SLR-GC-1

Seat No.	

Set P

B. Architecture (Semester - I) (New) (CBCS) Examination: Oct/Nov-2023
Building Construction and Material-I (21AR1-02)

Day & Date: Monday, 29-01-2024 Max. Marks: 100
Time: 10:00 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat sketches wherever necessary.

Q.1 Choose the correct answer and fill in the blanks. **05**

1) The stepped footing extended over the entire length of a load bearing wall is known as _____ footing.
   a) Spread b) Strip
   c) isolated d) raft

2) _____ is known as a stone whose length is uniform to the thickness of the stone wall.
   a) Through stone b) Riser stone
   c) Cap stone d) Hearting stone

3) In retaining wall, _____ occurs when the wall bends due to excessive outward force.
   a) over stress b) bearing failure
   c) sliding failure d) overturning

4) Lintel is placed on the top of _____.
   a) Flooring b) footing
   c) window d) slab

5) The part of the structure below the ground level is known as _____.
   a) Sub structure b) Super structure
   c) Elevated structure d) Floating structure

Q.2 Draw, label and Dimension (ANY 2) **30**

a) Draw to the scale (1:10) Plan (odd and even course), Elevation and isometric view of one-brick thick Flemish bond.
b) Draw to the scale (1:10) Plan and Section of the following:
   i) Brick Spread footing for 23cmx23cm brick pier.
   ii) Strip footing for 23cm thick brick wall over UCR footing.
c) Draw section to the scale (1:10) of the following:
   i) 23cm thick Brick mass retaining wall 140cms high above ground level for cohesive soil.
   ii) Dry stone retaining wall 180cms above ground level considering: Top width=60cm and Bottom width =100cm

Q.3 With neat sketches write short notes on **25**

a) Queen closer and King closer.
b) Foundation in Black cotton soil having little swelling pressure.
c) Coping for parapet wall
d) Failure of retaining wall
e) Importance of Through/Bond stone.

Q.4 Choose the correct answer and fill in the blanks. **05**

1) _____ stone name is derived from the Latin word 'Later' which means brick.
   a) Laterite b) Basalt
   c) Granite d) Dholpur

2) Soils that pass water through them are known as _____ soils.
   a) cohesive b) cohesionless
   c) compact d) commercial

3) _____ sand is prepared by crushing hard granite using VSI machine.
   a) River b) Coarse
   c) Manufactured d) Pit

4) _____ bricks are used to construct kilns, furnaces and fire places.
   a) Fly ash b) Fire
   c) Facing d) Engineering

5) _____ is essentially a dried mud brick.
   a) Fly ash b) Adobe
   c) Aerated d) CSEB

Q.5 Answer in Detail (Any 2) **20**

a) Methods of Soil Exploration.
b) Manufacturing process of brick.
c) Methods of quarrying of stones.

Q.6 Write short notes on. **15**

a) Bulb of pressure for soil
b) Bulking of sand
c) Properties of brick

SLR-GC-2

Seat No.	

Set P

B. Architecture (Semester - I) (New) (CBCS) Examination: Oct/Nov-2023
Theory of Structures – I (21AR1-03)

Day & Date: Tuesday, 30-01-2024 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) Use of scientific calculator is allowed.
2) All questions are compulsory.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary.

Q.1 Fill in the Blanks. **07**

1) The components of building include _____.
a) Foundation b) Plinth
c) Superstructure d) All of the above

2) IS code which gives specifications about live load is ____.
a) IS 875 Part I b) IS 875 Part II
c) IS 875 Part III d) IS 875 Part IV

3) The system of forces which passes through a single point is _____.
a) Coplanar b) Non-Coplanar
c) Concurrent d) Non-Concurrent

4) A beam which rests on two simple supports is _____.
a) Cantilever beam b) Simply supported beam
c) Fixed beam d) Continuous beam

5) The lami's theorem is applicable when _____ concurrent forces are present in a force system.
a) 3 b) 2
c) 1 d) 4

6) A support which has a reaction perpendicular to its plane is _____.
a) Hinged support b) Fixed support
c) Roller support d) Free support

7) The centroid of a line lies at _____.
a) End point b) Mid-point
c) Quarter point d) Intermediate point

Q.2 Write a short note. (Any Three) **15**

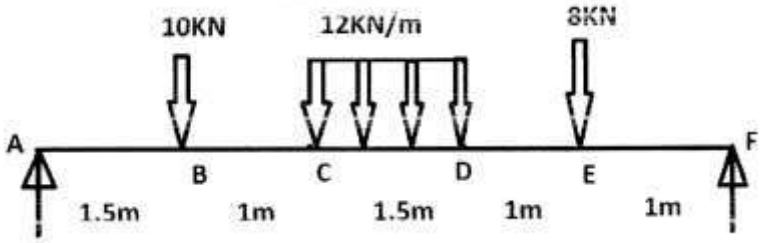
a) Write a note on Lami's theorem.
b) Write a note on types of beams.
c) Explain in detail load bearing structure and framed structure.
d) State and explain law of parallelogram of forces.

Q.3 Solve the following (Any Four) **48**

a) Two forces of magnitude of 120 N and 350 N are acting at 50° to each other. Determine the resultant in magnitude and direction if -
i) forces have same sense
ii) forces have different sense

b) Five forces of 110, 220, 330, 440 and 550 N are acting at angles of 40,100, 210, 280 and 340 in anti-clockwise direction from x axis at a point, all away from the point. Find the resultant force in magnitude and direction.

c) A horizontal beam is loaded as shown in figure below. Find reactions at supports.



d) A sphere weighing 600 N is supported by two planes. One vertical (plane A) and another (plane B) is inclined at 60° to the horizontal. Calculate reactions at the planes.

e) i) Write a note on components of building.
ii) Write a note on loads acting on a structure.

SLR-GC-3

Seat No.	

Set P

B. Architecture (Semester - I) (New) (CBCS) Examination: Oct/Nov-2023
Human Settlement Planning (21AR1-04)

Day & Date: Wednesday, 31-01-2024 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat sketches.
3) Figures to the right indicate full marks.

Q.1 Select the correct option from the following. **07**

1) Greece is located on a _____, which means land surrounded by water on three sides.
a) Island b) Peninsula
c) Polis d) Acropolis

2) In which state are Ajanta and Ellora caves located?
a) Orissa b) Andhra Pradesh
c) Gujrat d) Maharashtra

3) This river is called as life line of Egyptian civilization _____
a) Euphrates b) Nile
c) Shinano d) Yangtze Ho

4) A heavily fortified city called as _____
a) Administrative town b) industrial city
c) fortress city d) commercial city

5) Identify the following

a) Mountain b) Citadel
c) Great bath d) Granery

6) Renaissance means _____
a) Classic b) new birth
c) old one d) modern

7) Which one of the following types of economic activities dominates in all rural settlements?
a) Primary b) Secondary
c) Tertiary d) None

Q.2 Write short notes on (Any Three) **15**

a) Man, and Environment
b) Greek Acropolis
c) Roman City
d) Neanderthal man

Q.3 Answer in brief with detailed sketches (Any Four) **48**

a) i) Describe evil effects of Industrial revolution?
ii) Sketch and explain ancient cave settlement in India – Ajantha?

b) Discuss following layouts of town as per Mansara-Vastushastra
i) Swastika pattern
ii) Padmaka pattern

c) i) Differentiate between Rural and Urban Settlement?
ii) Sketch and explain following patterns of human settlement - dispersed settlement & Nucleated settlement

d) Discuss different stages of growth of human settlement?

e) Nalanda is the symbol of the most glorious period of Indian history. Explain how?

SLR-GC-4

Seat No.	

Set P

B. Architecture (Semester - II) (New) (CBCS) Examination: Oct/Nov-2023
Building Construction and Material - II (21AR2-02)

Day & Date: Tuesday, 26-12-2023 Max. Marks: 100
Time: 02:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat sketches wherever necessary.
4) Make suitable assumptions wherever necessary.

