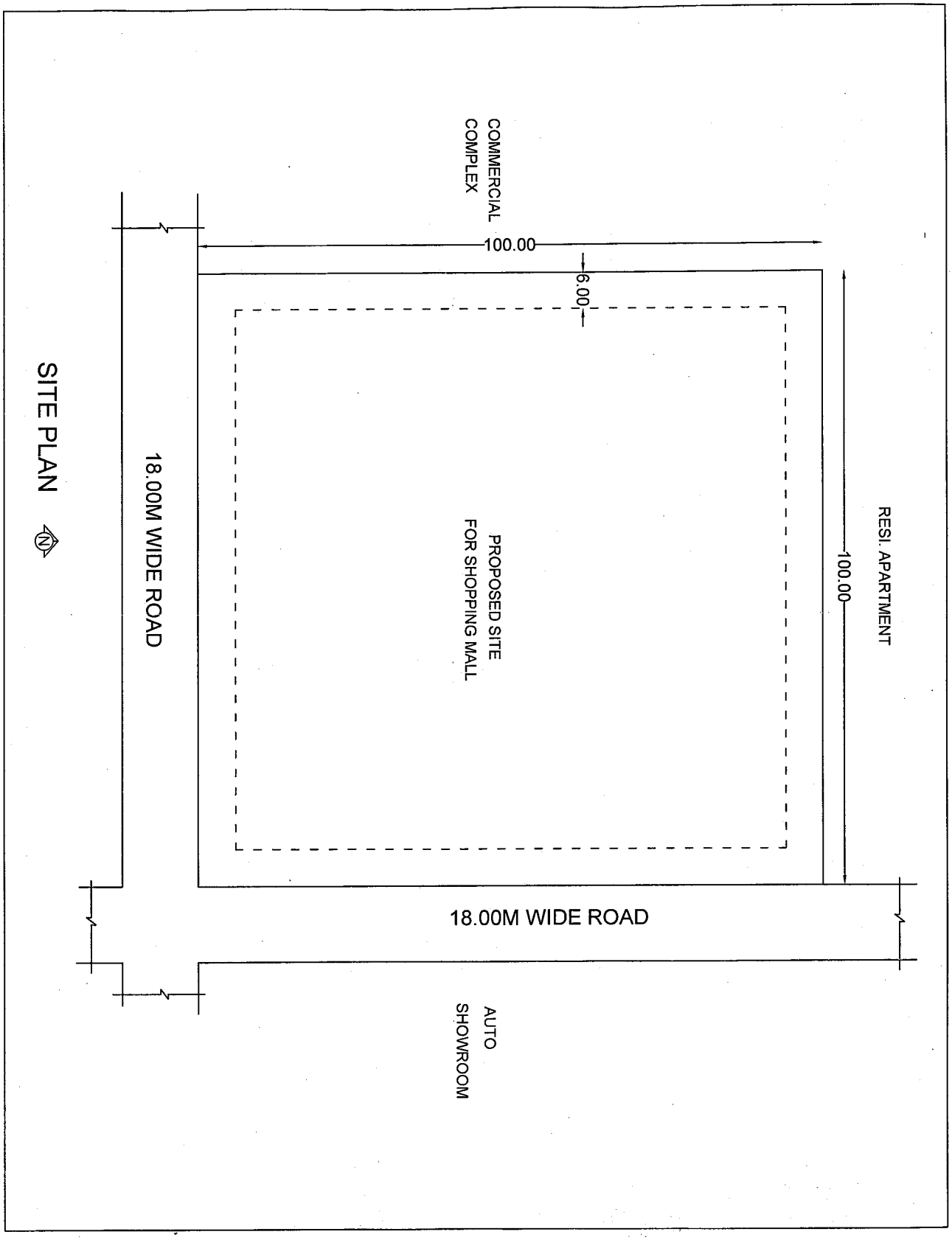
b. Detailed site plan (1 : 200) **20**

c. All floor plans (1 : 100) **30**

d. Min 2 Elevations. **15**

e. Min 2 Sections. **15**

f. View. **10**


SITE PLAN
N
18.00M WIDE ROAD
COMMERCIAL COMPLEX
100.00
6.00
PROPOSED SITE FOR SHOPPING MALL
RESI. APARTMENT
100.00
18.00M WIDE ROAD
AUTO SHOWROOM

SLR-K – 43

Seat No.	

B.Arch. (Semester – VI) Examination, 2015
BUILDING CONSTRUCTION AND MATERIALS – VI

Day and Date : Monday, 21-12-2015 Max. Marks : 50
Time : 10.00 a.m. to 1.00 p.m.

