Seat No.

B.Arch. (Semester – I) (New CBCS) Examination, 2016
THEORY OF STRUCTURE – I

Day and Date : Wednesday, 14-12-2016   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** indicates **full** marks.
4) **Assume** suitable data if **necessary**.

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

    1) The equation used to evaluate truss is
       a) m = 2j + 3   b) m + 3 = 2j
       c) m = 2j – 3   d) m – 2j = 3

    2) 1 KN force is equal to _____ N.
       a) 10^9 b) 10^4 c) 10^6 d) 10^3

    3) When line of action of two or more forces on same plane and acting at different points then they are _____
       a) Collinear force Concurrent   b) Non-Collinear force Concurrent
       c) Coplanar Non-concurrent force   d) Coplanar force Concurrent force

    4) Force is nothing but
       a) Force X Velocity   b) Force * Perpendicular Distance
       c) Mass * Acceleration   d) Force/Perpendicular Distance

2. What is Beam ? Explain types of Beams in detail.   **6**

3. a) Write a note on loads considered in analysis of structures.   **7**

   b) State and explain Lamis theorem.   **7**

4. a) Write a note on system of forces.   **6**

   b) Five forces of 150N are acting at a point of regular hexagon towards all other points of regular hexagon. Calculate its resultant in magnitude and Direction.   **8**

P.T.O.

5. a) Explain in detail load bearing structure and framed structure. **6**

   b) Find Magnitude of two forces such that, if they act at right angles, their resultant is $\sqrt{10}$ KN and when they act at an angle of 60° their resultant is $\sqrt{13}$ KN. **8**

6. a) Calculate reactions at Supports. **11**
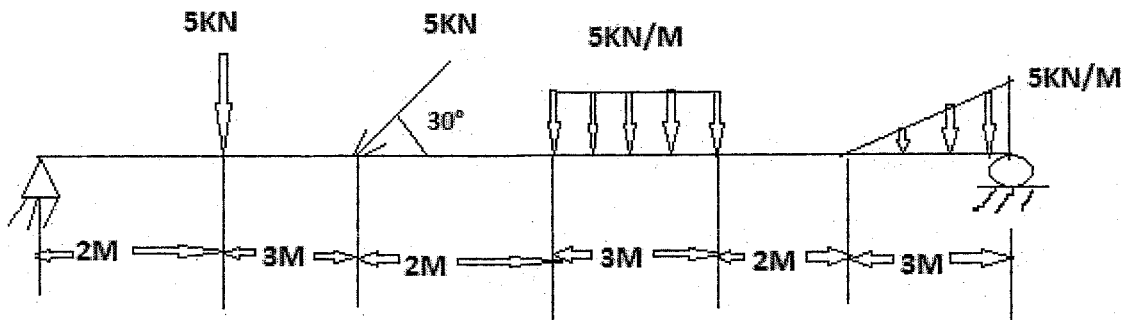
   b) Define Force, Resultant Force and Equilibrant Force. **3**

7. a) What do you mean by perfect, imperfect and redundant frame ? Explain with example. **6**

   b) A sphere of weight 200 N rests in a groove of smooth inclined surfaces which are making angle 50° and 40° inclination to the horizontal. Find reactions at the contact surfaces. **8**

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

   A) The wheel was an important discovery of _____ period.

   B) The swimming pool known as Great Bath was in the city of _____

   C) Arthashastra, is written by _____

   D) Rivers Tigris and Euphrates are associated with _____ civilisation.

   E) "Gift of the Nile" is _____

   F) Etruscans were influenced by _____ peoples.

   G) Entrance gateway of vedic village is known as _____

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

   1) Stone henges

   2) Mastabas

   3) Istar gate

   4) Vedic village Torana.

3. Briefly explain the settlement of Catal Huyuk with neat sketches.   **12**

4. Discuss the planning features and the town planning principles of Patliputra city.   **12**

5. Describe clerestorey, Entrance pylon and Obelisk in Egyptian Temple.   **12**

6. Briefly explain the Architectural features of Mesopotemian Culture with suitable
   example.   **12**

7. Describe briefly various features responsible for human settlement. Explain
   influence of environment on human settlement.   **12**

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Seat No.

B.Arch. (Semester – I) (CGPA) Examination, 2016
THEORY OF STRUCTURE – I (Old)

Day and Date : Wednesday, 14-12-2016　　　　　　　　　Total Marks : 70
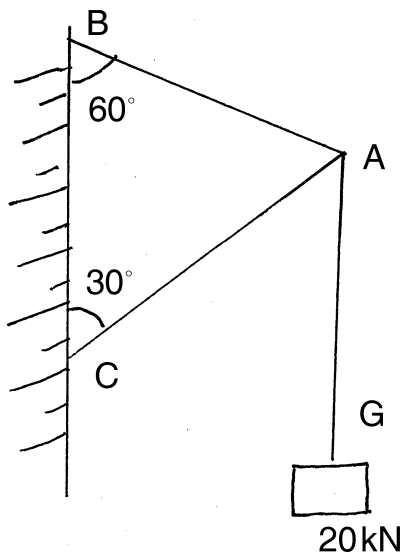Time : 10.00 a.m. to 1.00 p.m.

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** indicates **full** marks.
　　　　　　　　4) Assume suitable data if necessary.

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

　　1) The equation used to evaluate truss is
　　　　a) $m = 2j + 3$　　　　　　　　b) $m + 3 = 2j$
　　　　c) $m = 2j – 3$　　　　　　　　d) $m – 2j = 3$

　　2) 1 MN force is equal to _____ N.
　　　　a) 10^9　　　　b) 10^4　　　　c) 10^6　　　　d) 10^3

　　3) When line of action of two or more forces on same line they are
　　　　a) Collinear force　　　　　　　b) Non-Collinear force
　　　　c) Non-Concurrent force　　　　d) Coplanar force

　　4) Force is nothing but
　　　　a) Mass × Velocity　　　　　　b) Mass/Velocity
　　　　c) Mass × Acceleration　　　　d) Mass/Acceleration

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

3. a) Explain in detail law of parallelogram of forces.　　　　　　　　**6**

　　b) Five forces 150, 250, 350, 450 and 550 N are acting at angles of 45°, 110°, 210°, 280° and 340° in anticlockwise direction from X-axis at a point, all are acting away from the point. Find resultant force.　　　　　　　　**8**

4. a) Two force of equal magnitude 'P' are acting at a point with angle θ.
　　Calculate θ if R = P.　　　　　　　　**6**

　　b) State and explain different types of
　　　i) Supports　　　　　　ii) Beams　　　　　　**8**

5. Write a short note on :

   a) Load bearing structure and framed structure. **6**

   b) Forces of 5, 6, 7, 8 and 9 N respectively are acting at one of the angular points of regular hexagon towards other five angular points taken in order. Find resultant of the system. **8**

6. a) A simply supported beam ABCD of span 8 m is supported at A and D. The point loads of 20 KN and 30 KN are acting at B and C. AB = BC = 2m. In addition to this, a udl of 5 KN/m is acting on BD. Find support reactions. **10**

   b) State and explain Lami's theorem. **4**

7. a) What do you mean by perfect, imperfect and redundant frame ? Explain with example. **6**

   b) The frictionless pulley A shown in figure is supported by two bars AB and AC which are hinged at B and C to a vertical wall. Pulley supports a load of 20 kN at G. The angles between the various members are shown in figure. Determine the forces in AB and AC. Neglect the size of pulley. **8**

Seat No.

B.Arch. (Semester – I) Examination, 2016
HISTORY OF ARCHITECTURE – I (Old – CGPA Pattern)

Day and Date : Friday, 16-12-2016   Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : 1) *Figures to the* **right** *indicate* **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) New stone age is termed as _____.

   2) Most important River for Egyptian civilization is _____.

   3) Land between river Tigris and Euphrates is known as _____.

   4) Aryan's literature is written in _____ language.

   5) Building material used for vedic huts _____ and _____.

   6) _____ civilization is termed as queen of all civilization.

   7) Magnificient stepped structures built during in west Asiatic period is _____.

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

   1) Obelisk.

   2) Temple of juno sospito.

   3) Stone Henge.

   4) Ape man.

3. Distinguish between Paleolithic Age and Neolithic age.   **12**

4. Describe the town planning in Indus Valley Civilization.   **12**

5. Explain with neat sketch "Palace of Tiryns".   **12**

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

7. Explain why the ancient settlements flourished on river banks.   **12**

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B.Arch. (Semester – II) (CGPA Pattern) Examination, 2016
## ARCHITECTURAL GRAPHICS – II

Day and Date : Wednesday, 30-11-2016 Max. 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

3.00

6.00

P^1

45°

P

ELEVATION

5.00 cms Dia.

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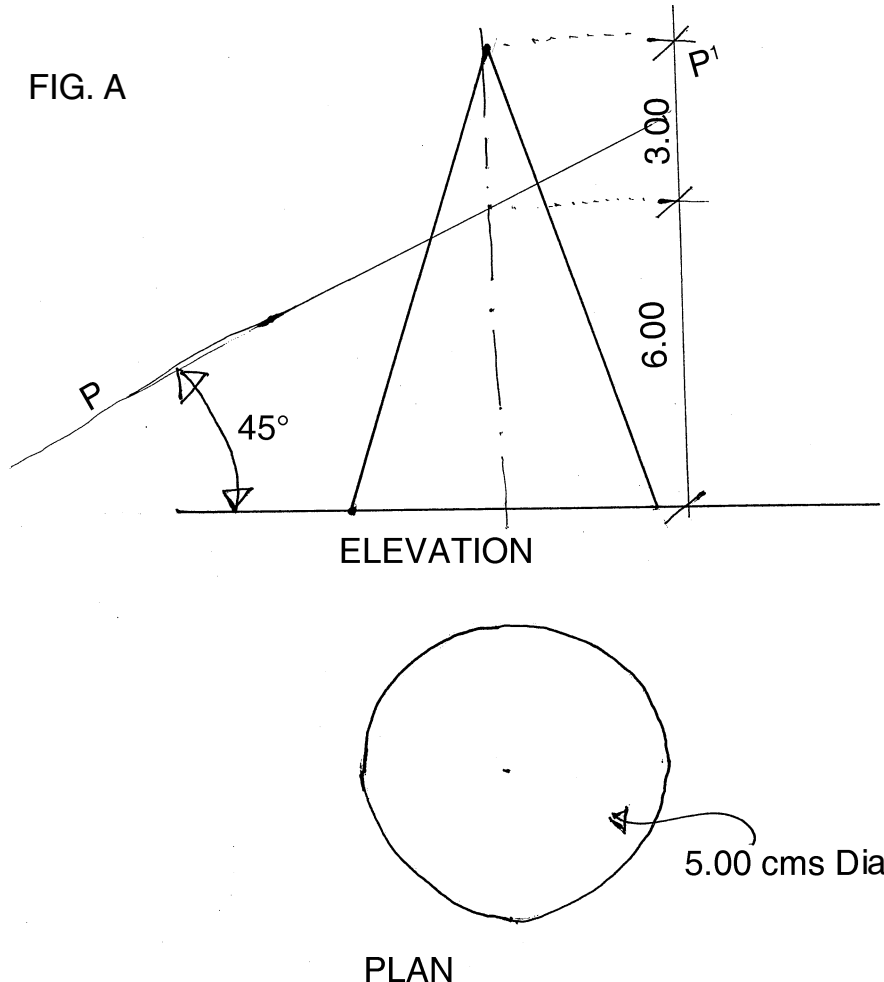
2. Draw true cut portion or development of surface of cut object from Q. No. 1 of Fig. A. (Scale – 1 : 1). **10**

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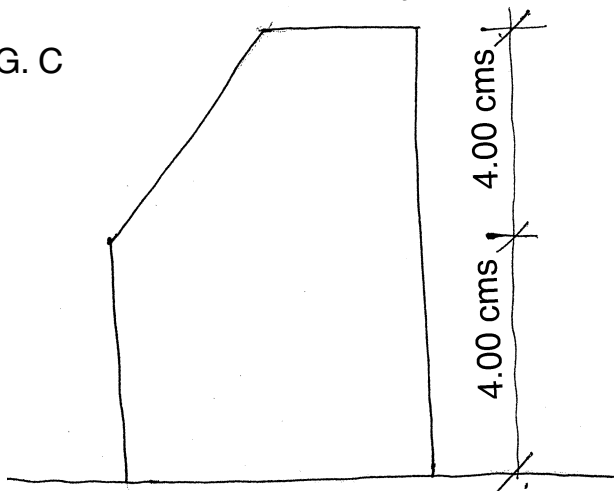
FIG. B

8.00 cm

4.50 cm

4.00 cm Dia. and Height 8.00 cms
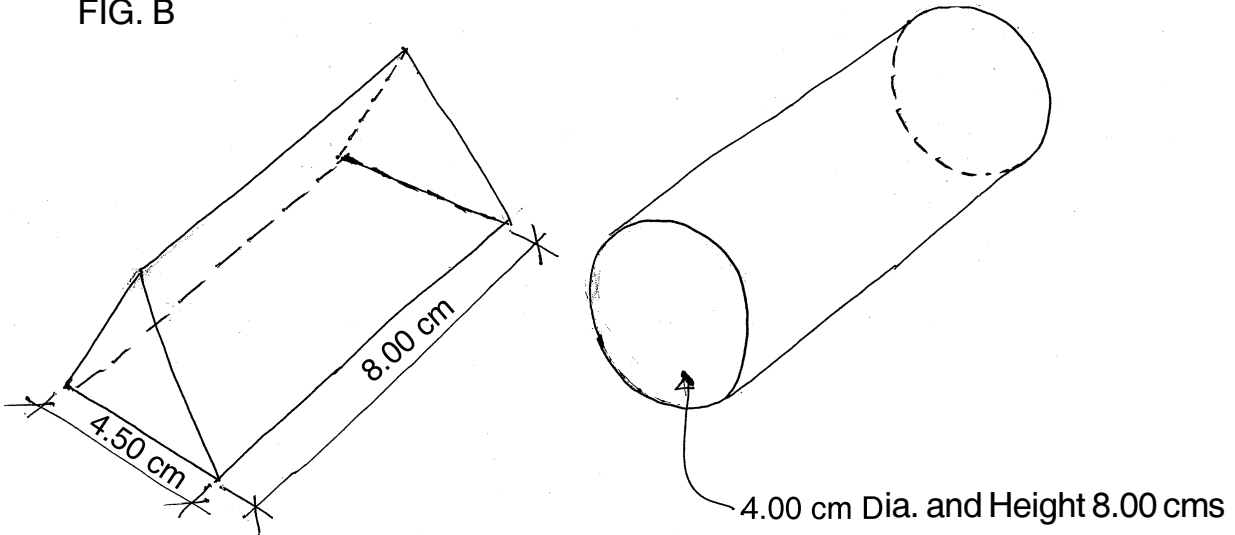
4. Draw isometric view of the object shown in Fig. C. **15**

FIG. C

4.00 cms

4.00 cms

ELEVATION

3.00 cms

3.00 cms   3.00 cms
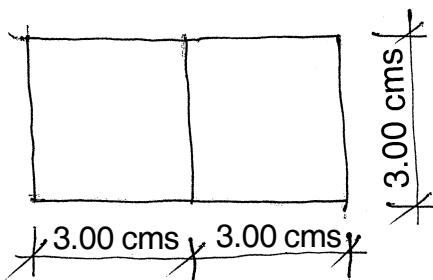
PLAN

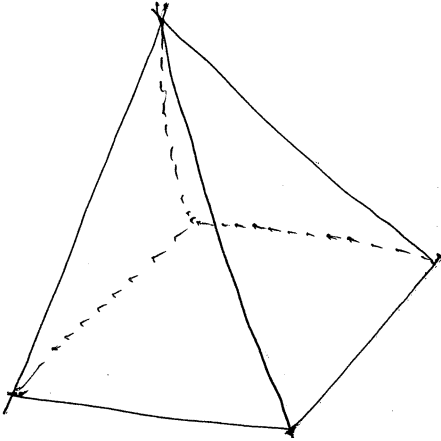5. Mention the no. of surfaces of the following objects as shown in Fig. D.   **5**
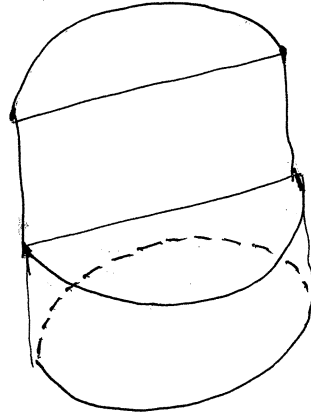
   FIG. D

   ①   ②

   _____

Seat No.

B. Arch. (Semester – II) (CGPA) Examination, 2016
THEORY OF STRUCTURE – II

Day and Date : Friday, 2-12-2016

Time : 10.00 a.m. to 1.00 p.m.   Total Marks : 70

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.   **8**

    1) The Moment of inertia for a rectangular section is

        a) $bd^3/12$ b) $db^3/12$

        c) $b^3d^3/12$ d) $bd^2/12$

    2) 1 GPa = _____N/m^2.

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

    3) If the material undergoes considerable deformation with rupture then it's _____ material .

        a) Brittle   b) Ductile   c) Plastic   d) Elastic

    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

2. What do you mean by stress ? Explain different types of stresses.   **6**

3. A metal bar 50 mm × 40 mm thick in section is subjected to axial compression of 500 KN. Contraction was found to be 0.75 mm for length of 250 mm whereas increases in thickness was 0.05 mm. Find value of Poisson ratio and also E , K & G.   **14**

P.T.O.