Q.1 Choose the correct Answer. **05**

1) _____ is used for covering the roof.
a) Battens b) Manglore tile
c) Eaves board d) None of above

2) Vertical member of door frame is _____.
a) style b) miderail
c) transom d) post

3) _____ is used as support for staircase.
a) Winder b) Openwell
c) Railing d) Newel post

4) What is the maximum % of silt allowed in sand to be used for concrete?
a) 5% b) 10%
c) 8% d) 2%

5) Which one of the below cannot to be used as a substitute of sand?
a) Surkhi b) Quarry dust
c) Glass d) M-sand 21962kg/cum

Q.2 Draw and label (Any 2) **30**

a) Draw plan, Elevation, Section of Dog leg staircase with all terminologies for 3.00M floor to floor height building? (Scale 1:20)
b) Draw Plan, section, Elevation Braced doors? Scale 1:10
c) Draw Plan, section, Elevation wooden Window? Scale 1:10

Q.3 With neat sketches write short notes on **25**

a) Pitched Roof.
b) Open Well Staircase.
c) Segmental Arch.
d) Two types Any of wooden joinery.
e) Differentiate arches and lintels.

Q.4 Choose the Correct Answer. **05**

1) Lime is obtained from calcination of _____.
a) lime silica b) sand stone
c) lime stone d) lime concrete

2) Fat lime is also called as _____.
a) water lime b) purelime
c) impure lime d) lean lime

3) _____ is used as structural support for window at top level.
a) Slab b) Lintel
c) Wall d) Sill

4) The vertical portion between each tread on the stair is called as.
a) Going b) Nosing
c) Winder d) Riser

5) _____ is used for light in door and window?
a) Batten b) Purlin
c) Glass d) wooden pane

Q.5 Answer in detail (any 2) **20**

a) Explain various sources and uses of sand?
b) Difference between fat lime and hydraulic lime?
c) Classification and uses of mortar?

Q.6 Write short notes on **15**

a) Define the following in one sentences calcination, setting, slaked lime, Quick lime, poor lime?
b) Properties of good sand?
c) Advantages and disadvantages River sand?

SLR-GC-5

Seat No.	

Set P

B. Architecture (Semester – II) (New) (CBCS) Examination: Oct/Nov-2023
Theory of Structure – II (21AR2-03)

Day & Date: Wednesday, 27-12-2023 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

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

Q.1 Fill in the blanks from the option given below **07**

1) The ratio of shearing stress to shearing strain within elastic limit, known as _____.
a) Modulus of elasticity b) Modulus of rigidity
c) Bulk Modulus d) Tangent Modulus

2) Which of the following is a dimensionless property?
a) Shear stress b) Normal stress
c) Strain d) Modulus of elasticity

3) The radius of gyration is given by _____.
a) $\sqrt{(I/A)}$ b) $\sqrt{(A/I)}$
c) $\sqrt{(2I/A)}$ d) $\sqrt{(I/2A)}$

4) A simply supported beam of span L subjected to central point load P has maximum bending moment equal to _____.
a) PL / 2 b) PL / 4
c) 2PL / 5 d) 4P / L

5) The variation of shear stress distribution across any section is _____.
a) Linear b) Parabolic
c) Cubic d) Hyperbolic

6) A point in a beam where bending moment changes its sign is called _____.
a) Point of bending b) Point of contra shear
c) Point of contra flexure d) Point of shear exchange

7) The density of steel is _____ KN / m^3.
a) 785 b) 78.5
c) 87.5 d) 875

Q.2 Write Short Notes (Any Three) **15**

a) Define modulus elasticity, shear modulus and bulk modulus.
b) Derive expression of moment of inertia of a circular section.
c) What do you mean by flexural formula. Explain all its terms.
d) Enlist properties of concrete, steel, soil and brick.

Q.3 Attempt the following Question (Any Four) **48**

a) A steel bar ABCD 4.8m long is loaded as shown in fig.1. Find stresses in each section and total elongation of bar. Take E = 200GPa. A1 = 1000mm^2, A2 = 2000mm^2, A3 = 1800mm^2.

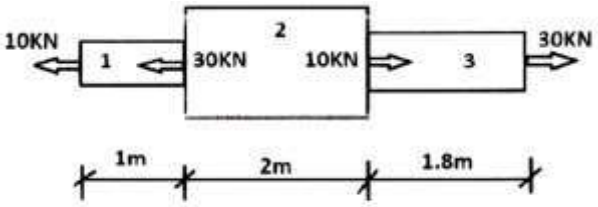


Figure-1

b) Draw SFD and BMD for an overhanging beam as shown in fig.2 below

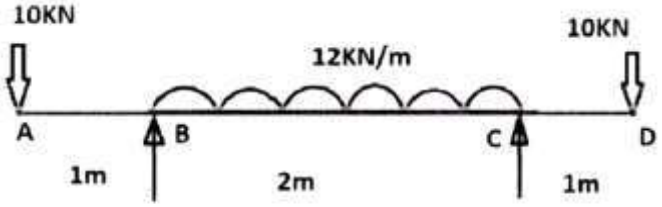


Figure-2

c) Calculate the moment of inertia of following section shown in fig.3.

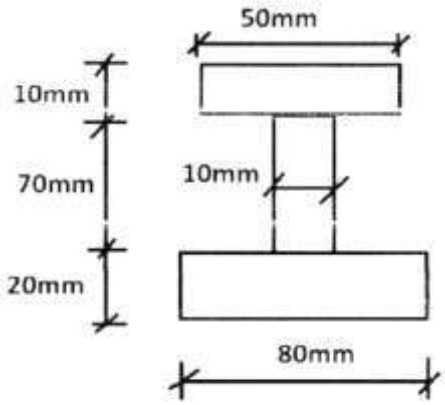


Figure-3

d) A rectangular beam 180mm wide and 320mm deep is subjected to maximum shear force of 90 KN. Show Stress Distribution diagram by determining

i) Average shear stress
ii) Maximum shear stress
iii) Shear stress at a distance of 50 mm above Neutral Axis

e) A rectangular beam of breadth 120 mm and depth 250 mm is simply supported over a span of 4 m. The beam is loaded with an uniformly distributed load of 6 kN/m over the entire span and a central point load of 10KN. Find the maximum bending stresses. Also show stress distribution diagram.

SLR-GC-6

Seat No.	

Set P

B. Architecture (Semester - II) (New) (CBCS) Examination: Oct/Nov-2023
History of Architecture – I (21AR2-04)

Day & Date: Thursday, 28-12-2023 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

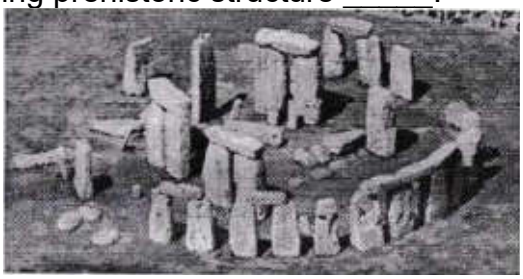
Instructions: 1) Write question number correctly.
2) Draw neat sketches whenever necessary.
3) Figures to the right indicate full marks.

Q.1 Choose the correct option. **07**

1) Harappa and Mohenjo-Daro cities were laid out on _____ road pattern.
a) Circular b) Diagonal
c) Radial d) Grid Iron

2) How many lions are portrayed on the Lion Capital at Sarnath Pillar.
a) 1 b) 2
c) 3 d) 4

3) Identify the following prehistoric structure _____.