***Instructions** : 1) Make **suitable** assumptions **wherever** necessary and mention it in your answer books.*
*2) Figures to the **right** indicate **full** marks.*

1. Fill in the blanks : **5**
   a) FRP means _____
   b) _____ are coating of fluid material on the surface of wall.
   c) _____ defect is due to poor adhesion of paint.
   d) Solution of resins prepared in _____ , oil or turpentine is varnish.
   e) Thermo plastic becomes _____ when heated and hard when cooled.

2. Design a strong room for bank building at ground floor level. Size of the strong room is 5.00×3.50 m. plinth height is 0.60 m. height of ground floor is 3.65 m. Provide entrance lobby of 3.50×2.50 before entering to the strong room.

   Draw plan, section, of the strong room. Draw the details of R.C.C. wall, door fixing details in R.C.C. Assume suitable scale. **15**

3. Write short notes (**any 3**) : **15**
   a) Types of paints.
   b) Hinged joints in steel footing
   c) Precast slab panels
   d) Sheet pile.

4. Enumerate general properties and uses of asbestos ? **15**

   OR

   Write note on ferrocement structures. **15**

SLR-K – 44

Seat No.	

B.Arch. (Semester – VI) Examination, 2015
THEORY OF STRUCTURE – VI

Day and Date : Tuesday, 8-12-2015 Total Marks : 80
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Use of scientific Calculator is **allowed**.*
*2) Q. No. **1** and **2** are **compulsory**. Form remaining questions solve **any four**.*
*3) Figures to the **right** indicate full marks.*
*4) Assume suitable data if **necessary**.*

1. Select the correct option for the following. **8**

   1) Minimum spacing for the reinforcement in slab
      a) 100 mm b) 300 mm c) 450 mm d) None

   2) In one way action of the footing, the critical section of the shear shall be at
      a) d/4 b) d c) d/8 d) d/2

   3) Minimum cover to footing is
      a) 20 mm b) 25 mm c) 50 mm d) none

   4) In under reinforced section, _____
      a) Xu < Xmax b) Xu = Xmax c) Xu > Xmax d) None of above

2. a) Explain the concept of the trusses and their type's. **4**

   b) Explain the concept limit state method. **4**

3. Design one way slab of clear span of 2.5 m. Take Floor finish load 1.5 KN/m^2, M20 concrete and Fe415 steel. **16**

P.T.O.

4. A simply supported beam of the length 3.5 m carries UDL of load 15 KN/m. Analyze and design beam. Take M20 concrete and Fe 415 steel. **16**

5. Design a rectangular column of 5m unsupported length, restrained in position and direction at both ends, to carry an axial load of 800 KN. Use M20 concrete and Fe415 steel. **16**

6. Design footing for axial load of 800 KN, SBC = 200 KN/m^2 and use M20 concrete and Fe415 steel. **16**

7. Write design steps for **16**

   1) Two way slab

   2) Rectangular footing.

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SLR-K – 45

Seat No.	

B.Arch. (Semester – VI) Examination, 2015
BUILDING SERVICES – IV

Day and Date : Thursday, 10-12-2015 Total 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.*
*4) Figures to the **right** indicate **full** marks.*

1. Fill in the blanks : **8**
   1) B.O.D. indicates _____
   2) Septic tank used in _____ areas.
   3) _____ is all solid and semisolid waste matter from the community.
   4) Grit chambers are used to remove _____ in sewage treatment plant.
   5) Name any one sewage disposal method _____
   6) Name any one privy _____
   7) In sewage treatment plant skimming tanks used to remove _____
   8) _____ is non-putricible waste.
2. Write short notes on (**any 3**) : **12**
   1) Pit privy
   2) Industrial waste
   3) Sewage farming
   4) Objects of sewage treatment.
3. Explain the term solid waste management. **12**
4. What is meant by waste water ? Describe in brief treatment of waste water. **12**
5. Explain the meaning of the term rural sanitation. **12**
6. Explain the meaning of disposal of sewage by dilution. What are the conditions favorable for it ? **12**
7. What is refuse chute ? Where it is used ? How it is installed ? **12**
8. Describe skimming tanks with reference to its purpose and design. **12**

_____

SLR-K – 46

Seat No.	

B.Arch. (Semester – VI) Examination, 2015
ACOUSTICS

Day and Date : Saturday, 12-12-2015 Total Marks : 80
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q.* ***1*** *is* ***compulsory****.*
2) Solve ***any three*** *out of remaining.*
3) Make suitable assumption ***wherever*** *required.*

1. A) Work out the total absorption required for a theatre of 1200 capacity. Consider RT = 1.25 sec. Suggest the treatment by different materials to be used. Following are some of the coefficient of absorption.