4. a) Explain in detail radius of Gyration. **7**

   b) What do you mean by SFD and BMD ? Explain simply supported beam with centre point load as an example. **7**

5. a) Calculate the centroid of following : **10**
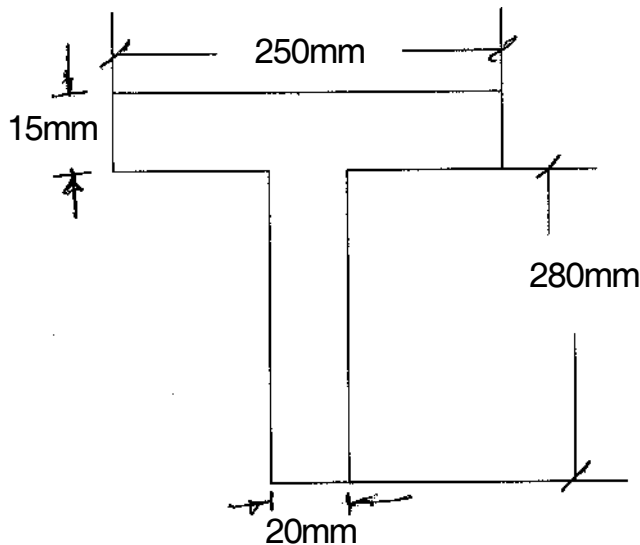
   b) Write a note on Parallel axis theorem. **4**

6. Draw SFD and BMD for the following beam **14**
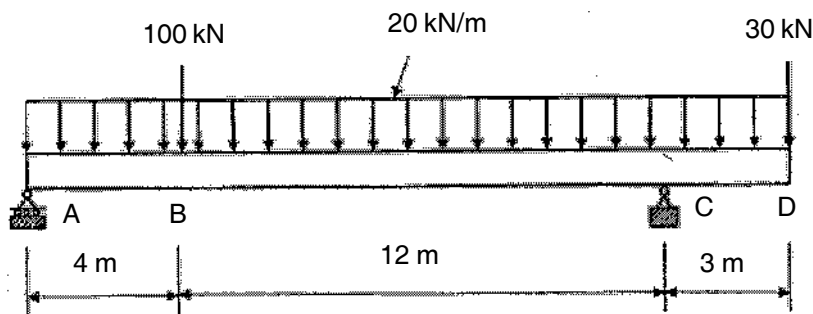
7. a) Explain in detail stress-strain graph. **10**

   b) A bar of 250 mm length of 15 mm diameter is stretched by 0.8 mm due to axial pull of 22 KN. Calculate stress, strain and also modulus of elasticity. **4**

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Seat
No.

B.Arch. (Semester – II) (CGPA) Examination, 2016
HISTORY OF ARCHITECTURE – II

Day and Date : Monday, 5-12-2016　　　　　　　　　　　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) The term Nirwana is associated with _____ religion.
　 2) Classical column consists of base, _____ and capital.
　 3) Arjun ratha and _____ ratha stands on the same platform.
　 4) Saint Sophia at Constantinople is also termed as _____
　 5) Ladkhan temple is situated in the state of _____
　 6) _____ is open air market place in Greek.
　 7) Example of Roman temple _____

2. Write short notes on **any 3** :　　　　　　　　　　　　　　　　**15**
　 A) Buddhist Torana
　 B) Dome in Hagia Sophia
　 C) Entablature
　 D) Greek theatre at Epiduarus.

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

4. Sketch and describe Durga Temple at Aihole.　　　　　　　　　**12**

5. Draw a neat sketch and explain Chaitya Hall at Karli.　　　　　**12**

6. Describe Rathas and where are they located. Explain dharmraj rathas in detail
　 with a neat sketch.　　　　　　　　　　　　　　　　　　　　　**12**

7. Explain Basilican church of St. Peter Rome.　　　　　　　　　　**12**

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B.Arch. (Semester – III) Examination, 2016
(CGPA Pattern)
ARCHITECTURAL GRAPHICS – III

Day and Date : Tuesday, 29-11-2016   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 10.00 cms away from 'X'.

    d) The eye level is 10.00 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 12.00 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**

Fig. A

ELEVATION

2.00

2.00

2.00

2.00

2.00

GROUND LEVEL

8.00 CMS

PICTURE PLANE

2.00   4.00   2.00

PLAN   90°

S.P

STATION POINT = 10.00
EYE LEVEL   = 10.00

Fig. B

PLAN AND ELEVATION

Fig. C

AXIS

ELEVATION

GROUND LEV.

2.00

1.50

3.00

4.00 CMS

3.00

3.00

3.00 CMS DIA

3.00 CMS

9.00 CMS

PLAN

Seat No.

B. Arch. (Semester – III) Examination, 2016
CLIMATOLOGY AND ENVIRONMENT – I (CGPA)

Day and Date : Thursday, 1-12-2016   Total Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Note : 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) _____ on 23.5 N latitude experienced longest day on earth.
      a) 21-Jun.   b) 21-Sep.
      c) 21-May   d) 23-Mar.

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

   3) Interval or difference between temperature is _____
      a) degC   b) °C
      c) deg   d) none of above

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

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

   6) Humidity is measured in _____
      a) deg C   b) °C
      c) %   d) Watts
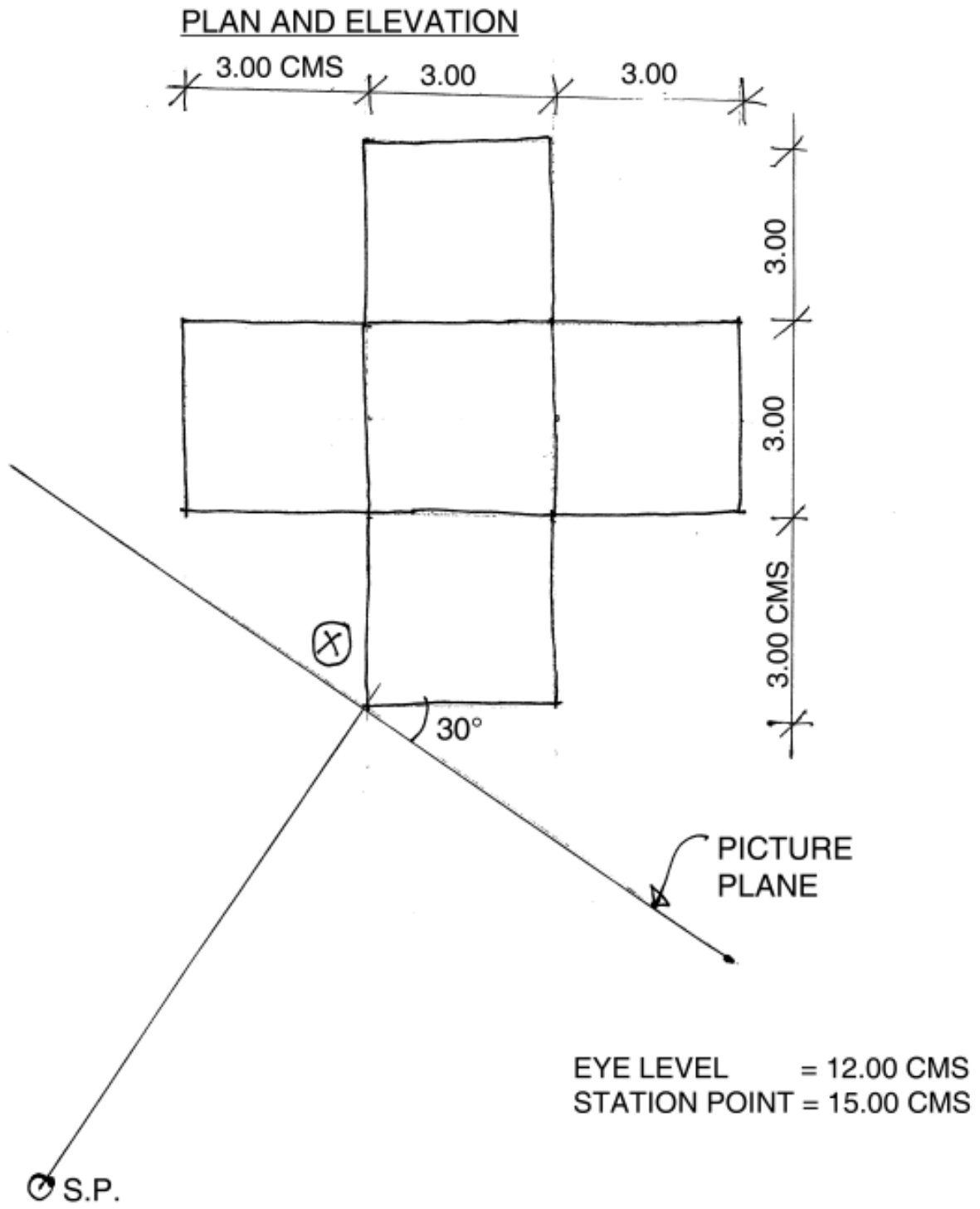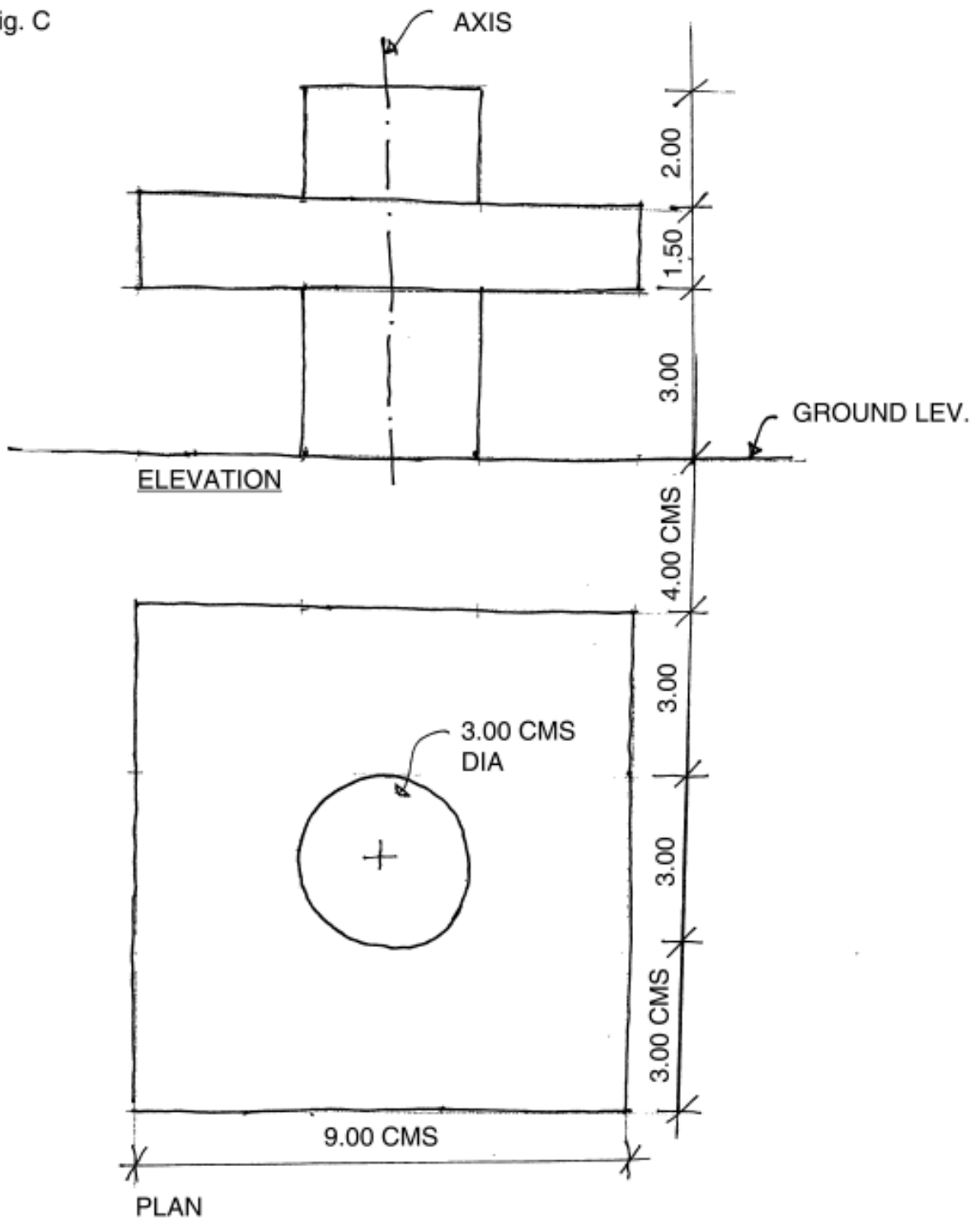
   7) DBT is measured in _____

   a) outdoor   b) bottle

      c) shade   d) none of the above

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

   1) Comfort Zone

   2) Bio Climatic chart

   3) Humidity

   4) Explain wind flow.

3. A) Find WBT RH AH when VP-1.2 kN/kg and DBT is 36° C using psycometric chart.   **6**

   B) What is micro climate ? Explain in short.   **6**

4. Explain warm and humid climate and with an example.   **12**

5. Give design strategies for hot and dry climate.   **12**

6. Explain psycomatric chart with sketches and also explain how to use them in design.   **12**

7. Explain how large water body will change wind flow and temperature around the city.   **12**

Psychrometric chart

Vapour pressure: kN/m^2

AH: g/kg

DBT:°C

RH %

WBT:°C

Saturation
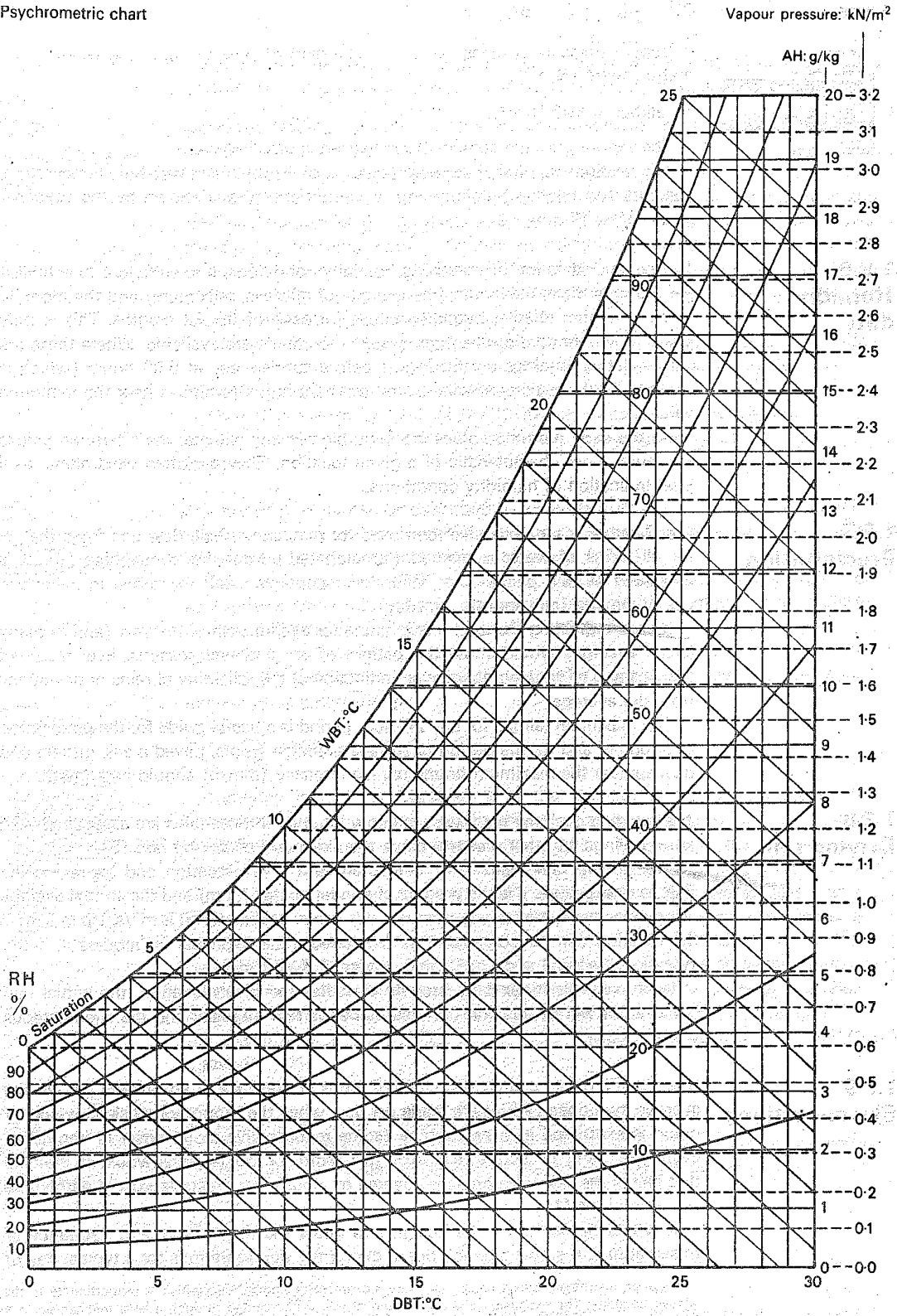
Seat No.

B. Arch. (Semester – III) Examination, 2016
THEORY OF STRUCTURE – III (CGPA)

Day and Date : Saturday, 3-12-2016   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** indicate **full** marks.
4) Assume suitable data if **necessary**.

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

   1) Formula for tangential stress is

      A) P Cosθ B) P Cos$^2\theta$

      C) P Sin2θ D) None of these

   2) A two-hinged arch is said to be

      A) statically determinate structure   B) statically indeterminate structure

      C) a bent beam   D) none of these

   3) For three moment theorem, at least _____ spans are required for analysis.

      A) 4   B) 3   C) 2   D) none
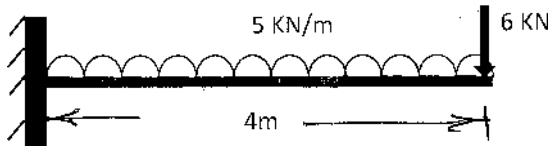
   4) One of the assumptions in theory of pure bending formula is

      A) beam is simply supported   B) beam obeys Hooks law

   C) beam is strong along the section   D) none of these

P.T.O.