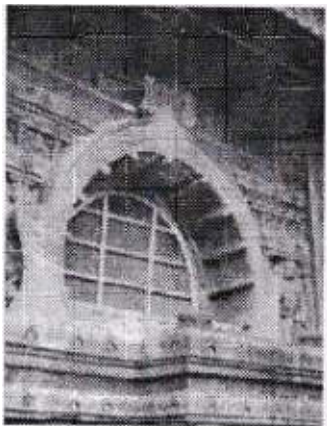


a) Stone Henge b) Passage Grave
c) dolmnen d) Terra Amata

4) Identify the following Prehistoric Structure?

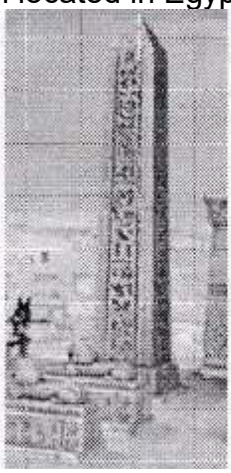
a) Chaitya Hall at Karle b) Citadel of Tiryns
c) Palace of Persepolis d) Palace of sargon

5) Identify the following?



a) Rose Window
b) Bay Window
c) Chaitya Window
d) Lion Gate

6) Identify the following monolith located in Egypt?



a) Pyramid
b) Obelisk
c) Pylon
d) Mastabas

7) Identify following structure?

a) Mastabas
b) Catal Huyuk
c) Palace of Persepolis
d) Babylon

Q.2 Write short notes on any Three. **15**

a) Passage Grave
b) Hypostyle Hall
c) Oval hut
d) Sphinx

Q.3 Answer in brief with detailed sketches any Four. **48**

a) With the help on neat sketch, explain the following structures
1) Parts of Stupa
2) Viharas

b) Sketch and explain with neat sketch Pyramid of Cheops at Giza.

c) Sketch and explain the housing and town planning of garden city of Pataliputra?

d) Sketch and explain with sketch
1) City of Babylon
2) Palace of Sargon II at Khorshabad

e) Sketch and explain - A. B.
1) Dolmen & Cromlech
2) Vedic Huts

SLR-GC-7

Seat No.	

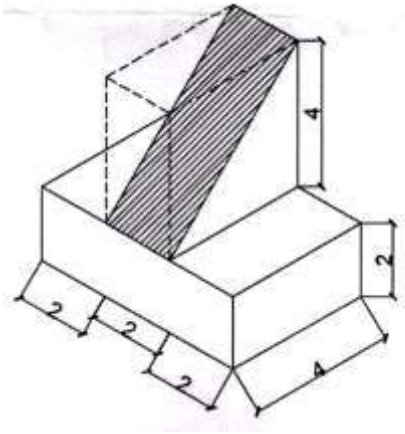
Set P

B. Architecture (Semester - II) (New) (CBCS) Examination: Oct/Nov-2023
Architectural Graphics and Drawing – II (21AR2-05)

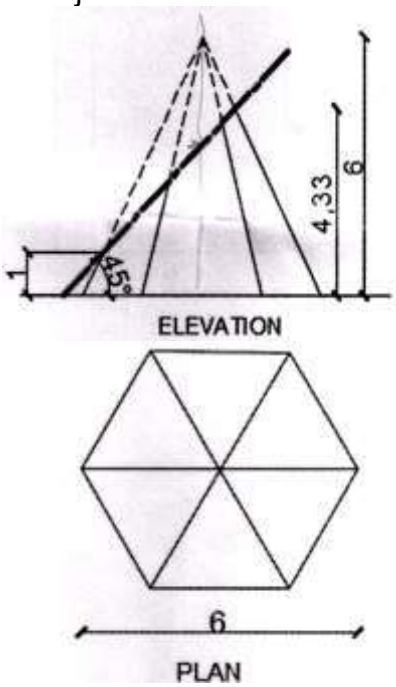
Day & Date: Friday, 29-12-2023 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Retain all construction lines.
3) Figures to the right indicate the full marks.
4) Five marks are reserved for neatness and good drafting.
5) Question no.3-both the questions are compulsory.

Q.1 Draw plan and sectional elevation (front side) of the cut object. **20**

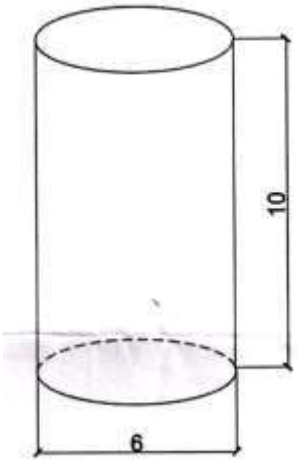


Q.2 Draw true cut portion of cut object **10**

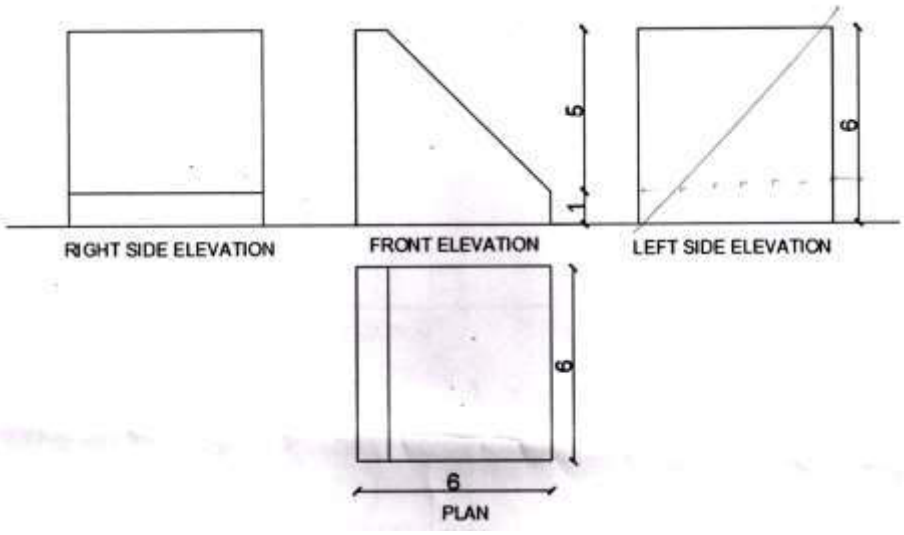


Q.3 Draw the development of surfaces of the following objects **10**

1)

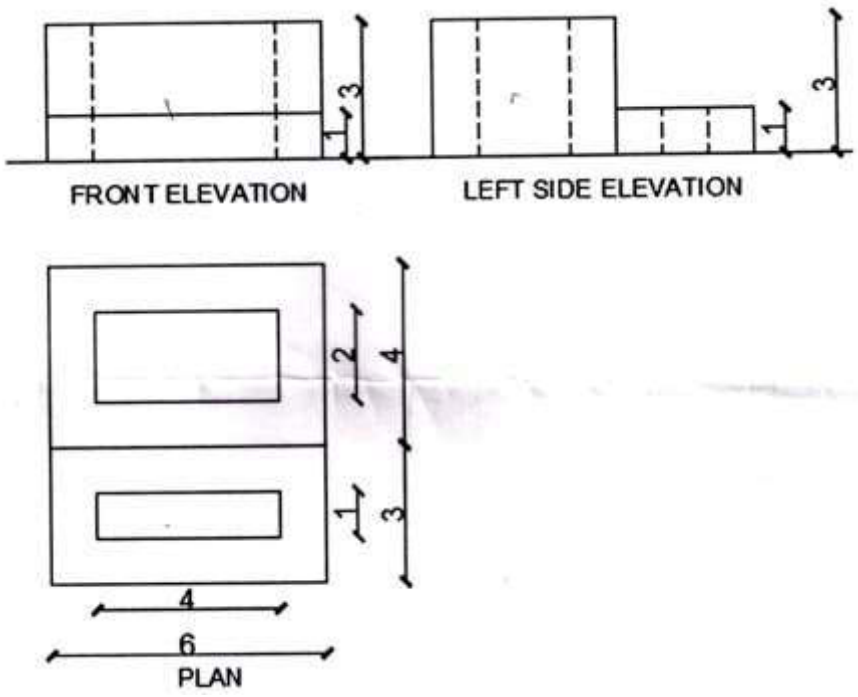


2)