   Volume of 3.5M^3/person to be consider

   Empty seats (upholstered) = 0.26

   Occupied seats (upholstered) = 0.32

   POP plain = 0.06

   POP perforated = 0.21

   Sitatex board = 0.40

   Armstrong board = 0.65

   Terracota tiles = 0.18

   Pulp board = 0.32

   Carpet = 0.37

   White cedar panel = 0.18 **27**

   B) Fill in the blanks. **8**

   1) Frequency of sound is measured in _____
   2) Sound wave is _____ wave.
   3) Sound propagates in _____ medium.
   4) Diffraction of sound happens through _____

P.T.O.

5) Wave motion of sound is not possible through _____

6) Wavelength is inversely proportional to _____ of sound.

7) _____ are quite pronounced in dome structure.

8) Due to warm air sound goes in _____ direction.

2. What is sound ? Sketch a sound wave and define amplitude, frequency and wavelength of sound. **15**

3. Draw and explain figures of reflection from plain, concave and convex surface. **15**

4. Explain acoustical design principles for auditorium with sketches. **15**

5. Write short notes on **any three**. **15**

   1) Sound reflection

   2) Airborne noise

   3) Crown fibre glass

   4) Stereophonic amplification system.

_____

SLR-K – 47

Seat No.	

B.Arch. (Semester – VI) Examination, 2015
URBAN AND REGIONAL PLANNING – I

Day and Date : Tuesday, 15-12-2015 Total Marks : 80
Time : 10.00 a.m. to 1.00 p.m.

Instruction : *Q. No.* ***1*** *is* ***compulsory.***

I. Fill in the blanks : **8**

a) "Survey before plan" emphasis was laid by _____

b) _____ was planned by an eminent town planner Edwin Lutyens.

c) The diameter of the cul - de -sac is _____

d) Kerb is the boundary between pavement and _____

e) In height zoning, the ratio of height to width of the road will be _____ in case of air plane rule.

f) In _____ pattern roads meet at right angles.

g) F.A.R. is the ratio of _____

h) _____ is a tool used for development.

II. Answer **any 6** from the following : **(6×12=72)**

1) Explain with example the satellite type growth of town.

2) Explain the concept of "Garden City" laid by Sir Ebenezer Howard.

3) Explain in detail how the growth of town is influenced by the climate.

4) Explain in detail Use Zoning.

5) Explain the causes and effects of slum.

6) Explain the arrangements made at road junctions to avoid traffic congestion.

7) Write short notes on (**any 3**) :

   1) Land use

   2) Rural urban migration

   3) Apartments and skyscrapers

   4) Rectangular street system.

_____

SLR-K – 48

Seat No.	

B.Arch. (Semester – VI) Examination, 2015
ESTIMATING SPECIFICATION AND COSTING – I

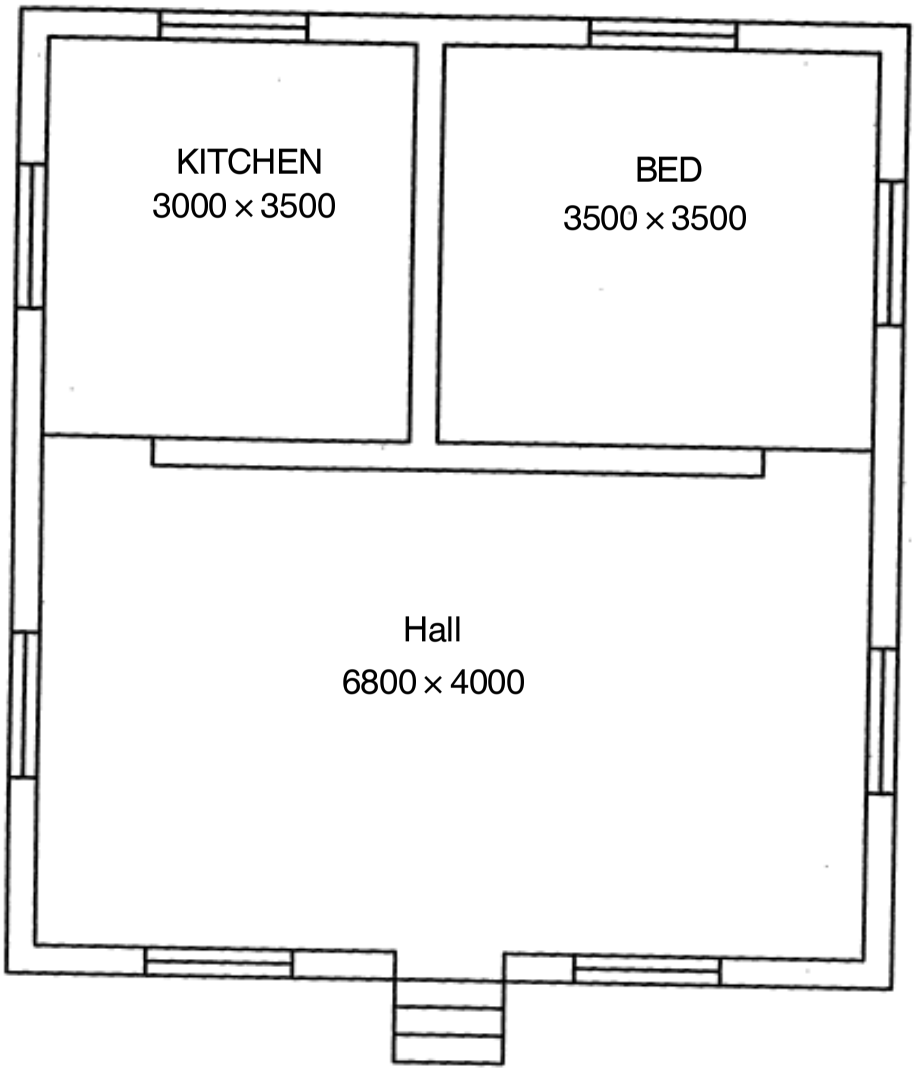
Day and Date : Saturday, 19-12-2015 Max. Marks : 80