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

3. a) Derive the equation for section modulus of Diamond of width "a". **6**

   b) A cantilever beam of width 200 mm and depth 400 mm is acted by point load as shown in fig. Find the maximum bending stress induced in beam. **8**

4. A rectangular section of beam size 400 × 600 is subjected to shear force of 40 KN. Calculate max shear stress, average shear stress and shear stress at 150 mm from N.A. **14**

5. a) What is assumptions theory of pure bending and pure shear ? **6**

   b) Write a short note on : **8**

   i) Chimneys   ii) Domes

6. Draw the shear force and bending moment diagram for following beam **14**
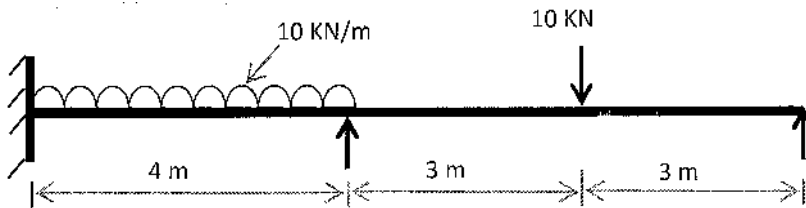
7. a) The principle stresses at point in bar are 150 N/mm^2 (compressive) and 150 N/mm^2 (compressive). Determine resultant stress in magnitude and direction on a plane inclined at angle of 60 degree to the axis of major principle stresses. **10**

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

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Seat
No.

B. Arch. (Semester – III) Examination, 2016
HISTORY OF ARCHITECTURE – III
(CGPA Pattern)

Day and Date :Tuesday, 6-12-2016

Time : 3.00 p.m. to 6.00 p.m.   Max. Marks : 70

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

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

a) _____ is an excellent example of Orissan Indo-Aryan architecture.

b) _____ are the magnificient doorways to temple complexes in Dravidian architecture.

c) Linaraj temple is located in _____ state.

d) _____ are protective rings in Madurai temple.

e) _____ stone was used for minute carvings in Hoysala temple.

f) Garbha griha is also called as _____

g) The plan of Khajuraho temple is _____ cross.

II. Write short notes on (**any 3**).   **15**
1) Describe the Dravidian order
2) Jain temple towns
3) Indo-Aryan shikharas
4) Stellate planning.

III. Explain in brief with neat sketches (**any 4**).   **(12 Marks each)**
1) Meenaxi Sundaram temple at Madurai
2) The Basilica church of Saint Peter Rome (New)
3) Sun temple at Konark
4) Khajuraho temple
5) Hoysaleshwar temple at Halebid.

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Seat No.

B.Arch. (Semester – III) (CGPA) Examination, 2016
BUILDING SERVICES – I

Day and Date : Thursday, 8-12-2016　　　　　　　　　　Total 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) _____ pipe is installed in the house drainage to preserve water seal.
　　2) _____ pipe carries discharges from soil fittings such as urinals, wc.
　　3) _____ is the lowermost level of sewer.
　　4) _____ pipe carries water discharge from bathroom kitchen sink.
　　5) The underground conduits or drains through which sewage is conveyed are known as _____
　　6) _____ is dry refuse.
　　7) _____ is a topmost part of a ventilation shaft.

2. Write short notes on (**any 3**) :　　　　　　　　　　　　　　**15**
　　1) Manhole
　　2) Spigot and socket
　　3) Grease trap
　　4) Gully trap.

3. Explain methods of collection for the sanitation of a town.　　**12**

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

5. Explain the necessity of pumping of sewage. What are the different types of pumps ?　　　　　　　　　　　　　　　　　　　　　　**12**

6. Explain different types of traps used for house drainage.　　**12**

7. Explain in detail use of brick, vitrified clay and concrete material for construction of sewer.　　　　　　　　　　　　　　　　　　　　　**12**

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Seat No.

B.Arch. (Semester – IV) (New – CGPA) Examination, 2016
BUILDING SERVICES – II

Day and Date : Wednesday, 30-11-2016   Total Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : 1) Q. No. **1** and Q. No. **2** are **compulsory**.
                         2) Solve **any 4** questions from **remaining**.

1. Fill in the blanks :   **7**
    a) Colour for pure water is _____
    b) Taste and odour checked in the _____ test of water.
    c) _____ is the device that regulates the flow of water.
    d) Addition of chlorine to water after all treatment is known as _____
    e) _____ of water is the most effective method of disinfection of water.
    f) _____ is the device which is used to tap the water from mains.
    g) Aluminium sulphate is used as _____ in the process of water treatment.

2. Short notes (**any 3**) :   **15**
    a) Solar water heater.
    b) Water softening.
    c) Rotary pump.
    d) Per capita consumption of water.

3. Explain importance and necessity of water supply.   **12**

4. Explain methods of water treatment with treatment layout.   **12**

5. Explain any two methods of distribution of water.   **12**

6. Calculate size of O/H water tank for 50 persons with neat sketch.   **12**

7. Explain water supply system for high rise building with neat sketch.   **12**

_____

Seat
No.

B.Arch. (Semester – IV) (CGPA) Examination, 2016
## ARCHITECTURAL GRAPHICS – IV (New)

Day and Date : Friday, 2-12-2016 Total Marks : 70
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-B in plan and elevation considering the source of light is in conventional direction on the vertical and horizontal planes of the object. **20**
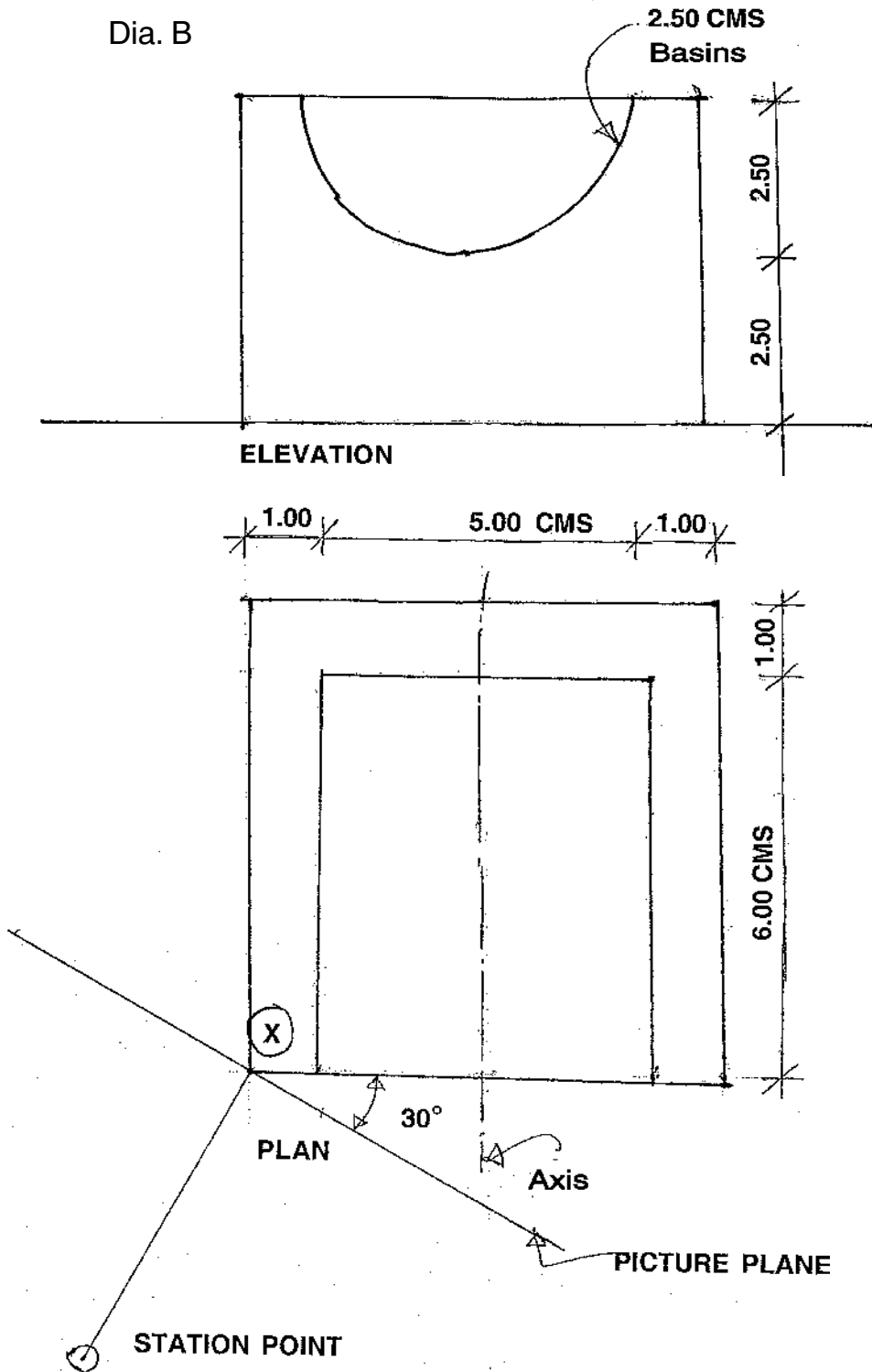

ELEVATION

ELEVATION
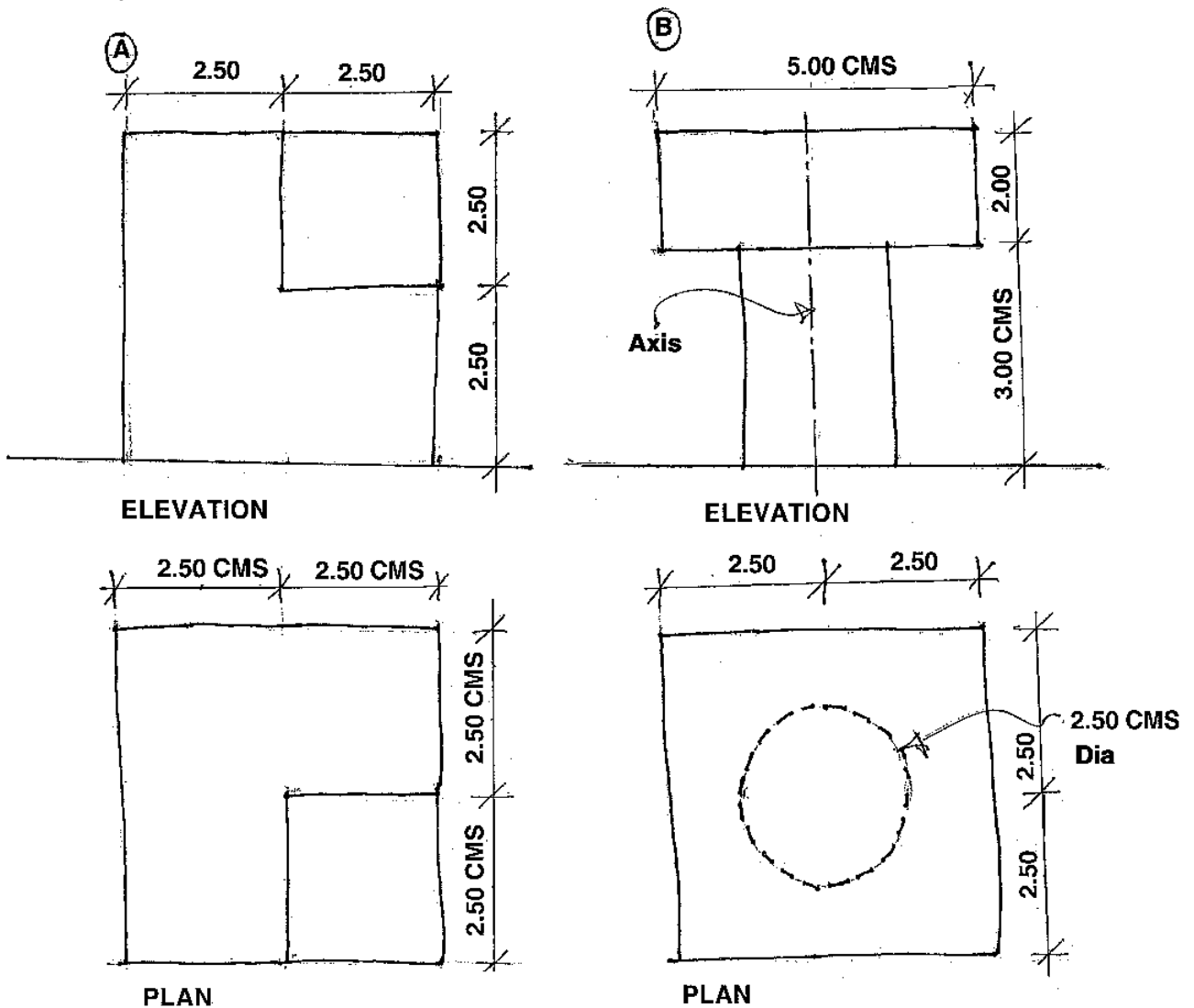
PLAN

PLAN

P.T.O.

2. Draw perspective view of the given object by observing points in Dia. B.   **20**
   a) A plane makes an angle as shown in Figure
   b) The picture plane touches the object
   c) Station point is 150 mm away from the 'X'
   d) The eye level is 150 mm above ground level.

Dia. B

ELEVATION
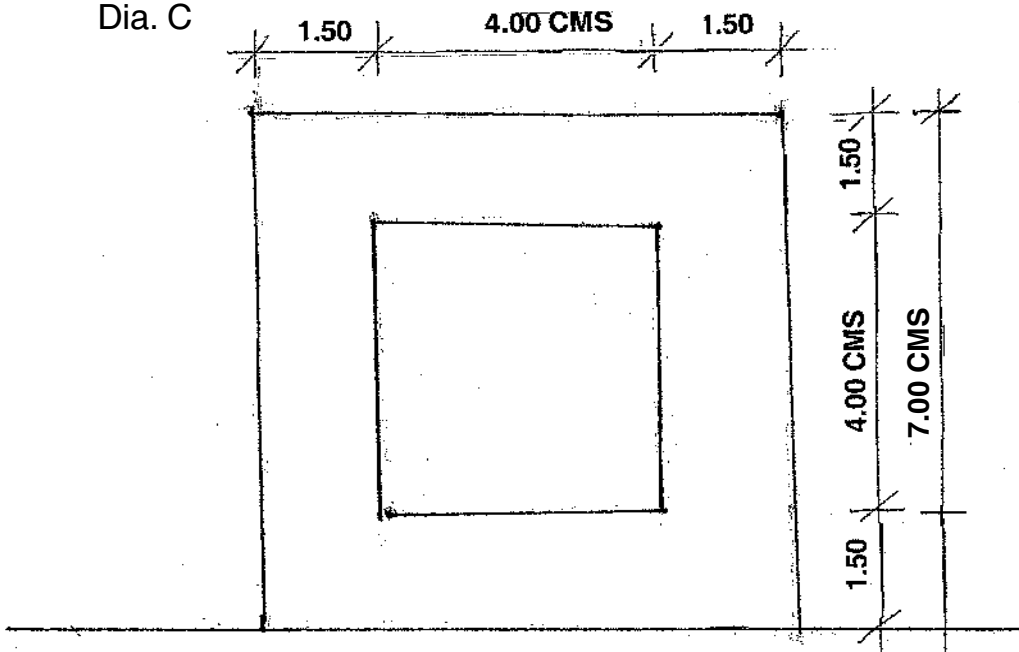
PLAN

30°

Axis

PICTURE PLANE

STATION POINT

3. Dia. C shows plan and elevation of the object as shown in figure. Draw perspective view observing the following points. **25**

   a) Picture plane passes through 'X'

   b) Station point is 150 mm away from picture plane

   c) Eye level is 120 mm away and above ground level and draw shades and shadows in perspective view.

Dia. C
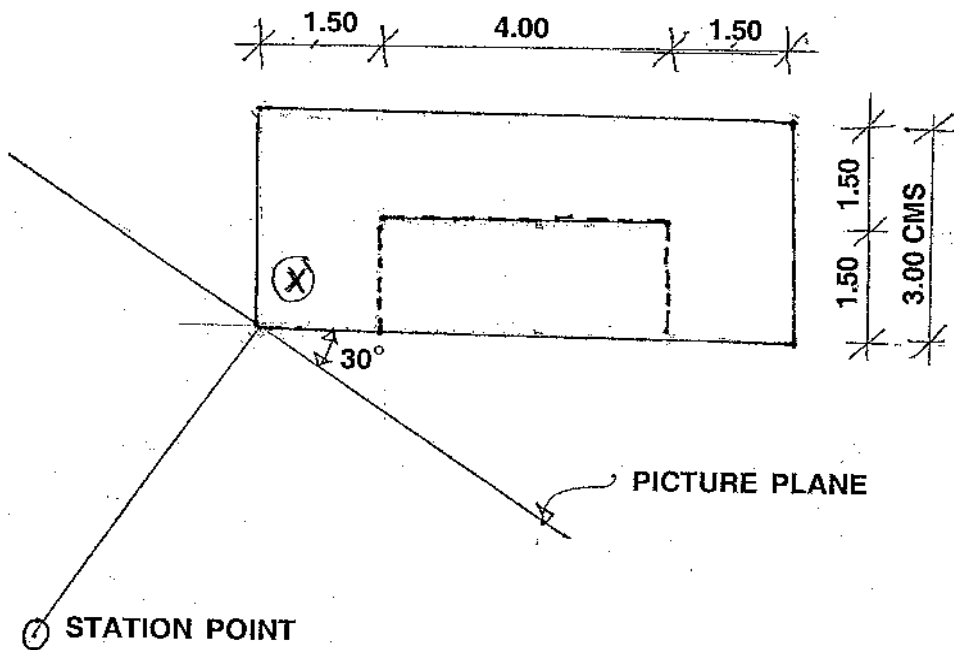
Seat No.

B.Arch. (Semester – IV) (CGPA) (New) Examination, 2016
CLIMATOLOGY AND ENVIRONMENT – II

Day and Date : Monday, 5-12-2016   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) **All** *questions are* **compulsory**.

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

   1) Ratio of outdoor and indoor illumination is _____.
      a) Day light factor   b) K factor
      c) Percentage   d) Natural light

   2) Humidity is measured in _____.
      a) decC   b) °C   c) %   d) Watts

   3) _____ city experiences moderate climate.
      a) Jaiselmer   b) Delhi   c) Solapur   d) Bangalore

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

   5) U value is reciprocal of _____.
      a) W   b) R   c) K   d) None of the above

   6) _____ is heat flow rate through unit area of body.
      a) Resistance   b) Conductance
      c) Diffusion   d) No change

   7) Difference between day and night temp gives _____.
      a) Time   b) DBT
      c) Diurnal range   d) Percentage

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

   1) Evaporative cooling tower.

   2) Day lighting in hot and dry climate.

   3) The Munsell system of colours.

   4) Earth sheltering.