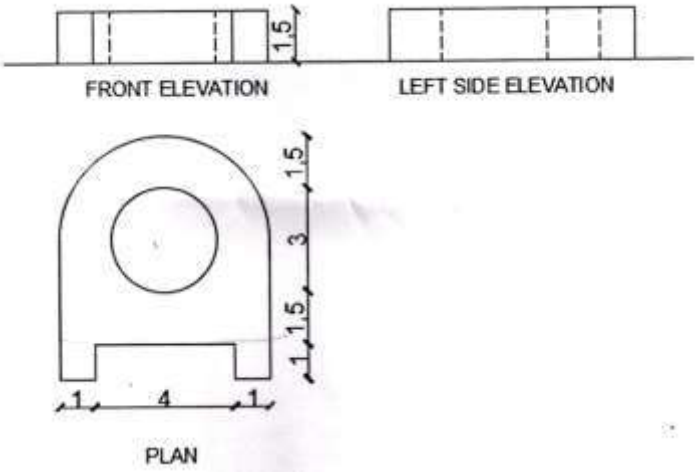


Q.4 Draw isometric view of the following object (any 1) **10**

1)

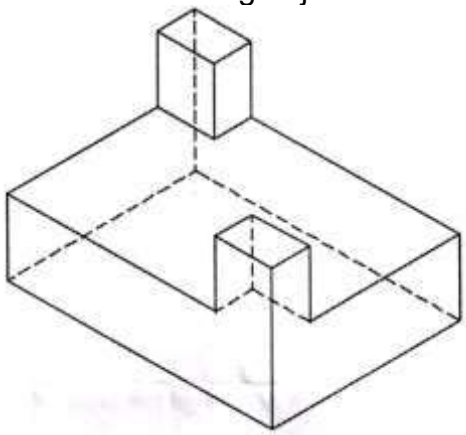


2)

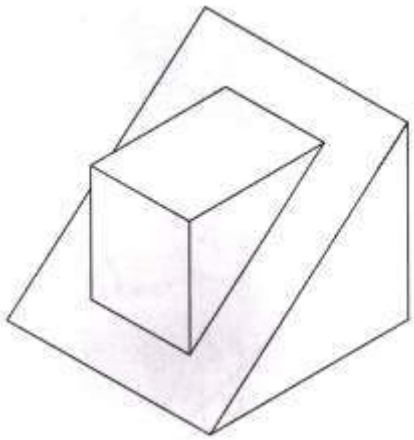


Q.5 Mention the no. of surfaces of the following objects. **10**

1)



2)



SLR-GC-8

Seat No.		Set	P

B. Architecture (Semester - III) (New) (CBCS) Examination: Oct/Nov-2023
Building Construction and Material- III (21AR3-02)

Day & Date: Wednesday, 17-01-2024 Max. Marks: 100
Time: 10:00 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Write question number correctly
3) Q.no-2 has to be compulsorily attempted on sheets provided by university.
4) Make suitable assumptions and scale wherever necessary.
5) Figures to the right indicate full marks.

Q.1 Choose the correct Answer. **05**

1) A couple-close roof can be adopted economically up to a span_____.
   a) 4.2m b) 4.8m
   c) 2.4m d) 3.6m

2) _____ flooring has good thermal insulation property.
   a) Brick flooring b) Marble flooring
   c) Timber flooring d) Mud flooring

3) _____ roof-covering is very light, but is highly combustible.
   a) Tile b) Thatch
   c) Cement Sheet d) None of the above

4) Width of a stair for public building _____.
   a) 1.5m to 1.8m b) 0.9m to 1.0m
   c) Less than 1.2m d) None of the above

5) Building _____ is the process which is designed to prevent water from penetrating a building.
   a) Plastering b) Waterproofing
   c) Curing d) None of the above

Q.2 Draw and label (Any 2) **30**

a) A commercial shop of size 4.00m x 6.50mx3.50m, where mezzanine floor for office has to be connected at 2.4m height. Design a precast concrete staircase. Draw plan, section, details.

b) Draw waterproofing details of-
   1) Terrace waterproofing
   2) Bathroom waterproofing

c) Design a roof of a store room size 5m x 8m using King post truss using material of your choice. Draw key plan, section and details of joinery to a scale.

Q.3 With neat sketches write short notes (Any 5) **25**

1) Queen post truss.
2) Flagstone flooring.
3) Define RCC framed structured with terminologies.
4) Waterproofing for Toilet.
5) Precast concrete stairs.
6) Roof covering - Asbestos cement corrugated sheets.

Q.4 Fill in the Blanks. **05**

1) _____ is binding material which is also called mineral tar.
   a) Gypsum b) Bitumen
   c) Fly-ash d) Cork

2) _____ can be magnetized permanently.
   a) Mild Steel b) Marble
   c) Cast iron d) Glass

3) Low carbon steel having percentage below_____.
   a) 0.25% b) 0.5%
   c) 0.15% d) 0.20%

4) _____ are used for decorative purposes in floors, walls, ceiling and roofs.
   a) Common tiles b) Encaustic tiles
   c) Drain tiles d) None of the above

5) _____ becomes soft at white heat and it can be easily forged and welded.
   a) Pig-iron b) Cast-iron
   c) Wrought-iron d) None of the above

Q.5 Answer in detail (Any 2) **20**

1) Write note on Asphalt - classifications, properties and uses.
2) Explain TMT bars and properties of Mild steel.
3) Explain types of Cast-iron. Its properties and uses.

Q.6 Write short notes. (Any 3) **15**

1) Mosaic flooring.
2) Causes of corrosion.
3) Define Terra-Cotta tiles. Its advantages.
4) Channel sections.

SLR-GC-9

Seat No.		Set	P

B. Architecture (Semester - III) (New) (CBCS) Examination: Oct/Nov-2023
Theory of Structure - III (21AR3-03)

Day & Date: Thursday, 18-01-2024 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data, if necessary.
4) Use of scientific calculator is allowed.

Q.1 Choose the correct option. **07**

1) The load which doesn't pass through centre of section is called _____.
a) Concentric load b) Eccentric load
c) Concurrent load d) All of the above

2) The Euler's formula is valid for _____.
a) Short columns only b) Long columns only
c) Both short & long columns d) None of the above

3) The maximum dimension of a core section for a rectangular cross-section under economic loading on a column b × d is _____.
a) b/6 b) d/6
c) d/8 d) b/6 and d/6

4) A beam with both ends fixed is called _____.
a) Cantilever beam b) Simply supported beam
c) Fixed beam d) Continuous beam

5) Slope at the supports of a simple supported beam of effective span L with a central point load W is given by _____.
a) $WL^2/16EI$ b) $WL^2/24EI$
c) $WL^2/8EI$ d) $WL^2/12EI$

6) A plane with zero shear stress but only normal stress is called _____.
a) Normal plane b) Principal plane
c) Neutral plane d) Shear plane

7) A member in truss which carries compression is _____.
a) Tie member b) Principal rafter
c) Purlin d) All of the above

Q.2 Write short notes on - (Any 3) **15**

1) Derive expression of normal, shear and resultant stress on an oblique plane for a member subjected to uniaxial stress system.
2) Explain joint and section method of analysis of trusses.
3) Write short note on equivalent length of column.
4) Derive the expression of core of section for rectangular section.

Q.3 Solve the following (Any Four) **48**

1) Find the normal, shear, resultant, maximum shear stress for an oblique plane inclined at 40° from horizontal. As shown in fig.1 below, the member is subjected to 120MPa tensile and 80MPa compressive stresses. Also find location of resultant and maximum shear stress.