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

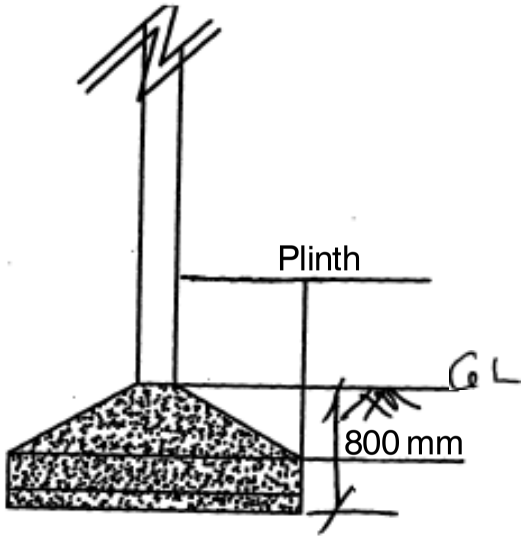
N.B. : *1)* ***All*** *questions are* ***compulsory****.*
2) Non programmable calculator is ***allowed****.*

1. From the given figure no.1 calculate the following items for the residential building with no. of rooms (Load bearing type structure) and prepare measurement sheet. **45**
   1) Excavation in foundation
   2) Plinth filling
   3) PCC for foundation
   4) Flooring work
   5) Door and window work.
2. Prepare Abstract sheet for above residential building with no. of rooms. **15**
   1) Excavation in foundation = Rs. 300/cum
   2) Plinth filling = Rs. 750/cum
   3) PCC for foundation = Rs. 3,300/cum
   4) Flooring work = Rs. 440/sqm
   5) Door and window work = Rs. 650/sqm
3. Prepare rate analysis for the following items, (**any two**). **10**
   1) Brick Masonary work
   2) Internal Plaster work
   3) RCC Coloumn.
4. Mention the units for the following items. **10**
   a) Flooring
   b) R.R. Masonry
   c) Plastering for pointing
   d) Damp proof course
   e) R.C. sunshade (Specified width and thickness).

P.T.O.


KITCHEN
3000 × 3500
BED
3500 × 3500
Hall
6800 × 4000

PLAN


Plinth
G L
800 mm

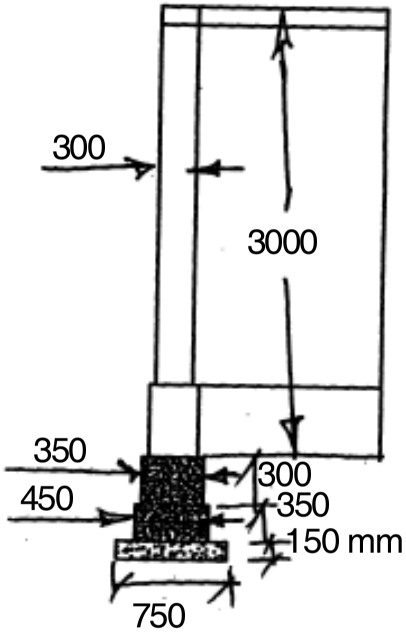

300
3000
350
450
300
350
150 mm
750

Fig. – 1

SLR-K – 49

Seat No.	