3. A) Explain and sketch bio climatic chart and how to use it ? **6**

   B) Explain and sketch stack ventilation. **6**

4. Explain micro climate analysis technique at site scale with site matrix. **12**

5. A) Find solar altitude and azimuth angle for given chart at 2 p.m. on 15th Oct. and 9 a.m. on 28th Feb. for 44° North latitude. **5**

   B) Find out horizontal and vertical shadow angle for given chart at 3 p.m. on 15th May and 11 a.m. on 22nd June for 44° North latitude also give sketches. **7**

6. Give design considerations with sketches for hot and dry climate. **12**

LATITUDE 44° NORTH

LATITUDE 44° SOUTH
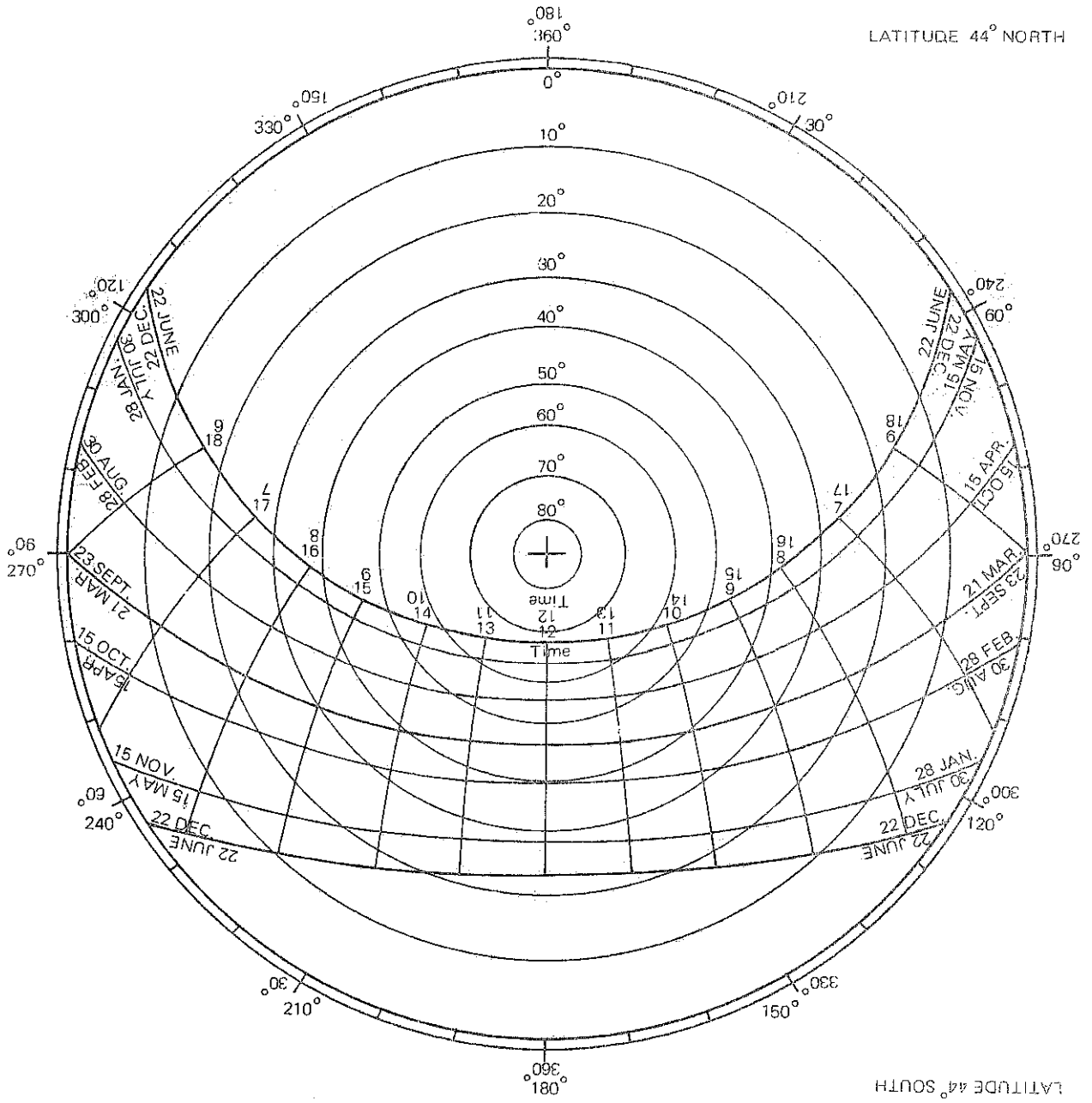
Seat No.

B.Arch. (Semester – IV) Examination, 2016
THEORY OF STRUCTURE – IV (New – CGPA)

Day and Date : Wednesday, 7-12-2016   Total Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : 1) **Use** of Scientific calculator.

2) Q. No. **1** is **compulsory**.

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 load at which a vertical compression member just buckles is known as

    a) crippling load   b) transverse load

    c) axial load   d) none

2) Bending of beam occurs under

    a) Axial load   b) Transverse load

    c) Direct load   d) None

3) A beam of uniform strength has

    a) same cross-section throughout the beam

    b) same bending moment at every section

    c) same bending stress at every section

    d) same shear stress at every section

4) In working stress method, material obeys

    a) Eulers law   b) Newtons law

    c) Stress-strain law   d) Hooks law

5) The maximum deflection of cantilever beam with UDL on full length is

   a) $wL^4/(8EI)$ b) $wL^4/(6EI)$ c) $wL^4/(4EI)$ d) $wL^4/(2EI)$

6) Any retaining wall retains,

   a) Saturated soil   b) Unsaturated soil

   c) Water   d) All of the above

7) The stresses produced in bending beam is given by,

   a) M x y / E   b) M x y / I   c) M x I / y   d) None of the above

2. Write short note on **any three** of the following :   **15**

   a) Differentiate working stress method and limit state method.

   b) Explain different types of retaining walls with diagram.

   c) What are structural properties and allowable stresses in masonry structure ?

   d) Explain concept of core of section with example.

3. Solve **any four** of the following :   **48**

   a) What is Eulers crippling load for the column of length 7 m long with both ends fixed. Column is "I" section with flange 200 mm × 25 mm and web 400 mm × 25 mm. Take $E = 2 \times 10^5$ N/mm^2.

   b) The simply supported beam has the cross-sectional area shown. Determine the absolute maximum bending stress in tension and also in compression in the beam and draw the stress distribution over the cross section at the mid-span.
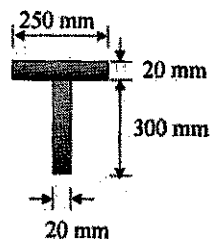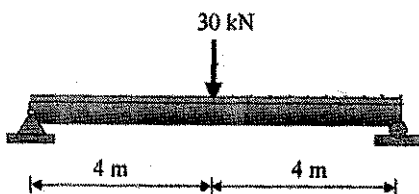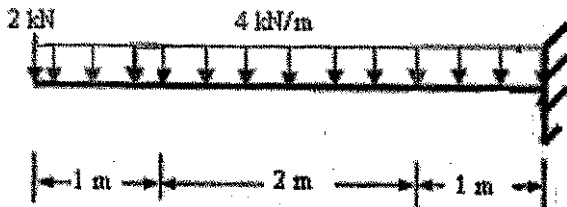

   c) Derive the equation for core of section for circular and rectangular section.

d) Find the slope and deflection for the following beam if $EI = 60 \times 10^3$ KNm^2

17.5 kN

5 kN/m

4 m   4 m
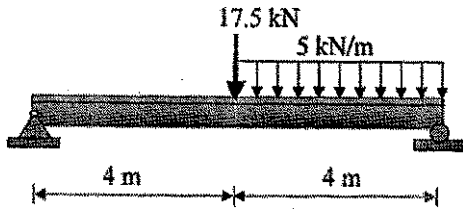
e) Find the slope and deflection for the following beam if $E = 2 \times 10^5$ N/mm^2, $I = 5.5 \times 10^6$ mm^4

2 kN   4 kN/m

1 m   2 m   1 m

_____

Seat No.

B.Arch. (Semester – IV) (CGPA) (New) Examination, 2016
HISTORY OF ARCHITECTURE – IV

Day and Date : Friday, 9-12-2016　　　　　　　　　　　　Max. Marks : 70
Time : 3.00 p.m. to 6.00 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) The Holy book of Islam is _____

　2) Victoria Terminus is now known as _____

　3) Tower of victory built by Qutb-ud-din Aibak _____

　4) Private hall of audience in Fatehpur Sikri _____

　5) Humayun was succeeded by his son _____

　6) Moghal Gardens have _____ pattern.

　7) Any one example of covered mosque in India _____

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

　A) Rajpath

　B) Sahan

　C) Mihrab

　D) Diwane-I-Khass.

3. Write detail with neat sketch of Quwat-ul-islam mosque. **12**

4. Explain the plan, elevation and decorative elements of Raja Birbals House and Diwane Khass in Fatehpur Sikri. **12**

5. Explain the plan and exterior features of Ibrahim Rauza at Bijapur. **12**

6. Explain the technique of dome construction in the Islamic architecture. **12**

7. Explain with neat sketch V.T.Terminus Station. **12**

_____

Seat No.	

B.Arch. (Semester – IV) Examination, 2016
BUILDING SERVICES – II (Old)

Day and Date : Wednesday, 30-11-2016   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) Solve **any 4** questions from remaining.

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

   a) Desirable temperature of potable water is _____°C.

   b) Turbidity is carried out to examine _____ test of water.

   c) _____ device that regulates the flow is the of water.

   d) Hardness of water is examined to carried out a _____test of water.

   e) Sand filters are used _____ method of water treatment process.

   f) Wells are the form of_____ source of water.

   g) _____ are the device to measure the quantity of water.

   h) Colour for pure water is _____

2. Short notes **(any 3)** :   **12**
   a) Solar water heater   b) Bib cock
   c) Water softening   d) Rotary pump

3. Explain any two method of systems of supply of water.   **15**

4. Explain different types of valves used for water supply.   **15**

5. Which are the methods of distribution of water ? Explain any two.   **15**

6. Calculate size of O/H water tank for 50 persons with neat sketch.   **15**

7. Explain different impurities present in water and discuss per capita demand of water.   **15**

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SLR-I – 19

Seat No.	

B.Arch. (Semester – IV) (Old) Examination, 2016
ARCHITECTURAL GRAPHICS – IV

Day and Date : Friday, 2-12-2016　　　　　　　　　　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**

DIA. A

ELEVATION
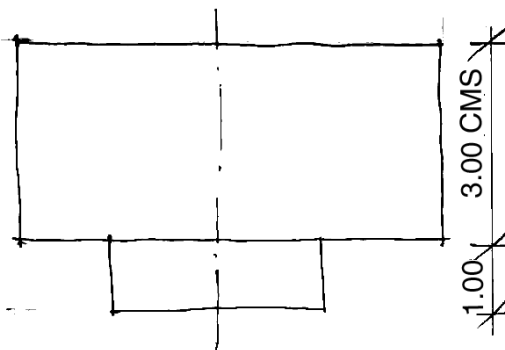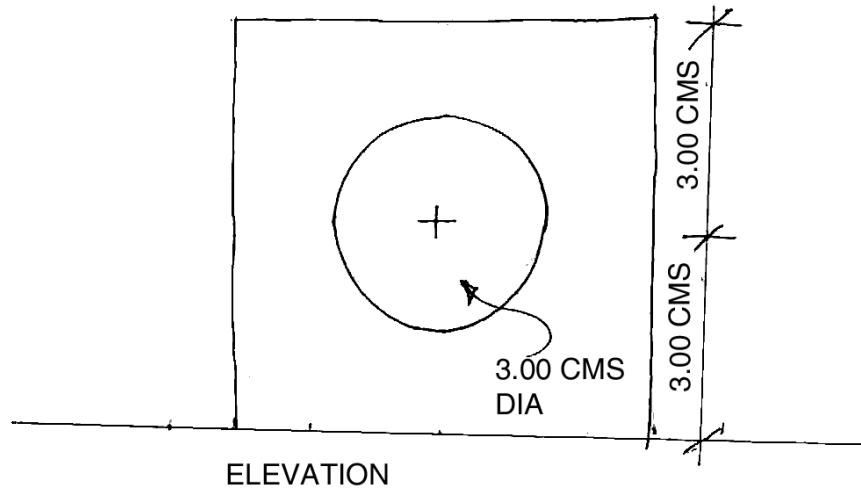
PLAN

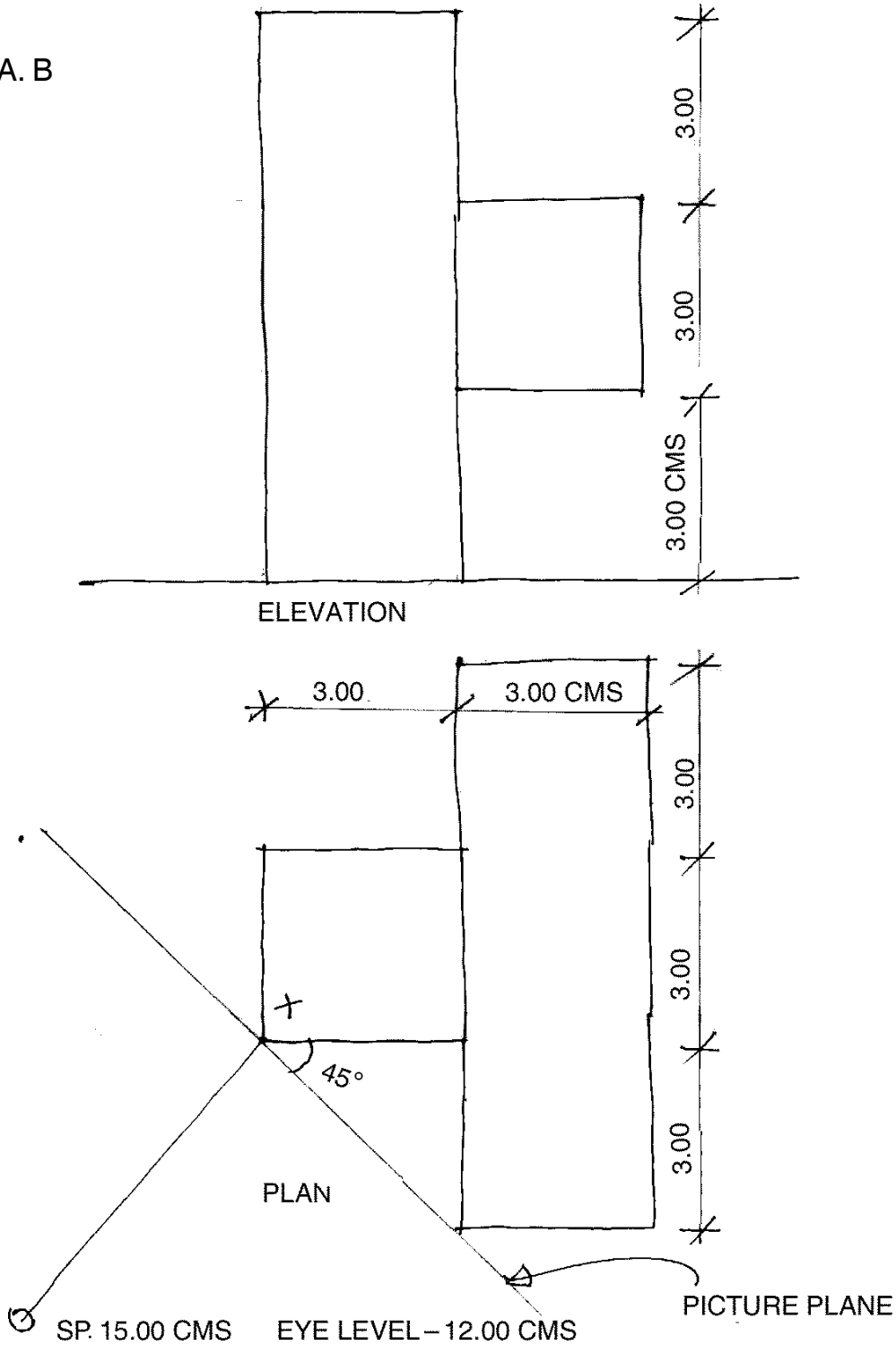2. Draw perspective view of the given object by observing points in Dia. B.   **15**
   a) A plane makes an angle as shown in Figure.
   b) The picture plane touches the object.
   c) Station point is 15.00 CM away from the 'X'.
   d) The eye level is 12.00 CM above ground level.

DIA. B

3.00

3.00

3.00 CMS

ELEVATION

3.00   3.00 CMS

3.00

3.00

45°

3.00

PLAN

PICTURE PLANE

SP. 15.00 CMS   EYE LEVEL – 12.00 CMS

3. Dia. C shows plan and elevation of the object as shown in figure SC106 BAPHY. Draw perspective 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.