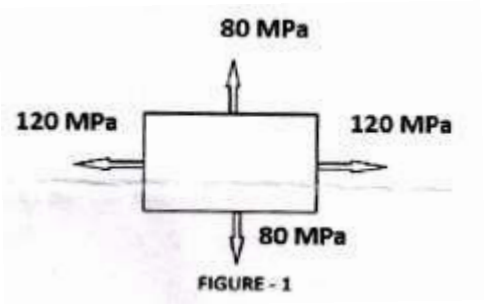


FIGURE - 1

2) Draw SFD and BMD of a fixed beam subjected to udl of 20 KN/m throughout length of 6m and a central point load of 40 KN.

3) A solid round bar 3.2m long and 40mm × 60mm in size is used as a strut, determine the crippling load. Take $E=2 \times 10^5 N/mm^2$

a) One end hinged and other end fixed.
b) One end is fixed and other end is free.
c) Both the ends are fixed.

4) A simply supported beam of span 8 m carries two point loads 220 KN and 120 KN at 2 m and 6 m from left support. Determine slope at supports and deflection at centre of beam. Take EI as constant.

5) A cast iron column of 400 mm×540mm carries a vertical load of 520 KN, at a distance of 90 mm from the centre along x-axis. Determine the maximum and minimum stress developed in the section. Also draw stress distribution diagram.

SLR-GC-10

Seat No.	

Set P

B. Architecture (Semester - III) (New) (CBCS) Examination: Oct/Nov-2023
History of Architecture – II (21AR3-04)

Day & Date: Friday, 05-01-2024 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat sketches wherever necessary.
3) Figures to the right indicate full marks.

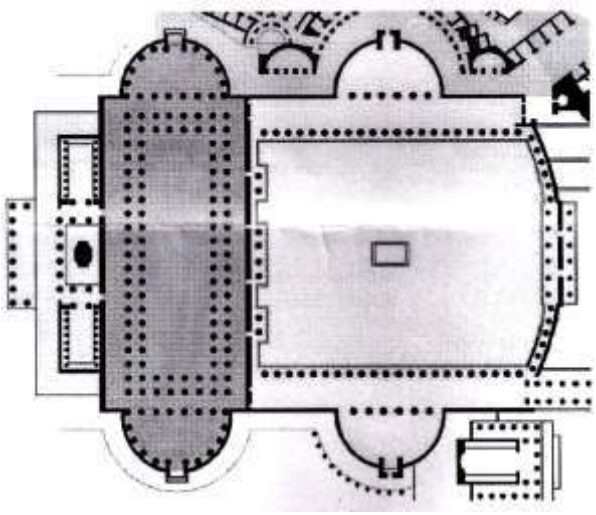
Q.1 Choose the correct answer and fill in the blanks. **07**

1) The Parthenon is a _____.
a) Circus b) Temple
c) Public Bath d) Forum

2) The Dashawatara Temple is located at _____.
a) Sanchi b) Zodge
c) Udaigiri d) Deogarh

3) Temples in Southern India are surrounded by _____ walls.
a) Prakaram b) Jagmohan
c) Jagati d) Bhogmandir

4) Identify the Following building Plan.

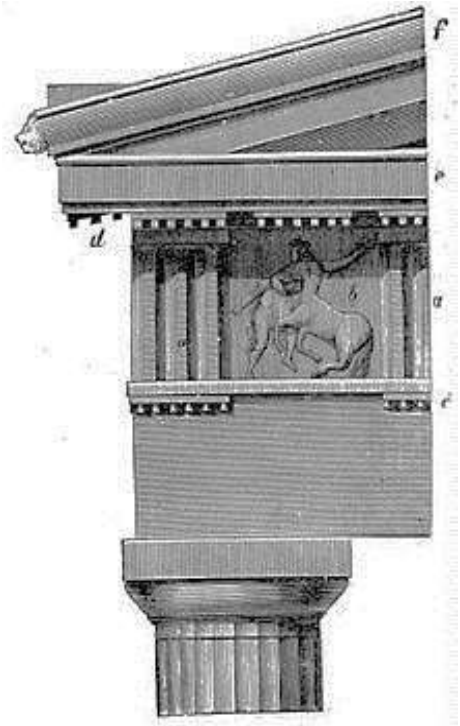


a) Parthenon, Athens b) Basilica Ulpia
c) St. Marks, Venice d) Old Basilica of St. Peters, Rome

5) The _____ in Hampi has 5^6 Musical Pillars also known as the Sa Re Ga Ma Pillars.
a) Kailashnath Temple b) Hazara Rama Temple
c) Papanath Temple d) Vijay Vitthala Temple

6) The Choumukh temple at Ranakpur is dedicated to the first Tirthankara _____.
a) Parshvanatha b) Sambhava
c) Adinatha d) Mahaveer

7) The Following Order is _____



a) Ionic order
b) Corinthian order
c) Composite order
d) Doric order

Q.2 Write short note on the following (Any Three) **15**

a) Pantheon, Rome
b) Mankeshwar temple, zodge
c) Dravidian Style
d) Theatre at Epidaurus

Q.3 Write answer in brief (any four) **48**

a) Sketch and explain Surya Temple, At Konark. **12**

b) Sketch and explain Rock Cut architecture with reference to any three Panch Rathas. **12**

c) 1) Explain characteristic features of Orissan temple architecture. **06**
2) Sketch and explain Durga temple at Aihole. **06**

d) 1) Sketch Plan of Old St. Peter's Basilica, Rome, define the component parts of the same. **06**
2) Sketch Plan Elevation and Explain in Short Basic elements of Hindu Temple. **06**

e) 1) Sketch and explain Shore Temple at Mahabalipuram. **06**
2) Sketch and explain Greek temple - Parthenon, Athens. **06**

SLR-GC-11

Seat No.	

Set P

B. Architecture (Semester–III) (New) (CBCS) Examination: Oct/Nov-2023
Architectural Graphics and Drawing- III (21AR3-05)

Day & Date: Saturday, 06-01-2024 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