B.Arch. (Semester – VII) Examination, 2015
ENVIRONMENTAL DESIGN

Day and Date : Monday, 7-12-2015 Total Marks : 100

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

***Instructions**: 1) Please assume suitable **wherever** necessary.*

*2) Draw sketches **where** necessary.*

*3) Solve **any 5** question from the given **7**.*

*4) **Each** question carries **20** marks.*

1. Explain the concepts of Reduce, Recycle and Reuse. Explain how they can be used in settlement design or neighbourhood design.

2. What is F.S.I. ? What is its importance ? How does it effect our immediate Neighbourhood and cityscape ?

3. Propose a landscape design for a workers quarters in ujani colony. Draw relevant sketch plan, section and details. Refer figure – A.

4. What is neighbourhood ? What amenities would you provide for a neighbourhood of 15,000 people ? State certain rules for the same.

5. Describe the surroundings of your college (radius-500 m) with the help of sketches.

6. Describe any 2 methods of low energy construction of buildings.

7. Describe types of housing with neat sketches.

P.T.O.

SLR-K – 49

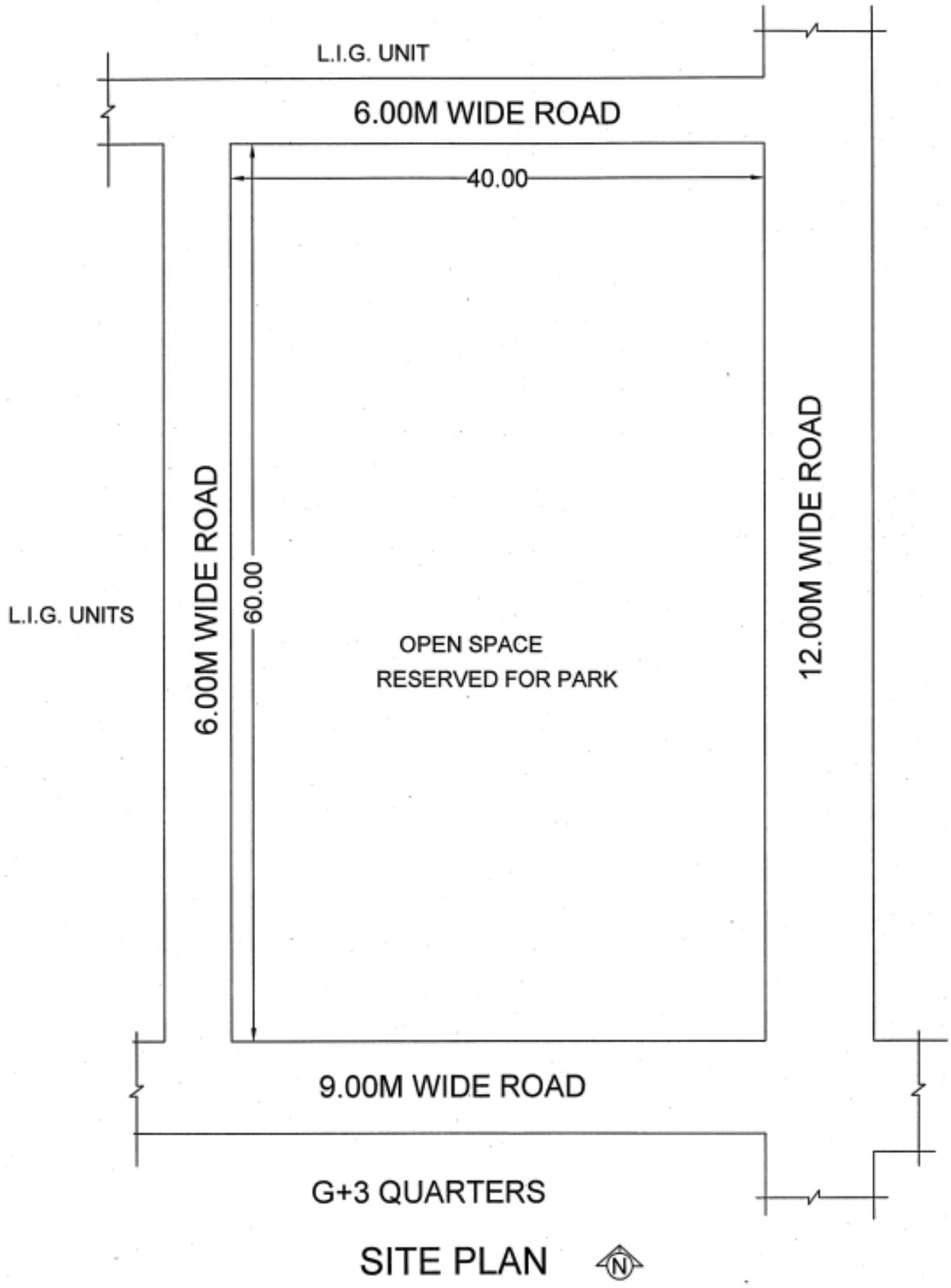

L.I.G. UNIT
6.00M WIDE ROAD
40.00
6.00M WIDE ROAD
60.00
L.I.G. UNITS
OPEN SPACE
RESERVED FOR PARK
12.00M WIDE ROAD
9.00M WIDE ROAD
G+3 QUARTERS
SITE PLAN
N

Fig. A

SLR-K – 50

Seat No.	