DIA. C

8.00 CMS

3.00

45°

PICTURE PLANE

SP. 15.00 CMS   EYE LEVEL – 12.00 CMS

_____

SLR-I – 24
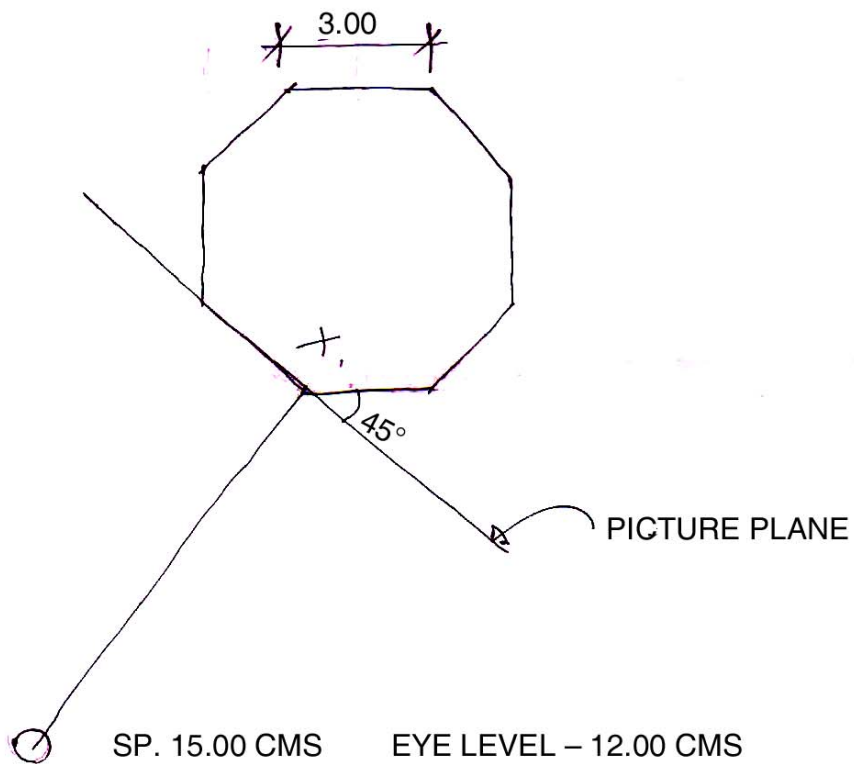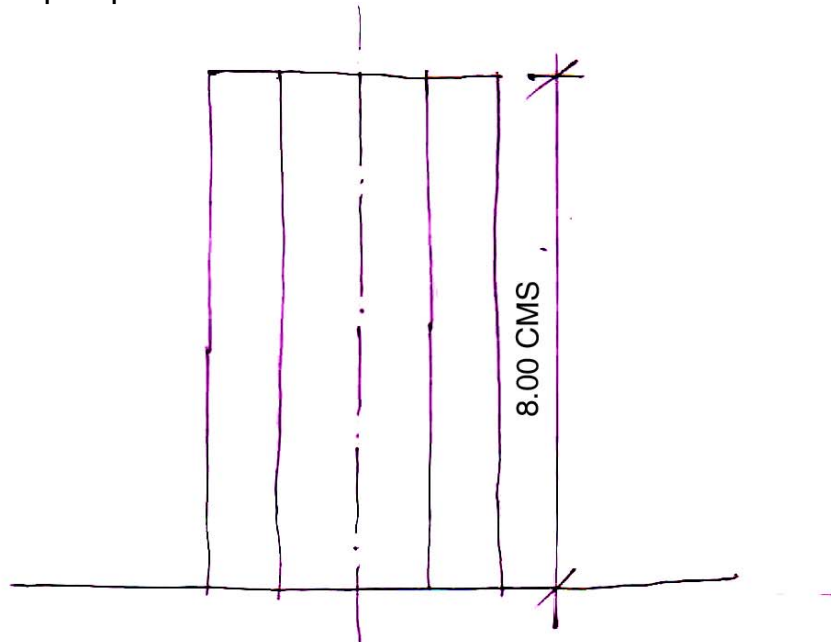
Seat No.

B.Arch. (Semester – V) (CGPA) Examination, 2016
THEORY OF STRUCTURE – V (New)

Day and Date : Tuesday, 29-11-2016

Total Marks : 70

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

Instructions : 1) **Use** of IS 800, STEEL TABLE and 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) The effective length of a weld, is taken as the actual length

　　a) Minus twice the size of weld

　　b) Plus the size of weld

　　c) Minus the size of weld

　　d) None

　2) A major beam in a building structure, is known as

　　a) a main beam　　　　　　　　b) a girder

　　c) a floor beam　　　　　　　　d) all

　3) The equation used to evaluate truss is

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

　　c) $m = 2j - 3$　　　　　　　　d) $m - 2j = 3$

　4) Minimum pitch of the rivets shall not be less than

　　a) 1.5 d　　　　　　　　　　　b) 2.0 d

　　c) 2.5 d　　　　　　　　　　　d) 3.0 d

2. Explain position restraint and direction restraint. Explain restraint conditions at the two ends of a column.　　　　　　　　　　**6**

P.T.O.

3. a) Write a short note on failure of riveted joints. **4**

   b) A single riveted lap joint is used to connect plate 10 mm thick. If 20 mm diameter rivets are used at 55 mm pitch, determine the strength of joint and its efficiency. Working stress in shear in rivets = 80 N/mm^2 (MPa). Working stress in bearing in rivets = 250 N/mm^2 (MPa). Working stress in axial tension in plates = 156 N/mm^2. **10**

4. a) What are different net effective areas of angle and T sections ? **4**

   b) The tie in a bridge truss carries an axial tension of 350 kN. The member is to consist of two channels connected back to back on either side of a gusset plate. The diameter of rivets used for the connection is 16 mm. Two rivets are likely to appear in section. Design the member. Safe stress in tension is 150 N/mm^2. **10**

5. Design a double angle compression member to carry 150 kN load. The length of member between center to center of intersections is 4 m. **14**

6. Design a simply supported beam to carry a uniformly distributed load of 60 kN/m. The effective span of beam is 6 meters. The effective length of compression flange of the beam is also 6 m. The ends of beam are not free to rotate at the bearings. **14**

7. a) Write a short note on section modulus and procedure of selection of members. **7**

   b) Advantages and disadvantages of wended connections. **7**

_____

Seat No.

B.Arch. (Semester – V) Examination, 2016
HISTORY OF ARCHITECTURE – V (New CGPA Pattern)

Day and Date : Thursday, 1-12-2016　　　　　　　　Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : 1) Q. No. **I** is **compulsory**.

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

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

　　a) The Guggenheim museum at Bilbao is designed by _____

　　b) La Sagrada Familia is designed by _____

　　c) Meyer and Schelsinger departmental store is designed by _____

　　d) Unite de habitation is designed by _____

　　e) C.D.S. by Laurie baker is located in _____

　　f) AT and T building is designed by _____

　　g) Vitra fire station is designed by _____

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

　　1) Art Nouveau Movement.

　　2) Post Modernism.

　　3) Unite-de-habitation.

　　4) Deconstruction.

III. Answer in brief with neat sketches (**any 4**) :　　　　　　　**(12 Marks each)**

　　1) Describe the philosophy of master architect Mies Van-Der-Rohe and explain two buildings of his in brief.

　　2) Explain the work and philosophy of Frank O Gehry.

　　3) Explain the Bauhaus Movement in detail with an example.

　　4) Explain Chicago school in detail.

　　5) Explain the work and philosophy of Robert Venturi.

_____

SLR-I – 26

Seat
No.

B.Arch. (Semester – V) CGPA Examination, 2016
BUILDING SERVICES – III (New)

Day and Date : Saturday, 3-12-2016   Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : 1) Q. No. **1** and Q. No. **2** are **compulsory**.
                        2) Solve **any 4** questions from **remaining**.

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

   a) Choke and starters are required in _____ type of lamps.

   b) _____ is used for vertical transportation of passenger and goods.

   c) _____ volts is obtained from 3 phase supply.

   d) _____ is unit of electric current.

   e) _____ lamps are used for flood lighting.

    f) _____ are provided at all street crossing for fire extinguishing.

   g) Temp difference between inside and outside air should not be more than
       _____° C.

2. Write short notes :   **15**

   a) Cooling towers

   b) Counter weight of lift

   c) Neon lamps.

3. Explain methods of mechanical ventilation in common use.   **12**

4. Explain working of escalators with sketch.   **12**

5. Explain central air-condition with sketch.   **12**

6. Explain with sketch 3 phase supply.   **12**

7. a) Explain use of filters in A.C.   **6**

   b) Earthing for safety.   **6**

_____

Seat No.

B.Arch. (Semester – V) (New) Examination, 2016
ACOUSTICS (CGPA)

Day and Date : Tuesday, 6-12-2016 Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Note : 1) **All** questions are **compulsory**.
2) **Make** suitable assumptions **wherever** necessary.

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

1) For point source sound attenuates by _____ dB at every doubling distance.

a) 3 b) 6 c) 9 d) 0

2) Echo is produced due to _____ phenomenon.

a) Transmission b) Diffraction

c) Reflection d) None of the above

3) Sound intensity is measured in _____

a) Watts/cm^2 b) dB

c) Joules/m d) None of the above

4) The time taken by sound to diminish is called _____

a) Reverberation time b) Dead time

c) Flutter d) None of the above

5) Thin wall barrier is _____ scale strategy.

a) Site b) Component

c) Building d) None of the above

6) If human ear exposed to _____ dB or more for longer duration can cause mental fatigue.

a) 10 b) 80

c) 45 d) None of the above

7) Velocity of sound in air is _____ m/s.

a) 340 b) 440 c) 240 d) None

B) Calculate total absorption required and design a theatre for capacity of 1100 people consider volume 5 m^3/person and Rt = 1.2; use following absorption coefficient; give conceptual section and plan. **27**

    1) Pop – 0.26

    2) Plaster – 0.004

    3) Glass wool – 0.15

    4) Occupied seat – 0.42

    5) Unoccupied seat – 0.18

    6) Curtain – 0.12.

2. A) Give design guidelines for Auditorium. **12**

               OR

  B) Give design guidelines for open air theatre. **12**

3. A) Explain with sketches ripple tank method. **5**

  B) Give sketches for planning window and door placement to reduce noise in building. **7**

4. Write short note on **any 3** : **12**

    1) Use of vegitation as sound barrier

    2) Sabine's formula

    3) Propagation of sound

    4) Flanking.

_____

Seat
No.

B.Arch. (Semester – V) (New CGPA) Examination, 2016
BUILDING BYE-LAWS
Self Learning (HSS Course)

Day and Date : Thursday, 8-12-2016　　　　　　　　Max. Marks : 50
Time : 10.00 a.m. to 12.00 noon

Note : 1) Q. No. **1, 2** are **compulsory**.

　　　　2) Solve **any 2** question from the remaining.

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

　　1) _____ means an independent dwelling unit with kitchen or cooking alcove.

　　2) Refuse area to be provided for the building exceeding _____ in height.

　　3) Minimum area for any habitable room is _____ sq.m.

　　4) Maximum area of store room provided in residential building is _____ sq.m.

　　5) Minimum area for W.C. is _____ sq.m, minimum width is 0.9 M.

2. Short notes (**any 3**) : **15**

　　1) Commencement certificate.

　　2) Marginal open space.

　　3) Parking space.

　　4) Refuge area.

3. Write a note on procedure for obtaining development permission and
　 commencement certificate **15**

4. A) Write a note on subdivision of layout. **8**

　 B) Explain the concept of floor space index with help of an example. **7**

　　　　　　　OR

5. Explain in brief what are the general space requirements for residential building. **15**

_____

B. Arch (Semester – V) Examination (Old) Examination, 2016
THEORY OF STRUCTURE–V

Time – 3 hours   Total Marks –80

Instructions:-

1. Use of Scientific Calculator, Steel Table and IS800 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

Q. 1 Select the correct option for the following   _____ (8)

1) Efficiency of a riveted joint, having the minimum pitch as per IS : 800, is

A.	40%	B.	50%
C.	60%	D.	70%

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 of a battened strut effectively held in position at both ends but not restrained in direction is taken as

A. 1.8LB. LC. 1.1 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 x t / 4gB. S^3 x t / 4g

D. S^2 x b / 4g   D. none of these.

Q.2 Define compression member and Explain in detail different supports and effective lengths of column?   ____ (8)

Q. 3

a) What are the advantages and disadvantages of welded joints?____ (4)

b) Determine the rivet value of 18mm diameters rivets connecting 10mm plate and is in (i) single shear (ii) double shear. The permissible stresses for the rivets in shear and bearing are 80 MPa and 250 MPa resp. ____ (12)

Q. 4

a) Write a short note on tension members and net sectional area? ____ (6)

b) Design a tension member to transmit a pull of 400 kN. Effective length of member is 2.5 meters. Member should consist of apair of angles connected to both sides of gussetplate____ (10)

Q. 5 Design a column with effective length 5m. It is subjected to an axial load of 1500 kN. Provide ISMB section from steel table. ____ (16)

Q. 6 Design a suitable section for following beam which is laterally supported ____ (16)

10 kN/m

4 m
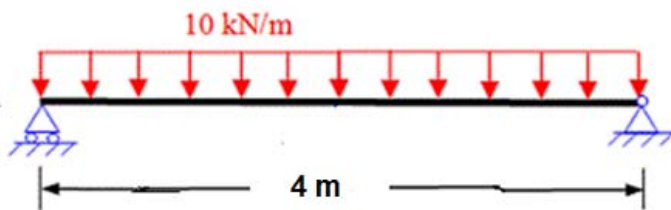
Q. 7Analyse the following truss by method of sections ____ (16)

80 kN   80 kN

3 m

200 kN

4 Panels @ 4 m = 16 m
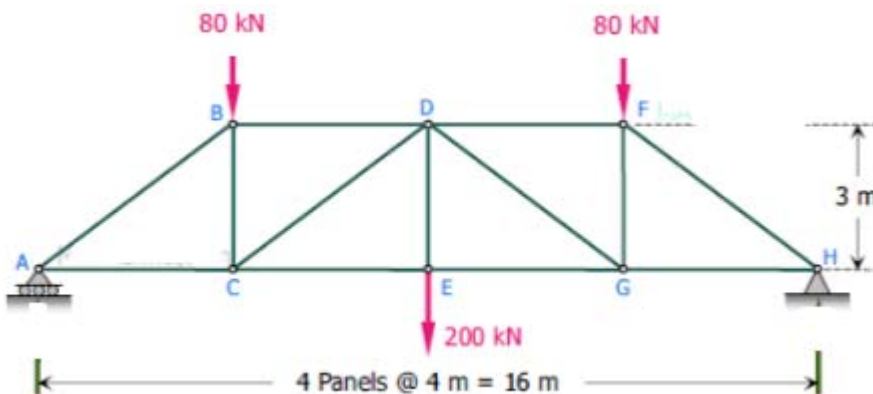
Seat No.

B.Arch. (Semester – V) Examination, 2016
HISTORY OF ARCHITECTURE – V (Old)

Day and Date : Thursday, 1-12-2016　　　　　　　　　　　Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : 1) Question **1** is **compulsory**.
　　　　　　　　　 2) Draw **neat** sketches **wherever** necessary.

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

　　a)　National Congress Complex is designed by _____

　　b)　La Sagrada Familia is designed by _____

　　c)　The author of Complexity and Contradiction is _____

　　d)　United habitation is designed by _____

　　e)　Falling water is designed by _____

　　f)　AT and T building is designed by _____

　　g)　Kala Academy in Goa is designed by _____

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

　　1)　Ronchamp chapel

　　2)　Post Modernism

　　3)　Arts and Crafts

　　4)　Guggenheim museum at New York.

III.　Answer in brief with neat sketches (**any 4**).　　　　　　**(12 Marks each)**

　　1)　Explain how industrial revolution changed society in terms of social and economics. Explain new materials and construction technology from then on in brief.

P.T.O.

2) Explain the works and philosophy of Laurie Baker with the example of C.D.S. in brief.

3) Explain the works and philosophy of Frank O Gehry and two works of his in brief.

4) Explain falling water in detail with plan and elevation.

5) Describe the Le Corbusier and explain two buildings of his in brief.

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Seat
No.

B.Arch. (Semester – V) (Old) Examination, 2016
BUILDING SERVICES – III

Day and Date : Saturday, 3-12-2016   Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : 1) Question No. **1, 2** are **compulsory**.
                   2) Solve **any 4** question from the remaining.

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

   1) _____ is a moving staircase.

   2) _____ is the unit of intensity of illumination.

   3) Single phase supply gives voltage for the premises of _____

   4) _____ is a process by which required amount of moisture is added in the air.

   5) _____ is branch of physics which deals with measurement of light energy.

   6) _____ are the working fuilds in air conditioners, chillers and refrigerators.

   7) The subcircuit which gives supply to lighting load point is called _____

2. Short notes (**any 3**) :   **15**

   1) Humidification in air conditioning.

   2) Fire alarm system.

   3) Plenum system.

   4) Fluorescent lamps.

3. Explain general rules for natural ventilation.   **12**

4. Explain why filters are used in air conditioning system and explain various types of filters used in A.C.   **12**

5. What is meant by fire protection ? Enumerate points of safety measures. **12**

6. What are essential features of elevators. Explain with neat sketch.   **12**

7. Explain in detail various types of wires used in electrical system.   **12**

_____

B.Arch. Semester – VI (New) Examination, 2016
BUILDING SERVICES – IV

Day and Date : Wednesday, 30-11-2016   Max. Marks : 70
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** indicates **full** marks.
3) Questions **1** and **2** are **compulsory** and solve **any 4** questions from the remaining.

1. Fill in the blanks : **7**
   1) _____ is the residual remaining after incineration or burning of waste.
   2) _____ is the process of separating large suspended or floated in sewage.
   3) _____ is defined as amount of oxygen required to oxidize the organic matter by strong oxidising agent under aerobic condition.
   4) _____ constituents either combustible or non-combustible waste known as refuse.
   5) When decomposition of organic matter takes place in absence of oxygen, it is known as _____.
   6) Trickling filters also known as _____.
   7) _____ also known as two pit latrines.

2. Write short note on **any 3** : **15**
   1) Grit chambers.
   2) Sewage farming.
   3) Bore hole privy.
   4) Trickling filters.

3. A) State advantages, disadvantages and uses of septic tank. **6**
   B) What is necessity of sludge disposal ? **6**

4. What is refuse chute ? Why and where it is necessary ? Explain in detail. **12**

5. Write detail note on vermiculture. **12**

6. Draw neat sketch of an aqua privy and explain its working. **12**

7. What are the various aspects of rural sanitation ? **12**

_____

SLR-I – 35

Seat No.	

B.Arch. (Semester – VI) (New) Examination, 2016
ACOUSTICS

Day and Date : Friday, 2-12-2016   Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Note : 1) **All** questions are **compulsory**.
2) **Make** suitable assumptions **wherever** necessary.

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

1) _____ shape auditorium is ideal design.

   a) Fan   b) Round

   c) Elongated   d) Ellipse

2) Echo is produced due to _____ phenomenon.

   a) Transmission   b) Diffraction

   c) Reflection   d) None of above

3) _____ is used in optical model test to stud sound behaviour.

   a) Sound source   b) Light source

   c) Liquid source   d) None of above

4) The time taken by sound to diminish is called _____

   a) Reverberation time   b) Dead time

   c) Flutter   d) None of the above

5) Thin wall barrier is _____ scale strategy.

   a) Site   b) Component

   c) Building   d) None of the above

6) Velocity of sound in air is _____ m/s.

   a) 344   b) 650

   c) 297,600,000   d) 0

7) Noise criteria for recording room is _____

   a) Quiet zone   b) Moderate

   c) Noisy zone   d) Live zone

B) Calculate total absorption required and design a multipurpose hall for capacity of 500 people consider volume 4.5 m^3/person and Rt = 1.1; use following absorption coefficient; give conceptual section and plan. **27**
    1) Pop - 0.26
    2) Plaster - 0.004
    3) Glass wool - 0.15
    4) Occupied seat - 0.42
    5) Unoccupied seat - 0.18
    6) Curtain - 0.12.