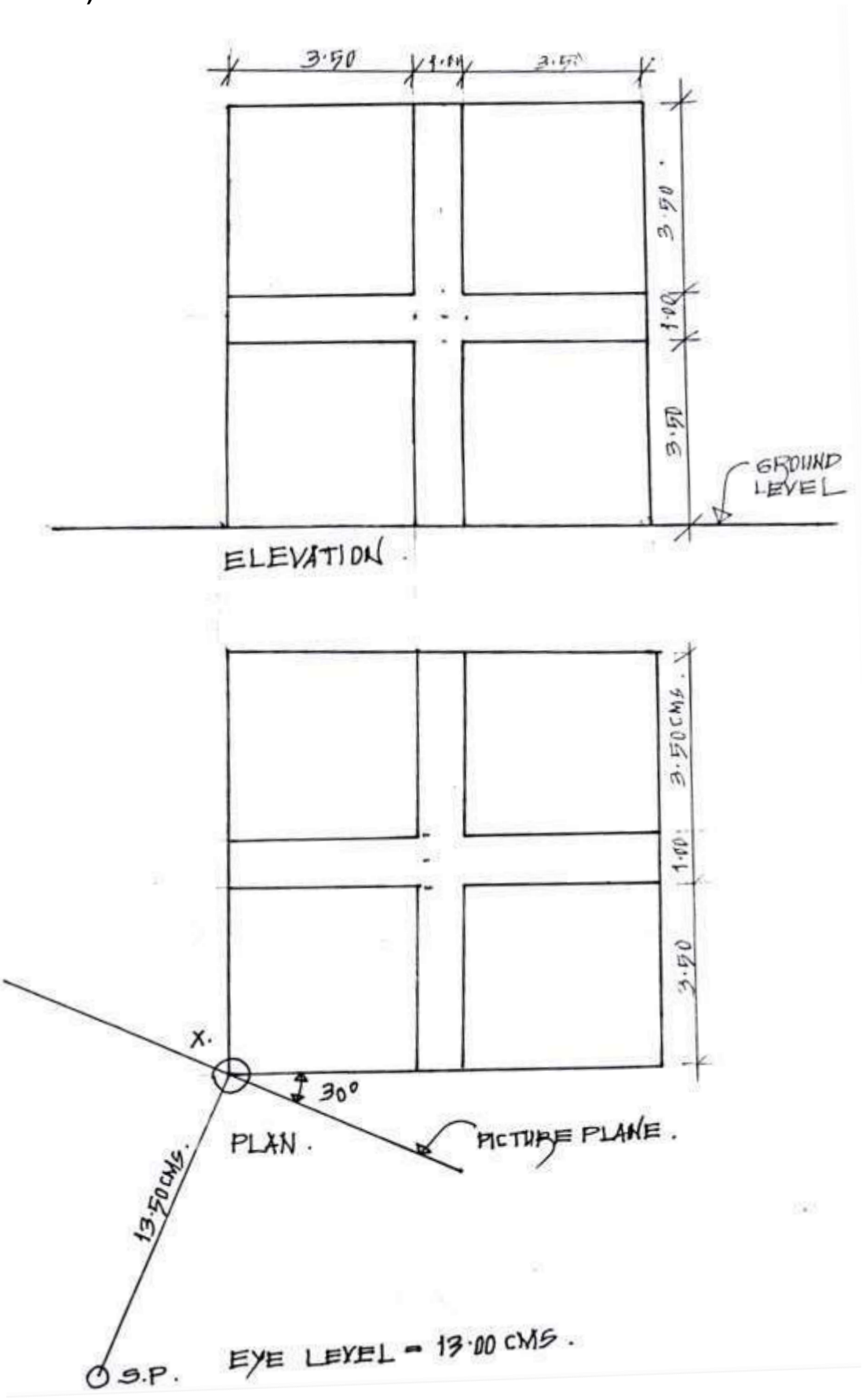
Instructions: 1) All questions are compulsory.
2) Retain all construction lines.
3) Figures to the right indicates full marks.
4) Five marks are reserved for neatness and good drafting quality.
5) Make suitable assumptions wherever required.

Q.1 Draw perspective view for the object in Figure - A observing following points/conditions. **20**

Q.2 Draw sociography of the following object in Figure - B observing the source of the light is in conventional direction on the vertical and horizontal planes in plan and elevation. **20**

Q.3 Draw perspective view of the object in Figure-C along with shade and shadow Considering the source of light is in conventional direction on the vertical and Horizontal planes of the given object. **25**

FIGURE- A)


3·50
3·50
1·00
3·50
GROUND LEVEL
ELEVATION
3·50 CMS.
1·00
3·50
X.
30°
PLAN.
PICTURE PLANE.
13·50 CMS.
S.P.
EYE LEVEL = 13·00 CMS.

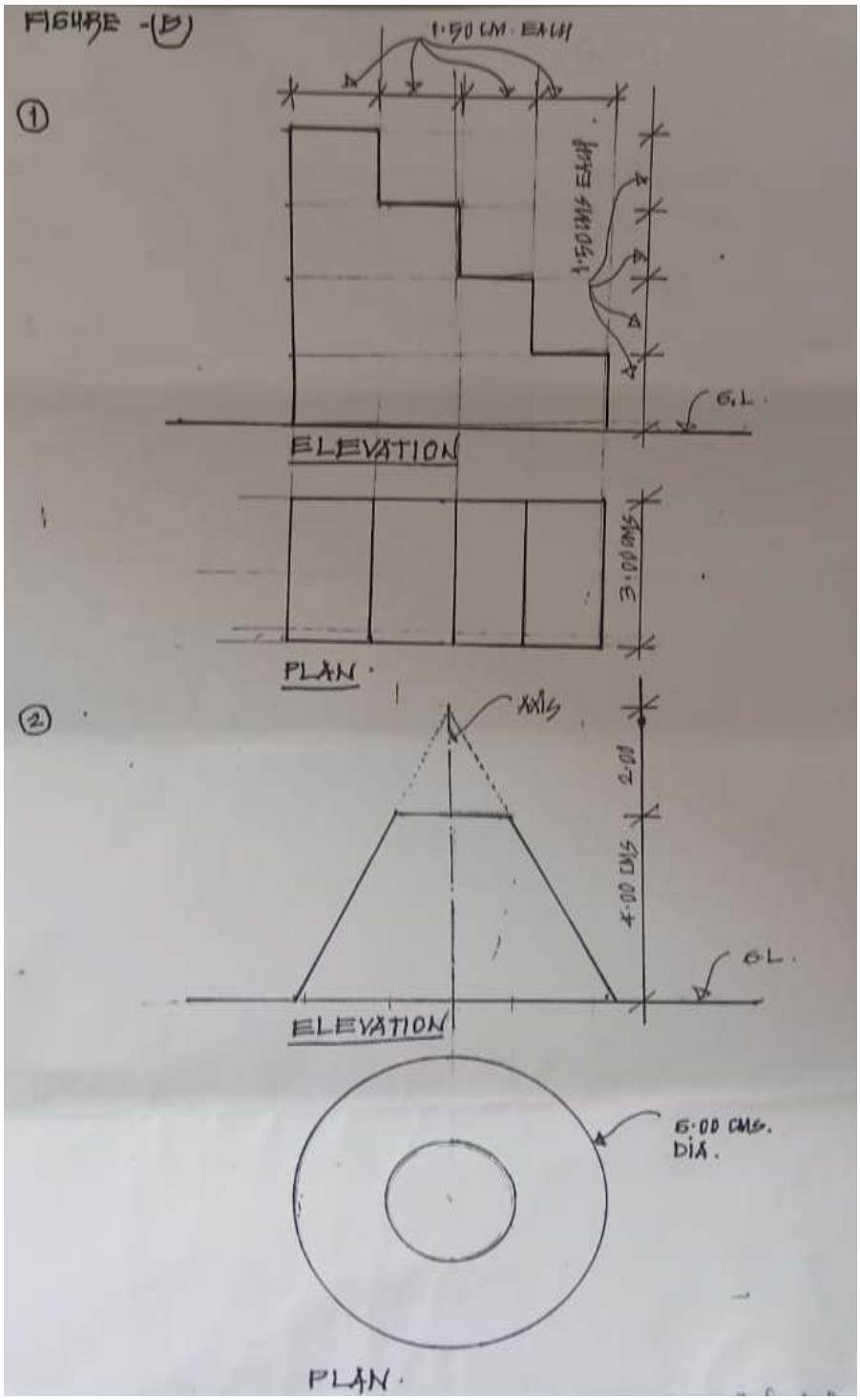
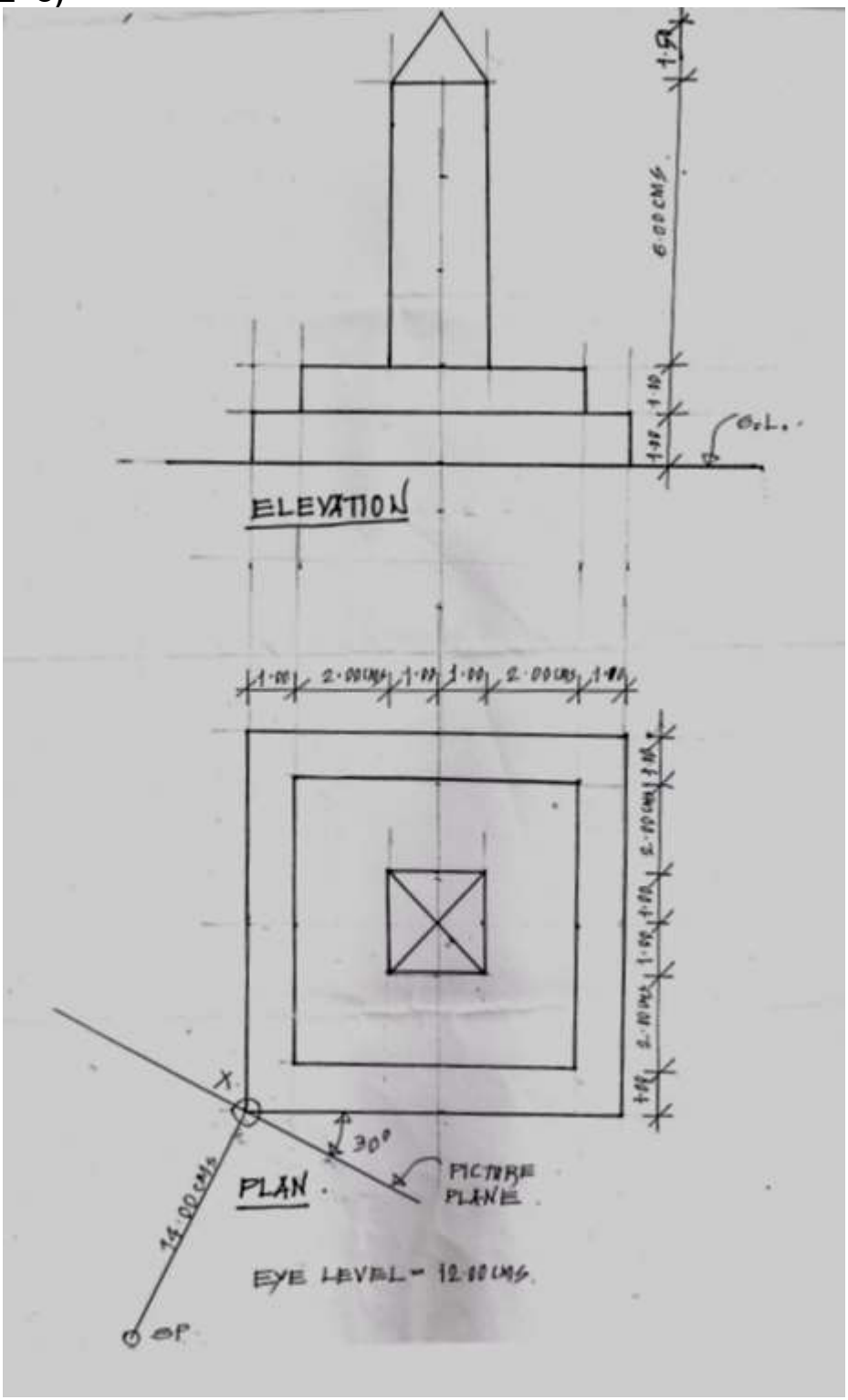