B.Arch. (Semester – VII) Examination, 2015
BUILDING CONSTRUCTION AND MATERIALS – VII

Day and Date : Wednesday, 9-12-2015 Max. Marks : 50
Time : 3.00 p.m. to 6.00 p.m.

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

I. Fill in the blanks : **(1×5=5)**

a) Concrete portal frames are usually spaced at _____

b) Demolition ball techniques should not be used on buildings over _____ high.

c) Domes works on the principle of _____ like arch and vaults.

d) _____ are continuous conveyors designed for moving large number of people quickly and efficiently from one floor to another.

e) The maximum length of bays excavated for underpinning of traditional wall construction is _____

II. Design a cold storage to store dairy products. The storage is attached to chilling plant. The size of the cold storage is 4.0 m × 6.0 m × 2.8 m height. Provide an anti room of size 2.0 m × 2.5 m × 2.8 m. Draw plan, sections and enlarged details. Also write a note on the treatment of wall, floor and ceiling.

III. a) Describe fire proofing and retarding material and the construction measures adopted for using this. **15**

OR

a) Write in detail types, properties and application of adhesives in building industry. **15**

IV. Write short notes (**any 3**) : **(5×3=15)**

i) Portal frame

ii) Lift and escalator

iii) Underpinning (Pit method)

iv) Gantry girder

v) Space frame.

SLR-K – 51

Seat No.	

B. Arch. (Semester – VII) Examination, 2015
THEORY OF STRUCTURE – VII

Day and Date : Friday, 11-12-2015 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Use of Scientific calculator and IS-456 is **allowed**.*

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

*3) Figures to **right** indicate **full** marks.*

SECTION – I

1. Choose correct option for following : **8**

i) What is point of origin of Earth-quake ?

a) Focus b) Epicentre

c) Scarp d) N.A.

ii) Partal frames made of _____ materials.

a) steel b) concrete and steel

c) concrete d) N.A.

iii) IS-code provisions for water tanks

a) IS 456 b) IS 3370 c) IS 875 d) N.A.

iv) _____ is a part of Grid slab.

a) Simply supported slab b) One-way slab

c) Waffle slab d) N.A.

2. A) Write a note on waffle and hollow block slab. **8**

B) IS-code provisions for under-reamed piles. **8**

P.T.O.

3. A) Explain raft foundation with sketches. **8**

   B) Explain the concept of overhead, on ground and under ground water tanks with forces acting on it. **8**

4. Write in detail, design steps for **16**

   A) Circular water tank.

   B) Rectangular water tank both resting on ground with flexible base.

SECTION – II

5. A) Write advantages and disadvantages of prestressed concrete. **4**

   B) Write a note on ductile detailing of structural members. **4**

6. A) Explain different types of loads acting on structural members and load distribution of RCC building. **8**

   B) Write a note on gantries and cranes and their design concept. **8**

7. A) Explain rigid frames and partal frames of RCC and steel. **8**

   B) Explain folded plates and shells. **8**

8. Differentiate between : **16**

   A) Prestressed and post stressed members.

   B) Prestressed and reinforced concrete members.

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SLR-K – 52

Seat No.	

B.Arch. (Semester – VII) Examination, 2015
ADVANCE ESTIMATING SPECIFICATION AND COSTING – II

Day and Date : Monday, 14-12-2015 Max. Marks : 80

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

N.B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Non programmable calculator is ***allowed****.*

1. Prepare an approximate estimate of building project with total plinth area of all building is 800 sqm and from following data. **25**
   i) Plinth area rate Rs. 4,500 per sqm.
   ii) Cost of water supply @ 7½% of cost of building.
   iii) Cost of sanitary and electrical installations each @ 7½% of cost of building.
   iv) Cost of architectural features @ 1% of building cost.
   v) Cost of roads and lawns @5% of building cost.
   vi) Cost of P.S. and contingencies @4% of building cost.

   Determine the total cost of building project.

2. Write a short note of following (**any two**) : **10**
   A) Plinth Are method
   B) Cubic content method
   C) Unit base method.

3. Write a short note of following (**any two**) : **10**
   A) Revised estimate
   B) Work charge establishment
   C) Detail specification.

4. What are the different types of specifications, elaborate any two types of specifications ? **10**

P.T.O.