2. A) Give acoustical design consideration for site scale building scale and component scale. **12**

OR

B) Explain acoustical designing for auditorium. **12**

3. A) Explain with sketches two acoustical material with installation. **5**

B) Explain reverberation of sound and Sabine's formula. **7**

4. Write short note on **any 3** : **12**
    1) Control of airborn sound
    2) Optical model test
    3) Propagation of sound
    4) Explain in short noise and its type.

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SLR-I – 36

Seat No.	

B.Arch. (Semester – VI) Examination, 2016
THEORY OF STRUCTURE – VI (New)

Day and Date : Monday, 5-12-2016

Time : 10.00 a.m. to 1.00 p.m. Total Marks : 70

Instructions : 1) **Use** of Scientific Calculator, IS 456 code and charts 28 to 34 of SP – 16 is **allowed**.
  2) Q. No. **1** is **compulsory**.
  3) Figures to the **right** indicate **full** marks.
  4) Assume suitable data if **necessary**.

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

1) Minimum number of bars required in Rectangular column
   a) 6 bars b) 4 bars c) 8 bars 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 beam is
   a) 20 mm b) 25 mm c) 40 mm d) None of above

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

5) In one way slab, main reinforcement is in
   a) longer direction b) shorter direction
   c) both direction d) none of above

6) The minimum grade of the concrete for R.C.C. column should be
   a) M20 b) M15 c) M25 d) M30

7) Pitch or spacing of the links should not be more than _____ dia. of smallest longitudinal bars.
   a) 16 b) 48 c) 24 d) None of above

P.T.O.

2. Write short note **any three** of the following : **15**

   a) Differentiate one way slab and two way slab.

   b) Explain the concept working and limit state method.

   c) What are different loads and their intensities considered for different RCC components ?

   d) What is SBC and how it affects to foundations ?

3. Solve **any four** of the following : **48**

   a) Design one way slab of 3 m clear spans. Take floor finish load 1.5 KN/m^2, M20 concrete and Fe 415 steel.

   b) A simply supported beam of the length 5.5 m carries UDL of load 10 KN/m. Analyse and design beam. Take M20 concrete and Fe 415 steel.

   c) Design a rectangular column of 5 m unsupported length, restrained in position and direction at both ends, to carry an axial load of 1500 KN. Use M20 concrete and Fe 415 steel.

   d) Design footing for axial load of 1000 KN, SBC = 250 KN/m^2 and use M20 concrete and Fe 415 steel.

   e) Write the minimum provisions as per IS codes for columns, slabs and beams.

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Seat No.

B.Arch. (Semester – VI) (New) Examination, 2016
URBAN PLANNING

Day and Date : Wednesday, 7-12-2016

Total Marks : 70

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

Instructions : 1) Draw **neat** sketches **wherever** necessary.
2) Write neatly and **assume** suitable data **if necessary**.

I. Fill in the blanks : **(1×7=7)**
   a) _____ emphasis was laid by-Sir Pattrick Geddes.
   b) Chandigarh city was planned by an eminent town planner _____
   c) The length of the cul-de-sac is _____
   d) Kerb is the boundary between _____ and footpath.
   e) In height zoning, the ratio of _____ to width of the road will be 2 : 1 in case of air plane rule.
   f) In-grid iron pattern roads meet at _____
   g) F.A.R. Stands for _____

II. Write short notes on **(any 3)** : **(3×5=15)**
   1) Industrial revolution.
   2) Rural urban migration.
   3) Apartments and skyscrapers.
   4) Radial street system.

III. Answer **any 4** from remaining question : **(4×12=48)**
   1) Explain with example the linear pattern-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 topography.
   4) Explain in detail Use Zoning.
   5) Explain in detail the causes of slums.
   6) Describe the various road junctions designed to avoid traffic congestion.

_____

Seat
No.

B. Arch. (Semester – VI) Examination, 2016
ESTIMATING SPECIFICATION AND COSTING – I (New)

Day and Date : Friday, 9-12-2016 Max. Marks : 70
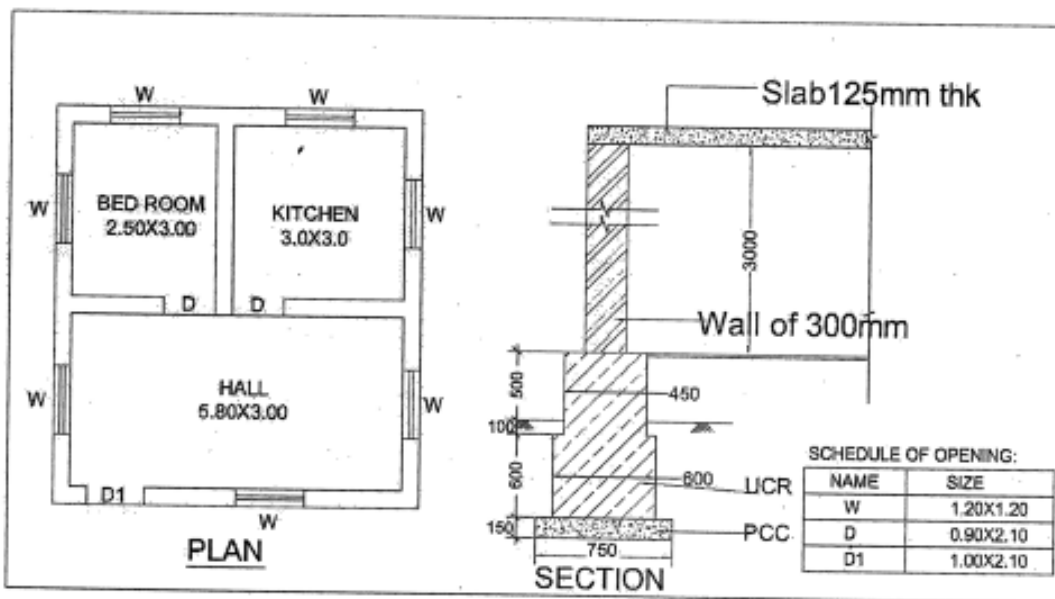Time : 10.00 a.m. to 1.00 p.m.

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

1. Solve **any four** of following : **8**

a) Railing work with specified height
   i) Sq.m ii) Cum iii) Rmt iv) No.

b) Granite flooring
   i) Sq.m ii) Cum iii) Rmt iv) No.

c) How many bricks required in 10 cum volume (Brick size = 20×10×10 cm) ?
   i) 4500 ii) 5000 iii) 5500 iv) None of above

d) How many cement bag required in 10 cum volume M20 concrete ?
   i) 78.96 Bags ii) 62.04 Bags iii) 43.42 Bags iv) None of above

e) M.S. Grill
   i) Sq.m ii) Cum iii) Rmt iv) No.

2. Solve following **any two** question. **12**
   a) Prepare rate analysis for M10 Cement Concrete.
   b) What are types of estimates and explain any one ?
   c) Prepare rate analysis of External plaster in 1:4 cement mortar.

3. Calculate quantity of following item of work and enter the same in standard format of Measurement Sheet with brief description of item. (Refer fig.1) **35**
   i) Excavation for Foundation.
   ii) UCR Masonry in Foundation and Plinth.
   iii) Brick masonry in superstructure.
   iv) RCC Slab.
   v) External Plaster.

P.T.O.

4. Prepare Abstract sheet for above residential building with following given rate. **15**

   i) Excavation for foundation = Rs. 350/ cum

   ii) UCR Masonry in Foundation and Plinth = Rs. 4250/cum

   iii) Brick masonry in superstructure = Rs. 5500/cum

   iv) RCC Slab = Rs. 7,500/cum

   v) External Plaster = Rs. 465/sqm

SCHEDULE OF OPENING:	
NAME	SIZE
W	1.20X1.20
D	0.90X2.10
D1	1.00X2.10

B.Arch. (Semester – VI) (Old) Examination, 2016
BUILDING SERVICES – IV

Day and Date : Wednesday, 30-11-2016　　　　　　　　Max. Marks : 80
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) Q. No. **1** is **compulsory**, solve **6** from remaining 7 questions.*

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

　1) In _____ only one set of sewer is laid and it carries both sewage and storm water.

　2) _____ is installed for the purpose of ventilation.

　3) Two pit latrine also known as _____.

　4) The term _____ is used to indicate waste water.

　5) When decomposition of organic matter takes place in presence of oxygen it is known as _____.

　6) The process of settling suspended particles is known as _____.

　7) _____ means artificial rearing or cultivation of earthworms.

　8) C.O.D. means _____.

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

　1) Sewerage system.

　2) Trickling filters.

　3) Cess pool.

　4) Self purification of stream.

3. A) Explain the process of sludge digestion. **6**

   B) What is meant by the term activated sludge process ? **6**

4. Explain in detail methods of refuse collection for multistoreyed building. **12**

5. Discuss sewerage system in rural as well unsewered areas. **12**

6. What is meant by primary and secondary treatment of sewage ? **12**

7. List all the units for a typical waste water treatment plant. **12**

8. Discuss various types of industrial waste and its disposal. **12**

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Seat
No.

B. Arch. Semester – VI (Old) Examination, 2016
ACOUSTICS

Day and Date : Friday, 2-12-2016　　　　　　　　　　　　　　Max. Marks : 80
Time : 10.00 a.m. to 1.00 p.m.

Instruction : 1) Question No. **1** is **compulsory**.
　　　　　　　2) Solve **any three** out of remaining.
　　　　　　　3) Make suitable assumptions **wherever** necessary.

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

   1) Velocity of sound in air is _____ m/s.
      a) 340　　　　b) 440　　　　c) 240　　　d) None

   2) Frequency of sound is measured in
      a) M/S　　　　b) W/S　　　　c) C/S　　　d) Z/S

   3) Unwanted sound is known as
      a) foci　　　　b) flutter　　　c) echo　　　d) noise

   4) Sound intensity is measured in
      a) Watts/cm^2
      b) dB
      c) Jules/m
      d) none of the above

   B) Calculate total absorption required and design a theatre for capacity of 500 people consider volume 3.5 m^3/person and Rt =1.5; use following absorption coefficient also give sketch plan and section.　　　　　　**31**

      1) pop – 0.26
      2) plaster – 0.004
      3) glass wool – 0.15
      4) occupied seat – 0.42

2. Explain and give sketches of 3 acoustical material along with its installation. **15**

3. A) Explain sound echo, foci and flutterin enclose space. **8**

   B) Explain sound absorption. **7**

4. Explain designing of open air theatre. **15**

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

   1) Propagation of sound.

   2) Diffraction of sound.

   3) Control of structure born noise

   4) Explain Sabine's formula.

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Seat No.

B.Arch. (Semester – VI) Examination, 2016
THEORY OF STRUCTURE – VI (Old)

Day and Date : Monday, 5-12-2016   Total Marks : 80
Time : 10.00 a.m. to 1.00 p.m.

Instructions : 1) Use of scientific and IS **456** code 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.

SECTION – I

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

   1) Minimum number of bars required in rectangular column

      a) 6 bars   b) 4 bars   c) 8 bars   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 beam is

      a) 20 mm   b) 25 mm   c) 40 mm   d) None of above

   4) In under reinforced section

      a) $X_u < X_{max}$ b) $X_u = X_{max}$ c) $X_u > X_{max}$ d) None of above

2. a) Explain the concept of the trusses and their types.   **4**

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

3. Design one way slab of 3 m clear spans. 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 5.5 m carries UDL of load 10 KN/m. Analyze and design beam. Take M20 concrete and Fe415 steel. **16**

5. Design a rectangular column of 5 m unsupported length, restrained in position and direction at both ends, to carry an axial load of 1500 KN. Use M20 concrete and Fe415 steel. **16**

6. Design footing for axial load of 1000 KN, SBC = 250 KN/m^2 and use M20 concrete and Fe415 steel. **16**

7. Write a short note on : **16**

   1) Balanced, under and over reinforced sections.

   2) Write the minimum provisions as per IS codes for slabs and beams.

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Seat No.

B.Arch. (Semester – VI) (Old) Examination, 2016
URBAN AND REGIONAL PLANNING – I

Day and Date : Wednesday, 7-12-2016   Total Marks : 80
Time : 10.00 a.m. to 1.00 p.m.

Instructions : 1) Draw **neat** sketches **wherever** necessary.
2) Write **neatly** and assume suitable **data** if necessary.

I. Fill in the blanks.   **(1×8=8)**

a) _____ proposed the concept of Garden City.

b) _____ was the town planner for New Delhi City.

c) _____ of population is population/unit area.

d) _____ is the boundary between pavement and footpath.

e) In _____ zoning, the area normally provided for industrial zone is 2 % – 25 %.

f) _____ was laid on grid iron pattern.

g) _____ is the ratio of total built area/plot area.

h) _____ city is divided in 47 sectors.

II. Write short notes on (**any 3**) :   **(3×4=12)**

1) Horizontal growth.

2) Road junctions.

3) Row houses and apartments.

4) Concentric street system.

P.T.O.

III. Answer **any 5** from remaining questions : **(5×12=60)**

1) Explain with example the radial spread type growth of town.

2) Describe Sir Patrick Geddes concept of "Survey Before Plan".

3) Industrial revolution is one of the major factor for the development of settlement. Explain in brief.

4) Explain the different types of zoning.

5) Slum is an social evil. How do you eradicate it ?

6) Mention the disadvantages of traffic congestion and state the measures adopted to avoid.

_____

Seat No.

Day and Date : Friday, 9-12-2016　　　　　　　　　　　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 single Storeyed residential building with no. of rooms (load bearing type structure) and prepare measurement sheet. **45**

   a) Excavation in foundation

   b) Plinth filling

   c) U.C.R. Masonry work
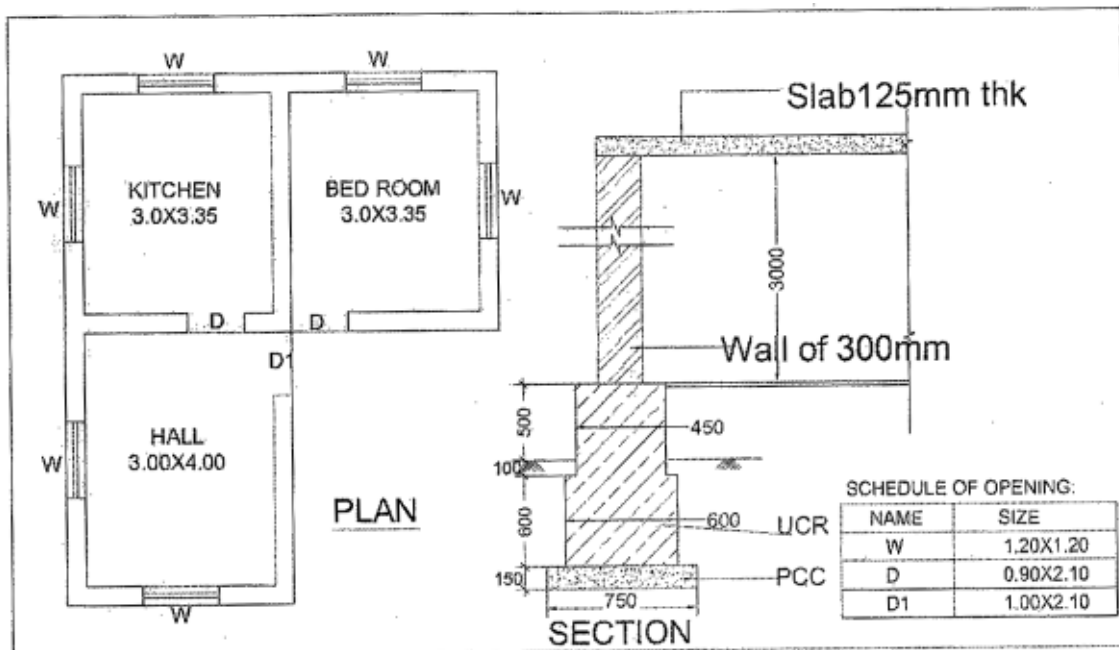
   d) Internal Plaster Work

   e) RCC Slab.

Fig. No. 1

P.T.O.

2. Prepare abstract sheet for above residential building with no. of rooms (load bearing type structure). **15**

   a) Excavation in foundation = Rs. 350/cum

   b) Plinth filling = Rs. 750/cum

   c) U.C.R. Masonry work = Rs. 4,300/cum

   d) Internal Plaster work = Rs. 440/sqm

   e) RCC Slab = Rs. 7,500/cum.

3. Prepare rate analysis for the following items **(any two)** : **10**

   a) Brick Masonry work in cement mortor 1:6

   b) Internal Plaster work in cement mortor 1.4

   c) RCC column M – 20.

4. Mention the units for the following items : **10**

   a) Flooring.

   b) U.C.R. Masonry.

   c) Pointing work.

   d) 25 mm thick damp proof course

   e) R.C. sunshade (specified width and thickness).

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Seat No.

B.Arch. (Semester – VII) (New) Examination, 2016
ENVIRONMENTAL DESIGN

Day and Date : Tuesday, 29-11-2016   Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : 1) **Draw** sketches **wherever** necessary.
2) Solve **any 5** question from the given.
3) **Assume** suitable data **wherever** necessary.

1. What do you mean by the subject Environmental design ? Describe the immediate environment of your residential colony.   **20**

2. Describe different types of land use classification and its permissible uses.   **20**

3. Explain with help of neat sketch any vernacular building that you now.   **20**

4. Design a new interactive open recreational space in heart of ur city for all age groups.   **20**

5. Explain with an example a volumetric study for site with F.S.I. 2.   **20**

6. Explain importance of building byelaws in development.   **20**

7. Explain amenities and facilities to be considered in designing a neighour hood unit.   **20**

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Seat
No.

B.Arch. (Semester – VII) (New) Examination, 2016
BUILDING CONSTRUCTION AND MATERIAL – VII

Day and Date : Thursday, 1-12-2016   Total Marks : 50
Time : 3.00 p.m. to 6.00 p.m.