FIGURE -(B)
1·50 CM. EACH
1·50 CMS EACH.
G.L.
ELEVATION
3·00 CMS.
PLAN.
XXIS
2·00
4·00 CMS.
G.L.
ELEVATION
6·00 CMS.
DIA.
PLAN.

FIGURE- C)



SLR-GC-12

Seat No.	

Set P

B. Architecture (Semester - III) (New) (CBCS) Examination: Oct/Nov-2023
Building Services – I (21AR3-07)

Day & Date: Sunday, 07-01-2024 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) Questions 1 and 2 are compulsory.
2) Solve any four questions from the remaining
3) Figures to the right indicate full marks.

Q.1 Fill in the blanks. **07**

1) The suitable layout for a water supply distribution system for an irregularly grown town is _____.
a) Grid iron system b) Dead end system
c) Ring system d) Radial system

2) For water supply to residences, the service is provided by _____.
a) P.V.C. pipes b) lead pipes
c) galvanized iron pipes d) cast iron pipes

3) In the two-pipe system for the drainage of buildings, the discharge from the waste pipe is disconnected from the drain by using ____.
a) Gully trap b) Silt trap
c) Floor trap d) Grease trap

4) Septic action is produced by the septic tank by _____.
a) Fungi b) Virus
c) Termites d) Anaerobic bacteria

5) In a centrifugal pump the liquid enters the pump ____.
a) At the top b) At the bottom
c) At the centre d) From sides

6) Which of the following valves is better for on/off control?
a) Ball valve b) Butterfly valve
c) Plug valve d) Knife valve

7) The waste water which does not contain sewage is known as ____.
a) Sullage b) Sewage
c) Sewerage d) Grey water

Q.2 Write short notes on. (Any Three) **15**

a) Requirements of the Good Water Distribution System.
b) Submersible pump with neat sketch.
c) central hot water supply system.
d) Septic tank.

Q.3 Explain with sketches various water distribution system. **12**

Q.4 a) Explain intercepting chamber with neat sketch. **06**
b) Write a short note on Rain water harvesting and right some benefits of it. **06**

Q.5 Enlist various types of valves and explain any two in detail. **12**

Q.6 Describe any four sanitary fittings. **12**

Q.7 Define sewage and explain manhole with neat sketch. **12**

SLR-GC-13

Seat No.	

Set P

B. Architecture (Semester - III) (New) (CBCS) Examination: Oct/Nov-2023
Climatology And Environment – I (21AR3-08)

Day & Date: Monday, 08-01-2024 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figure to the right indicate full marks.
3) Draw neat sketches wherever necessary.
4) Calculator to be allowed in the Examination.
5) Question No. 4 is compulsory.

Q.1 Fill in the Blanks: **07**

1) Light coloured smooth and shiny surfaces tend to have a Higher _____.
a) Shine b) Reflectance
c) Surface d) Opaque

2) Heat gain is equal to _____.
a) Heat surface b) Heat conduction
c) Heat loss d) None of these

3) Conduction heat flow rate through a wall of given area can be described by the equation _____.
a) $Qc = A \times U$ b) $Qc = U \times \Delta T$
c) $Qc = A \times U \times \Delta T$ d) $Qc = A \times \Delta T$

4) Deep body temperature is about _____.
a) 30°C. b) 34°C.
c) 31°C. d) 37°C.

5) Thorny bushes are found in _____.
a) Hot and dry desert climate b) Hot and humid tropical climate
c) Cold polar climate d) None of the above

6) _____ will register the duration of sunshine.
a) Sunshine Digital b) Sunshine recorder
c) Sunshine daily d) Sunshine

7) _____ is define as a state in which a person experiences or expresses satisfaction with the thermal environment.
a) Thermal comfort b) Thermal Design
c) Thermal experience d) All of the above

Q.2 Write short notes (Any Three) **15**

a) Write in brief about Climate and Weather.
b) Special characteristics
c) Thermal balance of the body
d) Sol- air temperature.

Q.3 Write in brief (Any Three) **36**

a) Factors causing derivations of urban climate from the regional Marco climate.

b) Characteristics of Composite climate with example.