5. Write in brief specifications on workmanship (**any three**) : **15**
   a) Uncoursed rubble masonry
   b) Brick work
   c) Sand faced cement plaster
   d) White or colour wash.

6. Distinguish between Earnest money deposit and security deposit. **10**

SLR-K – 53

Seat No.	

B.Arch. (Semester – VII) Examination, 2015
ADVANCED ARCHITECTURAL DESIGN – VII (Old)

Day and Date : Wednesday 16-12-2015 Total Marks : 150
Time : 10.00 a.m. to 4.00 p.m.

Day and Date : Thursday, 17-12-2015
Time : 10.00 a.m. to 4.00 p.m.

Day and Date : Friday, 18-12-2015
Time : 10.00 a.m. to 4.00 p.m.

A Practising Orthopedic Surgeon at Akkalkot Wants to have clinic.

Akkalkot a small city having a population of 40 thousand to 50 thousand people. But it has got a catchment area around it from villages.

Clinic at Akkalkot level should never have ambience of extraordinary ambience in terms of materials, planning, comfort and circulation.

Design Programme :

1) Entrance, waiting reception as pert design, common toilets for ladies and gents – 15 sqm each

2) OPD with attached toilet, waiting – 25 sqm each (2 nos.)

3) Major Operation Theatre – 75 sqm

4) Minor Operation Theatre – 40 sqm

5) Casualty Ward – 50 sqm

6) General Wards with common toilet – 2 nos – 50 sqm each

7) Special Rooms with attached toilet – 10 nos – 25 sqm each

P.T.O.

8) ICU – 6 beds – 60 sqm

9) Nurses Room – 25 sqm

10) Lunch Room with toilet attached – 30 sqm

11) Doctors Residence :