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

  a) _____ is a continuous or rigid frame with a rigid or pin joint between the column and beam.

  b) Minimum standard size of lift used in hospital is _____

  c) _____ is a structural curved skin covering a large span.

  d) In pre tensioning, _____ are stressed within the mould before the concrete is placed around them.

  e) _____ is the process of strengthening the existing foundations.

II. Suggest with plan, sectional elevation and details, the type of lift to be provided in a multi storied commercial building for 5 persons capacity. **15**

III. 1) a) Explain in brief – Sound Insulation. Assuming any two sound absorbent material explain how they are incorporated for a auditorium. **8**

    b) Explain with sketches the constructional measures adopted for fire resistance in building industry. **7**

<div align="center">OR</div>

  2) a) Explain in brief where would you recommend underpinning and the process adopted to carry out wall underpinning. **8**

    b) Write the advantages of Thermal Insulation in a building and mention different types of Thermal Insulating material. **7**

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

  a) Cold Storage.

  b) Techniques in demolition of buildings.

  c) Shell Roofs.

  d) Gantry Girder.

  e) Shoring.

<div align="center">_____</div>

Seat
No.

B.Arch. (Semester – VII) Examination, 2016
(New)
ADVANCE ESTIMATING SPECIFICATION AND COSTING – II

Day and Date : Saturday, 3-12-2016   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**.
3) Assume suitable data, **if** required.

1. Write a short note on following (**any three**) :   **15**
   A) Supplementary Estimate
   B) Revised Estimate
   C) Contingencies
   D) Work Charge Establishment
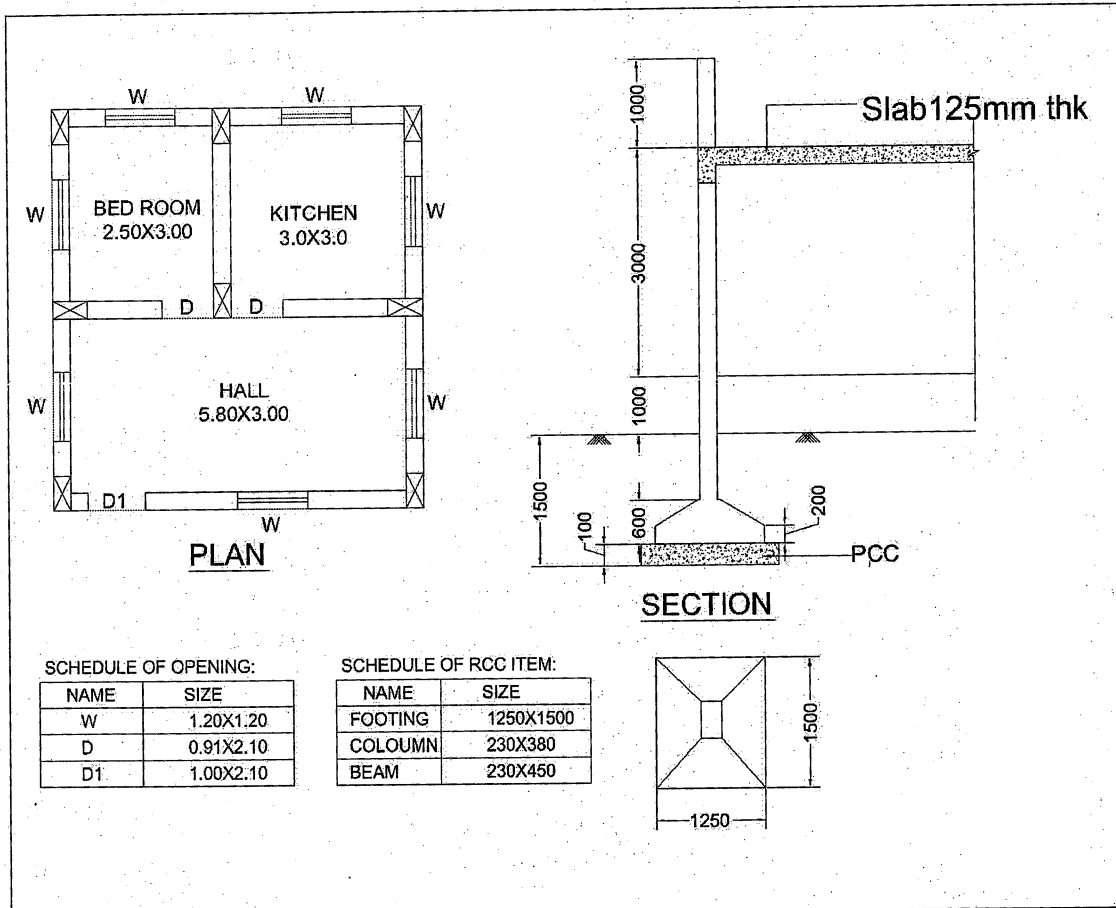   E) Detail Specification.

2. Write a short note on following (**any two**) :   **10**
   A) Earnest money deposit
   B) Security Deposit
   C) Schedule "A" and Schedule "B".

3. Prepare detail estimate of following building items of attached drawing.   **35**
   1) RCC Footing
   2) RCC Coloumn
   3) Brick work in super structure
   4) External Plastering
   5) Internal Flooring.

4. Prepare abstract sheet of following building items of attached drawing.   **10**
   1) RCC Footing, Rate = Rs. 6,500/- per cum
   2) RCC Coloumn, Rate = Rs. 7,500/- per cum
   3) Brick work in superstructure, Rate = Rs. 5,500/- per cum
   4) External Plastering, Rate = Rs. 250/- per sqm
   5) Internal Flooring, Rate = Rs. 850/- per sqm

5. Differentiate between item rate contract and lump sum contract. **10**

PLAN

SECTION

SCHEDULE OF OPENING:

NAME	SIZE
W	1.20X1.20
D	0.91X2.10
D1	1.00X2.10

SCHEDULE OF RCC ITEM:

NAME	SIZE
FOOTING	1250X1500
COLOUMN	230X380
BEAM	230X450

SLR-I – 48

Seat No.	

B.Arch. (Semester – VII) Examination, 2016
THEORY OF STRUCTURE – VII (New)

Day and Date : Tuesday, 6-12-2016   Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : 1) Use of **IS 456** and 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. Choose the correct option for the following :   **10**

   1) The ratio Span/Eff. Depth = 20 is for _____ Slabs.

      a) Cantilever   b) Grid

      c) Simply supported   d) Flat

   2) Code of practice for the stored liquid is

      a) IS-456   b) IS-800

      c) IS-3370   d) IS-875

   3) Minimum number of bars for circular piles are

      a) 4   b) 6

      c) 8   d) 10

   4) Pre-stress means that the stress is introduced in structural member

      a) Before   b) After

      c) In continuous   d) None

   5) Raft Foundation has reinforcement

      a) Only top   b) Only bottom

      c) Top and bottom   d) None

P.T.O.

2. A) Write a note on flat slab with sketch. **5**

   B) Write a note on raft foundation with sketch. **5**

3. Design a circular water tank with flexible base connection at base for capacity of 500000 liter's. The tank rest on firm level ground. The height of water tank including a free board of 200 mm should not exceed 3.5 m. The tank is open on top. Use M 20 grade concrete and Fe 415 steel. **15**

4. Explain in detail : **15**

   a) Design concept of Pile foundation

   b) Portal Frames

   c) Shells.

5. A) What are the precautions should be taken while planning a structure in Earthquake prone area ? **8**

   B) Describe advantages of framed structure over a load bearing structure. **7**

6. The section of a concrete beam is 300 mm × 600 mm. The beam carries a UDL of 16 kN/m length over an effective span of 10 m. An effective prestressing force of 1600 kN is applied at an eccentricity of 110 mm. Draw the stress diagram with values. **15**

7. Write a note on : **15**

   a) Folded plates

   b) Plate girders

   c) Gantries and cranes.

_____

Seat No.

B.Arch. (Semester – VII) Examination, 2016
ADVANCED ARCHITECTURAL DESIGN – VII (New)

Day and Date : Wednesday, 14-12-2016
　　　　　　　　Thursday, 15-12-2016
　　　　　　　　Friday, 16-12-2016
Time : 10.00 a.m. to 4.00 p.m.

Total Marks : 150

Instructions : 1) *The candidates are allowed to go to visit lavatory otherwise **all** are required to remain in the Examination Hall continuously for **six** hours of Examination.*
　　　　　　2) *The supervisors should make arrangement to supply eatables, ordered by the candidate from outside allow the candidates to consume eatables and have cold or **hot** drinks in the Examination Hall.*
　　　　　　3) *The candidate should be allowed to do coloring work up to the **last minute** and paper should be collected after they are dried. While students may leave the Examination Hall after time is over.*
　　　　　　4) *The candidate can **leave** the Examination Hall after completion of paper with proper information to supervisors.*
　　　　　　5) ***All** students shall submit only their basic plans and design scheme drawn on tracing paper at the end of first day.*
　　　　　　6) *The above submitted drawing shall not be **returned** to them next day.*
　　　　　　7) ***Any** serious deviation from original scheme is **not** permitted.*
　　　　　　8) ***All** other rough sketches shall be given back to the candidate along with the paper, next day.*

Shopping Mall at Solapur.

A group of young entrepreneurs want to open a swanky mall in suburbs of Solapur on Bijapur Road, Jule Solapur area. The mall intended to cater to the young aspiring middle class and to provide the best of image and purchase.

P.T.O.

Architectural Programme :

1. Entrance lobby and billing counters   300 sq.m.

2. Office and goods return room and storage area   350 sq.m.

3. Display sales

   (Glossary, apparels, cosmetics, electronics etc.)   1200 sq.m.

4. Cafeteria (internal)   150 sq.m.

5. Services, Staircases, Passages, AHU   Adequate

6. Security cabin and clock rooms   Adequate

7. Parking (visitor and staff)

   (four wheeler, two wheeler, cartage)   Adequate

8. Toilet (ladies and gents)

External food courts in adequate numbers shall be located and the built up scope is upto(G +1)

Recreation and children playing areas in site may prove the attraction points to the customer.

The design has to correlate with the climate of Solapur and architectural heritage styles may be given as key features.

Drawing requirements :   **Marks**

1. Concept (not to scale)   15

2. Site plan (1:200)   25

3. All floor plans (1:100)   50

4. Min 2 sections (1:100)   25

5. Min 2 elevations (1:100)   20

6. 3D view (not to scale)   15

SHOPPING MALL AT SOLAPUR

Commercial Complex

SITE PLAN (N.T.S.)
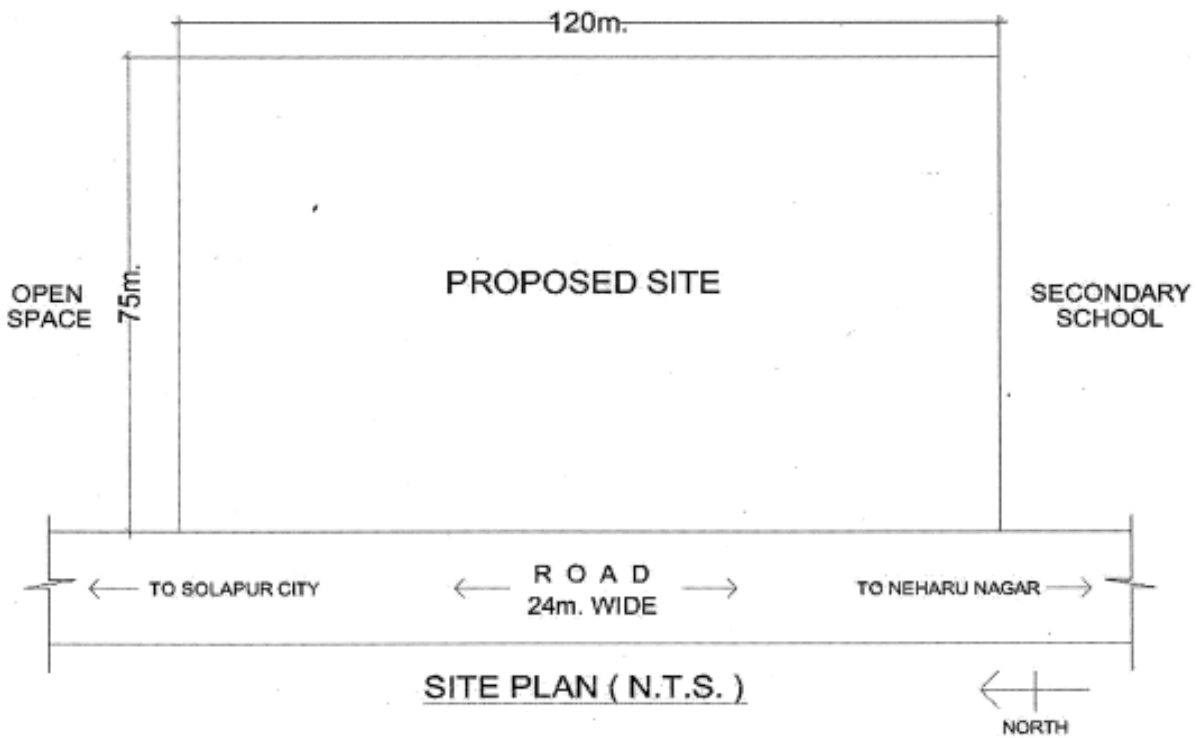
MARGINE :

1. FRONT – 15 m.

2. REAR AND SIDE – 6 m.

_____

Seat
No.

B.Arch. (Semester – VII) (Old) Examination, 2016
ENVIRONMENTAL DESIGN

Day and Date : Tuesday, 29-11-2016   Total Marks : 100

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

Instructions : 1) Assume suitable data **wherever** necessary.
2) Draw sketches **where** necessary.
3) Solve **any 5** question from the given 7.
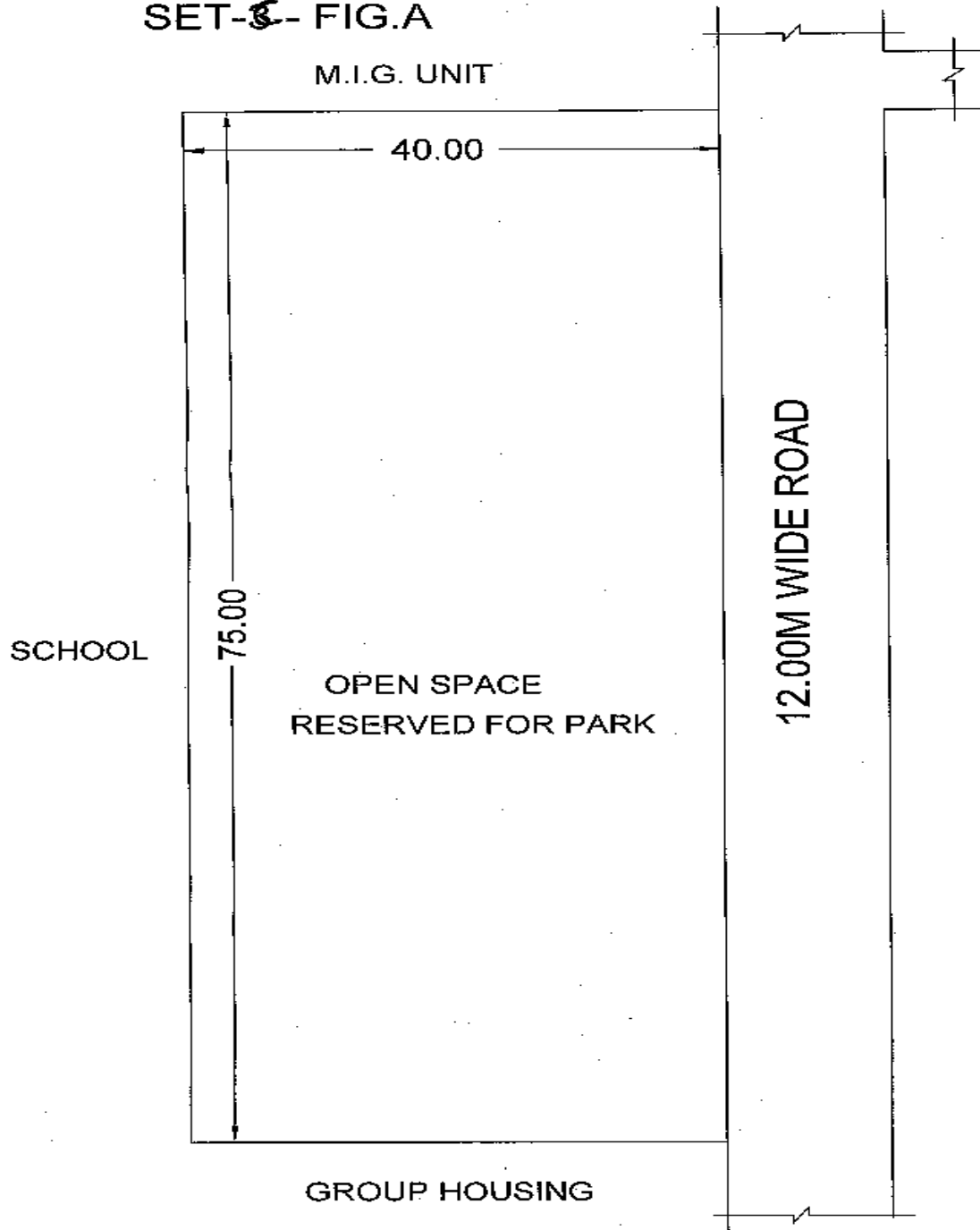4) **Each** questions carries **20** marks.

1. What is environmental design ? Explain how human settlement influences environment.

2. Explain F.S.I. in brief. Sketch two alternatives for a plot size mentioned below. Consider a commercial showroom for the proposed plot. Refer Fig. – A.

3. Propose a landscape design for a open space in a industrial area for all employees. Draw relevant sketch plan, section and details. Refer Fig. – B.