a) Living – 40 sqm

b) Kitchen + Dining – 30 sqm

c) Common Toilet – 10 sqm

d) Master Bedroom with toilet – 30 sqm

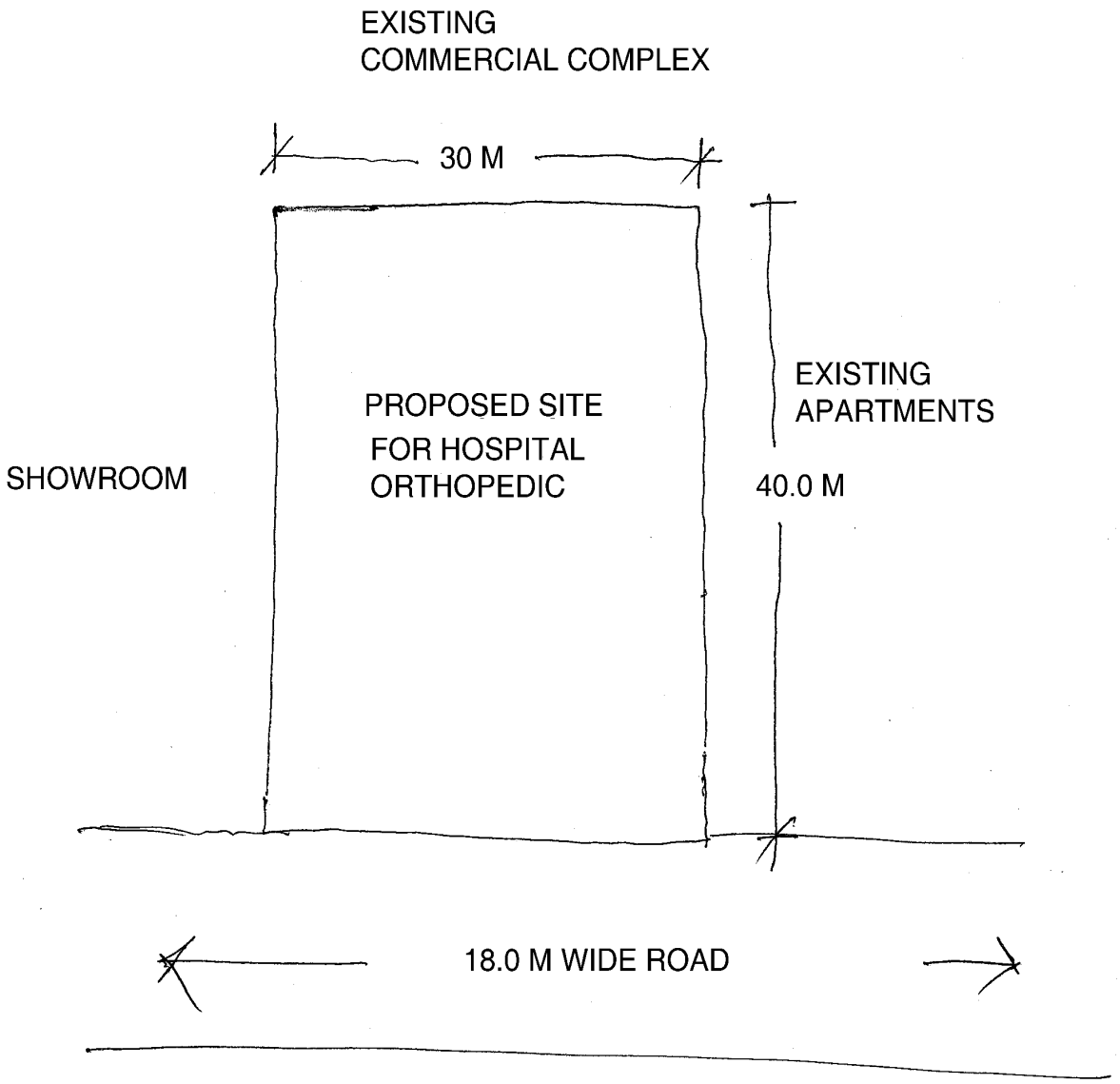
e) Childrens bed with toilet – 25 sqm

f) Guest bed room attached toilet – 2 nos – 25 sqm each

Terraces, balconies, passages, corridors, staircases, lift as required.

Drawing Requirements :

Concept	**15**
Site Plan with parking and landscape – 1 : 300	**30**
All Floor Plans – 1 : 100	**50**
Minimum Two Elevations	**20**
Minimum Two Sections	**20**
Sketch view	**15**



NOTE : EXISTING BANK BOTH

FRONT SET BACK (6.0 M MIN)

ALL OTHER SIDES (3.0 M CMIN)

N.

SLR-K – 56

Seat No.	

B.Arch. (Sem. – VIII) (New) Examination, 2015
PROFESSIONAL PRACTICE – II

Day and Date : Tuesday, 8-12-2015 Total Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

***Instructions** : 1) Q. no. **1** and Q. no. **2** are **compulsory**.*
*2) Answer **any 5** from the **remaining** question.*

I. A) Fill in the blanks : **5**

1) C.O.A. stands for _____
2) _____ is an agreement enforceable by law.
3) _____ competition are held for projects estimated at less than Rs. 10,000.
4) In type of _____ tender highest tender or quotation in usually selected.
5) Arbitrator is a person who is appointed to settle the _____ between the two parties.

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

1) Define an easement.
2) Define an award given by the arbitral tribunal.
3) Define dilapidation.
4) Define tender.
5) What are the different types of competition ?

II. Write short notes on (**any 4**) : **20**

1) Advantages of single ownership of a architectural firm.
2) Tender documents
3) Arbitral tribunal
4) Types of easement
5) Architectural competitions.

P.T.O.

III. Describe the scale of fees of architectural services as per C.O.A. **10**

IV. Draft a typical format of tender notice. **10**

V. Is arbitration the better way of settling the disputes between the two parties ? Justify your answer. **10**

VI. What are the duties of assessor or jury members in architectural competitions ? **10**

VII. Explain servient heritage and dominant heritage with an example. **10**

VIII. Describe the factors considered for child labour under Labour Act. **10**

SLR-K – 57

Seat No.	

B.Arch. (Semester – VIII) (Old) Examination, 2015
PROFESSIONAL PRACTICE – II

Day and Date : Tuesday, 8-12-2015 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *I) Questions **1** and **2** are **compulsory**.*
*II) Draw neat sketches **wherever** necessary.*
*III) Answer **any five** from **remaining** questions.*

1. A) Fill in the blanks : **5**
   a) An act for the registration of architects and for matters concerned there with is _____
   b) Tender is defined as an _____
   c) _____ is a written decision given by the arbitrator on issues referred.
   d) In demolition tender the _____ tender should be approved.
   e) Final certificate is issued to the contractor after expiry of _____

   B) Answer in **one** sentences : **5**
   a) What is an continuous easement ?
   b) Define an architect ?
   c) Who is an arbitrator ?
   d) What is meant by dilipidations ?
   e) Mention any four types of tender ?

2. Write short note (**any four**) : **20**
   a) Types of architectural firm.
   b) Tender notice.
   c) Advantages of arbitration.
   d) Characteristics of easement.
   e) Duties of an Assessor.

P.T.O.

3. Explain scale of fees architects with stages. **10**

4. Explain in brief, tender document. **10**

5. What is meant by arbitration ? Explain the advantages and disadvantages of setting the disputes by the above method. **10**

6. Explain principal requirements and conditions of conducting architectural competitions. **10**

7. What is an easement ? Describe the modes of acquiring it. **10**

8. What are the factors considered for labour under Labour Act ? **10**

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