4. Explain the concept of neighbourhood. What amenities would you provide for a neighbourhood of 10,000 people ?

5. Explain the immediate surroundings of the Siddeshwar temple of your city (radius – 500 m) with the help of sketches.

6. Describe low cost construction methods of buildings.

7. Describe types of housing with relevant sketches.

SET-5- FIG.A

M.I.G. UNIT

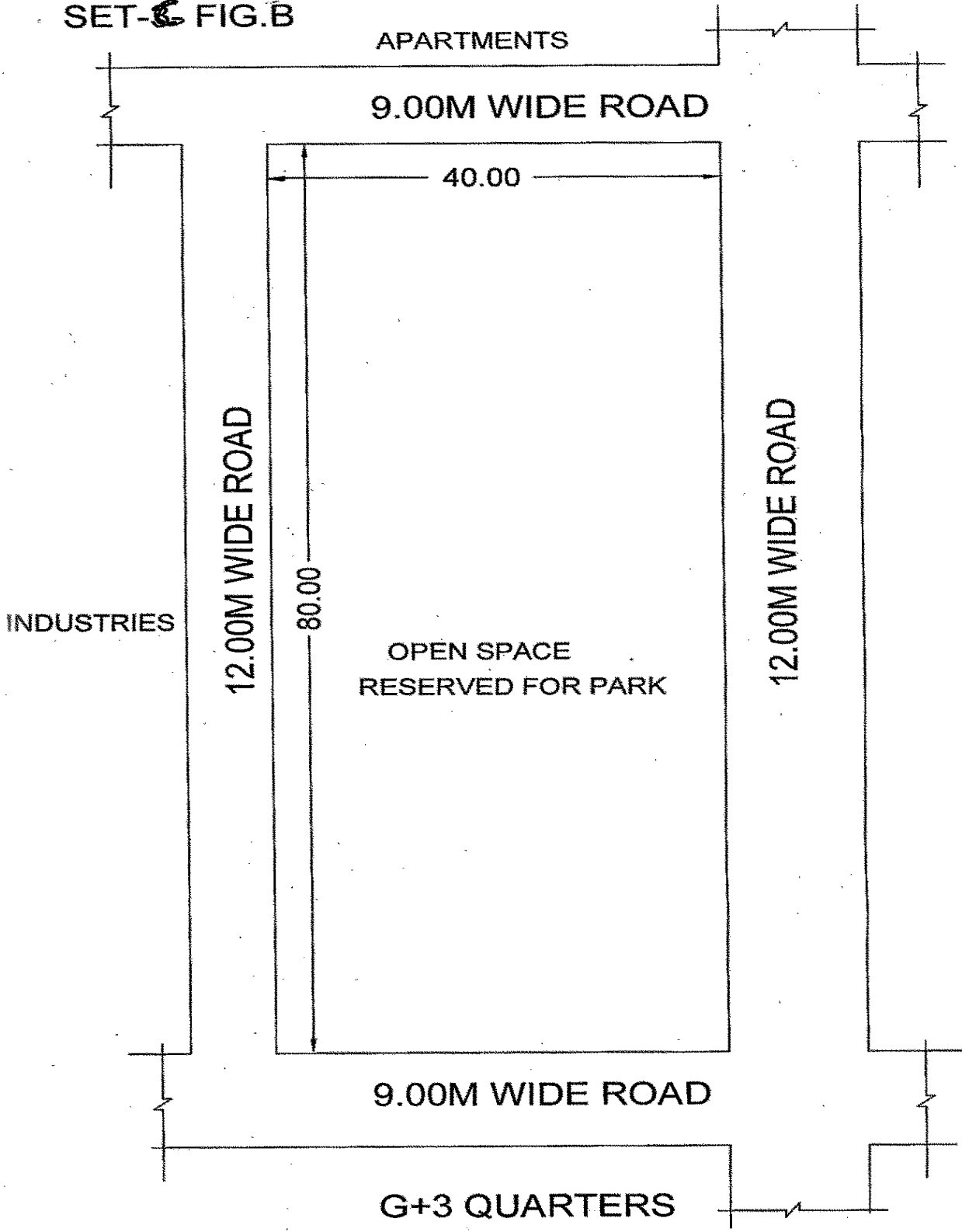— 40.00 —

SCHOOL

75.00

OPEN SPACE
RESERVED FOR PARK

12.00M WIDE ROAD

GROUP HOUSING

SITE PLAN (N)

SET-C FIG.B

APARTMENTS

9.00M WIDE ROAD

40.00

12.00M WIDE ROAD

80.00

12.00M WIDE ROAD

INDUSTRIES

OPEN SPACE
RESERVED FOR PARK

9.00M WIDE ROAD

G+3 QUARTERS

SITE PLAN

SLR-I – 53

Seat No.	

B.Arch. (Semester – VII) Examination, 2016
BUILDING CONSTRUCTION AND MATERIAL – VII (Old)

Day and Date : Thursday, 1-12-2016　　　　　　　　　　Total Marks : 50
Time : 3.00 p.m. to 6.00 p.m.

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

   a) Portal frame is a continuous or rigid frame with a _____ joint between the column and beam.

   b) _____ is a moving staircase.

   c) Space frame is a _____ dimensional truss like assembly.

   d) In post tensioning, _____ are laid after concrete is hardened.

   e) Rapid hardening cement is used in concrete in _____ process.

II. Provide an escalator in a shopping mall at ground floor. The size of the hall is 50 m × 30 m and the height of the floor is 4.2 m. Draw key plan, plan section and enlarged details. **15**

III. 1) a) Explain the behaviour of any 2 sound building materials in case of fire. **8**

     b) Explain the constructional measures adopted for fire resistance in case of lift and staircase. **7**

         OR

   2) a) Explain the properties and application of any one sound insulating material. **8**

     b) Explain the properties and application of any one thermal insulating material. **7**

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

   a) Grain godown

   b) Demolition ball technique

   c) Advantages of precast portal frame

   d) Space frame

   e) Chimney construction.

_____

Seat No.

B.Arch. (Semester – VII) (Old) Examination, 2016
ADVANCE ESTIMATING SPECIFICATION AND COSTING – II

Day and Date : Saturday, 3-12-2016   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. Write the answer of following **any two** :   **12**

   a) Explain Cubical Content estimate.

   b) Which is the most reliable estimate, explain with min. 3 points.

   c) Which are the factors that plays important role in calculating in estimate, explain how.

2. Write in brief specifications on workmanship (**any three**) :   **18**

   a) RCC slab

   b) Half Brick work

   c) Internal cement plaster

   d) Colour wash.

3. Prepare the rough estimate for a proposed commercial complex for a municipal corporation for the following data :   **30**

   A) Plinth Area = 500m^2/floor

   B) Ht. of each storey = 3.5 m

   C) No. of storeys = G + 2

   D) Cubical content rate = Rs. 1000/m^3

P.T.O.

E) Provided for a following as a percentage of structured cost :

   a) Water supply and Sanitary arrangement – 80%

   b) Electrification – 6%

   c) Fluctuation of rates – 5%

   d) Contractors profit – 10%

   e) Petty supervision and contingencies – 3%.

4. Distinguish between Earnest money deposit and Security Deposit. **10**

5. Write a short note on following. (**Any two**) : **10**

   A) Revise Estimate

   B) Supplementary Estimate

   C) Work Charge establishment

   D) Schedule "A" and Schedule "B".

———————————

Seat No.

B.Arch. (Semester – VII) Examination, 2016
THEORY OF STRUCTURE – VII (Old)

Day and Date : Tuesday, 6-12-2016   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** from remaining questions solve **any 2** from Section **I** and **II**.
           3) Figures to the **right** indicates **full** marks.

SECTION – I

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

   i) _____ piles are suitable for clay soil.
     a) Steel   b) Wooden
     c) Under-reamed piles   d) None of the above

   ii) Design of circular pile can be done by using IS _____ code.
     a) 875   b) 456   c) 3370 – IV   d) All of the above

   iii) What is the point of origin of an earthquake ?
     a) Epicartex   b) Focus   c) Scarp   d) None of the above

   iv) Grid Slab's are economical for span's upto
     a) 5 to 10 m   b) 10 to 25 m   c) 8 to 25 m   d) N.A.

2. A) Write the design steps for under reamed piles.   **8**
    B) Explain the structural behaviour of Raft foundation.   **8**

3. A) Explain the concept of folded plates and shells.   **8**
    B) Explain with sketches.   **8**
      i) Flat slab
      ii) Waffle slab
      iii) Hallow slabs.

4. Design a circular water tank with flexible connection at base of capacity 400000 litres. Take free board 200 mm and height 3.5 m. Use M 20 and Fe 415. The tank is open at top and resting on ground.   **16**

SECTION – II

5. Write a short note on : **8**

   A) Rigid frames.

   B) Earthquake proof construction.

6. A) Write a note on space frames, silos and hyperboloids. **8**

   B) Explain the structural concept of gantries and cranes. **8**

7. Calculate the stresses at top and bottom of following beam which is acted upon by UDL 50 kN/m, P = 1800 kN and e = 150 mm. **16**
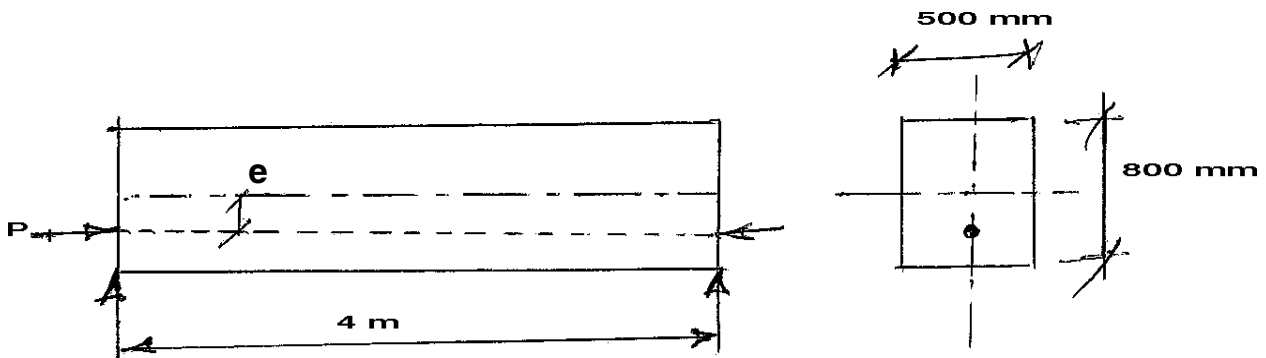
8. A) Explain concept of concrete and steel partal frames. **8**

   B) Explain forces involved in earthquake. **8**

_____

Seat No.

B.Arch. (Semester – VII) (Old) Examination, 2016
ADVANCED ARCHITECTURAL DESIGN – VII

Day and Date : Wednesday, 14-12-2016   Max. Marks : 150
                     Thursday, 15-12-2016
                     Friday, 16-12-2016
Time : 10.00 a.m. to 4.00 p.m.

Instructions : 1) *Candidates must submit the design concept at the end of first day, which will not be returned. (They must retain a copy of it, for further work) This concept sheet shall be stapled with total portfolio at the end of third day by supervisors.*
2) *Eatables and soft drinks are allowed to be consumed by candidates during exam. The Supervisors shall arrange to provide them on request.*
3) *The portfolio must be clean, neat and properly stapled. Water colors if used must be **completely** dry before submission.*
4) *No electronic devices are **allowed** inside exam hall.*

Drg. requirements and Scheme of marking :

Concept		**15**
Site plan showing site development, landscape and parking details	1 : 200	**15**
All floor plans, with structure and furniture details	1 : 100	**50**
Sections min 2, with labelling of materials and construction details	1 : 100	**25**
Elevations min 2	1 : 100	**25**
Perspective/bird's eye sketch view		**20**

Architectural College

A private trust of education experts has come forward to begin an architecture college at SATARA. The climate is moderate with more than average rainfall. The surrounding terrain is hilly and undulating. The proposed design should create an identity for the trust as this is their first educational venture. It should also be sustainable and eco friendly.

P.T.O.

The design program caters to intake of 40 students per year.

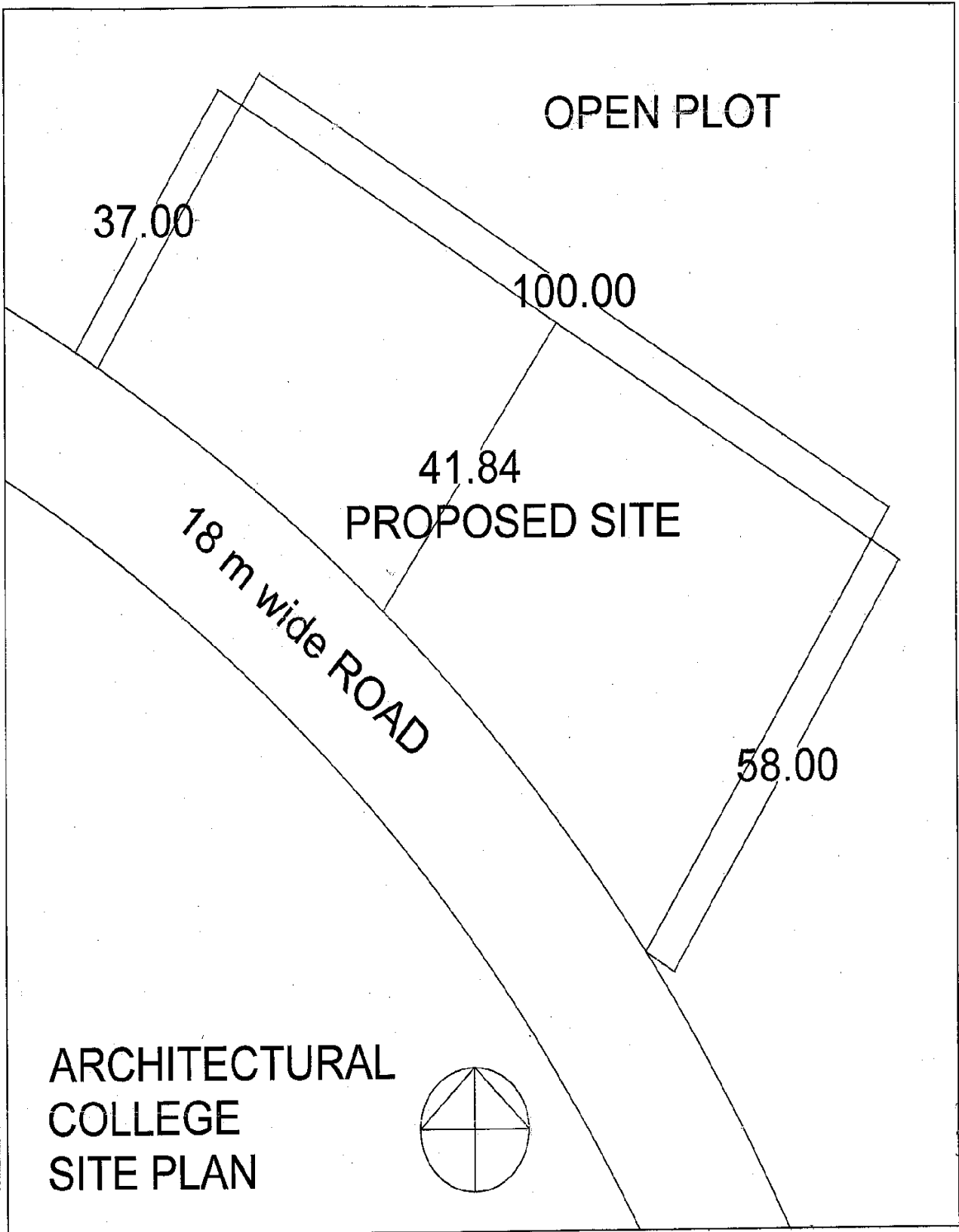|			
1.	Design studios – 5 no –	–	75 sq.m.
2.	Library	–	100 sq.m.
3.	Director Office Cum Meeting Room with ante room and att toilet	–	40 sq.m.
4.	Principal's cabin with waiting and PA space and att toilet	–	25 sq.m.
5.	Seminar Hall for 150 seats	–	250 sq.m.
6.	Material museum cum workshop	–	100 sq.m.
7.	Computer Lab	–	100 sq.m.
8.	Canteen for 50 seats	–	50 sq.m.
9.	Administration – 4 workstations and space for xerox/fax/ISD Fone	–	50 sq.m.
10.	Faculty cubicles (5 no) for senior professors and staff room	–	50 sq.m.
11.	Adequate toilets for staff and students.		

Adequate lobbies, corridors, staircases and connecting spaces shall be provided.

• Parking for 150 2 wheelers and 10 cars half of which should be semi covered.

• Playground for volleyball/basketball shall be marked in site plan.

The FSI is 1, the ground coverage is 0.33% of plot area

Set backs 6 m on all sides.

Any other technical data if not mentioned may be assumed by the candidates and mentioned as such.

OPEN PLOT

37.00

100.00

41.84
PROPOSED SITE

18 m wide ROAD

58.00

ARCHITECTURAL
COLLEGE
SITE PLAN

Seat No.	

B.Arch. (Semester – VIII) Examination, 2016
PROFESSIONAL PRACTICE – II

Day and Date : Wednesday, 30-11-2016   Total Marks : 80

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

1. Fill in the blanks : **(8×1=8)**

    i) An agreement in writing enforceable by law is a _____

    ii) COA stands for _____

    iii) In demolition tender _____ and not the lowest tender valve should be approved.

    iv) Floor space index is the ratio of _____

    v) Land Acquisition Act was enacted by the government of India in _____

    vi) _____ is a person who is appointed to settle the disputes in a profession for adjudication.

    vii) In limited type of competition _____ number of architects can participate.

    viii) _____ is a right which the owner or occupier of certain land possesses for the beneficial enjoyment of the land.

2. Write short notes on (**any 3**) : **(4×3=12)**

    i) Advantages and disadvantages of working in an Architect's office.

    ii) Tender notice.

    iii) Continuous and discontinuous easement.

    iv) Single stage competition.

    v) Arbitration.

3. Write in brief (**any 5**) :   **(12×5=60)**

   a) Explain various professional duties and responsibilities of an architect towards the client and society.

   b) What are the objectives and procedure of conducting Architectural Competition ?

   c) Explain the factors considered for labour under Labour Act.

   d) What is meant by Earnest Money, Security Deposit, Retention Amount, Mobilization Fund ?

   e) Explain in brief Land Acquisition Act.

   f) Differentiate between Arbitration, Mediation, Conciliation.

_____