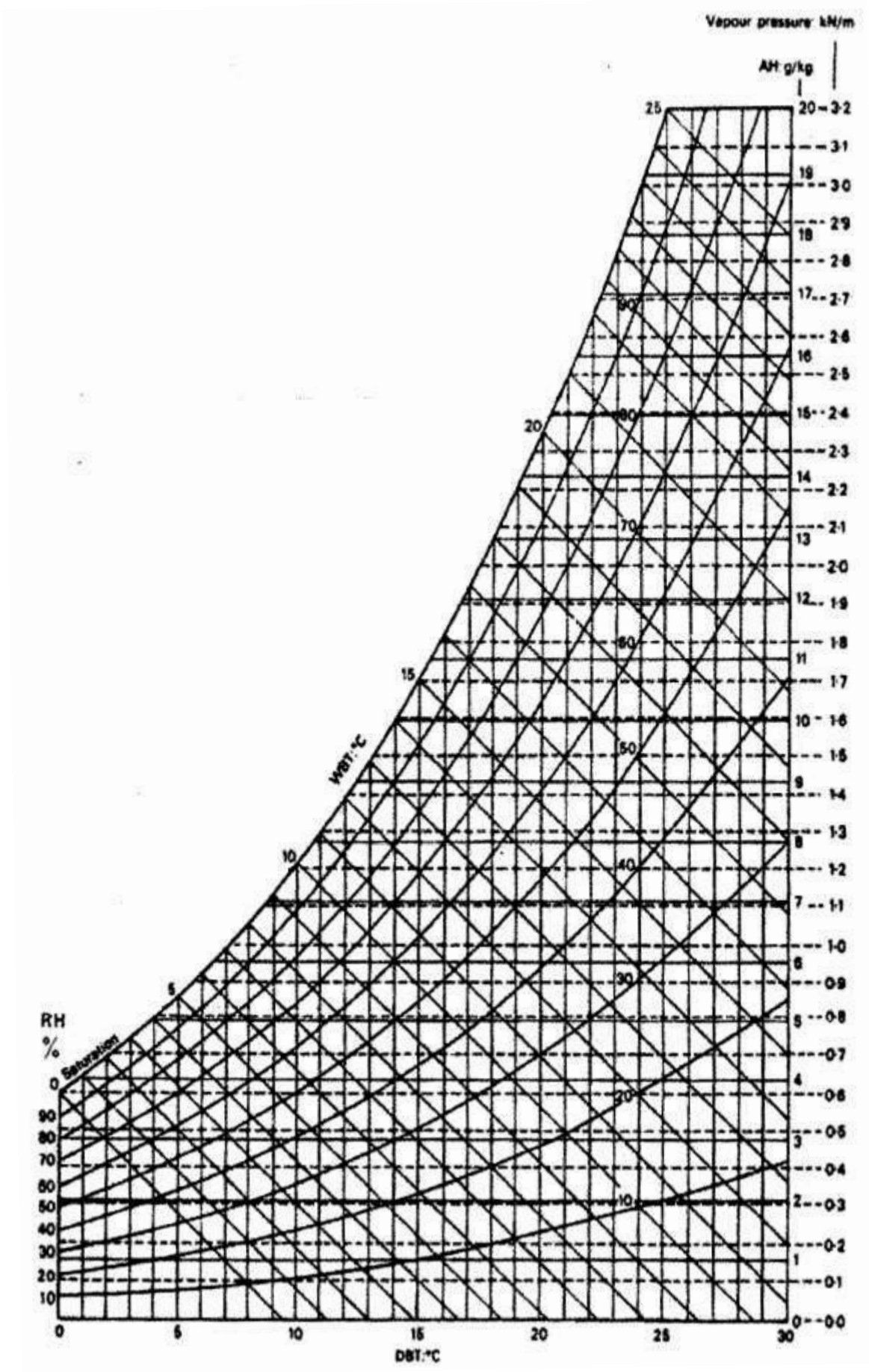
c) Write in brief about Global climate and its Factors.

d) Heat Loss Calculation.

Office area: 5m×5m and height 2.5m
Located on an intermediate floor of a large building
Only one wall is exposed to south facing and other walls are adjoin room
Temperature T_i =20°C
T_0 =1°C
Ventilation rate is 3 air changes per hour
3 100W bulbs are used continuous use in rear part of the room
The exposed wall 5m×2.5m wall consist of single glazed window,
1.5m×5m=7.5m^2 U=4.48 W/m2
Clinker concrete spandrel wall, 200mm rendered and plastered
1m×5m = 5m^2 U=1.35 W/M^2

Q.4 a) Find AH VP and RH by using psychrometric chart when WBT is 15°C and DBT is 25°C **06**

b) Explain Conduction, Convection and Radiation. **06**


Vapour pressure kN/m
AH g/kg
WBT:°C
DBT:°C
RH
%
Saturation

SLR-GC-14

Seat No.		Set	P

B. Architecture (Semester - IV) (New) (CBCS) Examination: Oct/Nov-2023
History of Architecture – III (21AR4-04)

Day & Date: Thursday, 18-01-2024 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat sketches wherever necessary.

Q.1 Choose the correct option **07**

1) Romanesque Architecture is an architectural style of Medieval Europe characterised by _____.
a) Pointed Arches b) Semi-circular Arches
c) Dome d) Vault

2) _____ was a cultural movement which began in Italy.
a) Romanesque b) Gothic
c) Renaissance d) Egypt

3) Existing Sansadbhavan was designed by architect _____.
a) Edwin Lutyens and Herbert Baker
b) Le Corbusier
c) Charles Correa
d) Achyut Kanvinde

4) _____ Introduced the concept of the planned Charbagh to South Asia.
a) Akbar b) Babur
c) Jahangir d) Shah Jahan

5) Series of arches placed at an angle to convert the square base to octagonal is called as _____.
a) Pendentive b) Squinch
c) Dome d) Bracket

6) _____ structure has a irregular pentagonal fortified enclosure.
a) Jama Masjid b) Bara Gumbad
c) Shish Mahal d) Tomb of Ghiyas-ud-din

7) Glazed tile work in madrassa of mahmud gawan is clearly influenced by the architecture of _____.
a) Persian madrasas b) Hindu Temples
c) Arabian Mosque d) Indo Islamic architecture

Q.2 Write a short note (Any Three) **15**

a) Victoria memorial hall
b) Humayun's tomb
c) Mughal Garden in India
d) Jama Masjid, Gulbarga

Q.3 Write answer in brief (Any 4) **48**

a) Explain Colonial Architecture with example Victoria Terminus, Mumbai.

b) Explain Architectural characteristics of Romanesque Architecture with example Pisa Cathedral.

c) Explain Provincial Style in Deccan, its characteristics with example Ibrahim Rouza, Bijapur.

d) Explain Architecture of Bauhaus school.

e) Discuss characteristics of Gothic Architecture with example Notre Dome, Paris.

SLR-GC-16

Seat No.		Set	P

B. Architecture (Semester – IV) (New) (CBCS) Examination: Oct/Nov-2023
Building Services – II (21AR4-07)

Day & Date: Saturday, 06-01-2024 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Draw neat sketches wherever necessary.

Q.1 Fill in the blanks from the options given below **07**

1) Voltage = Current x _____.
a) Volts b) Ampere
c) Resistance d) Lux

2) _____ is emitted from the point light source.
a) Indirect light b) Diffused light
c) Scattered light d) Direct light

3) Air conditioning involves _____.
a) control of temperature-humidity & airflow
b) only humidity
c) purity of air
d) temperature control

4) In a refrigeration cycle, _____ component converts freon gas to high temperature and high pressure.
a) compressor b) expansive valve
c) condenser d) evaporator

5) The process of extraction of the certain required amount of water from air is known as _____.
a) heating b) cooling
c) dehumidification d) humidification

6) _____ is a moving staircase.
a) Lift b) Conveyer belt
c) Escalator d) None from the options

7) An electronic device has a resistance of 15 ohms and a current of 20A, then the voltage across the device will be _____.
a) 20V b) 300V
c) 1.5V d) 250V

Q.2 Write short notes on - (Any Three). **15**

a) Incandescent lamp with sketch.
b) Pipe earth electrode and Plate earth electrode.
c) Advantages and Disadvantages of conduit wiring system.
d) Principles of Air conditioning.

Q.3 Attempt the following questions (Any Four)

a)	What are the factors to be considered in the design of a lighting scheme? Draw diagram of a luminaire showing its components and explain any 6 components.	**12**
b)	Draw any 3 arrangements of Escalators and explain working of escalator with sketch.	**12**
c)	Explain systems of Mechanical ventilation.	**12**
d)	Explain with sketch Summer and Winter Air conditioning.	**12**
e)	Give any 8 points of comparison between Cleat wiring, Casing Capping wiring, Batten wiring and Conduit wiring.	**12**

SLR-GC-17

Seat No.	

Set P

B. Architecture (Semester – IV) (NEW) (CBCS) Examination: Oct/Nov-2023
Climatology and Environment - II (21AR4-08)

Day & Date: Sunday, 07-01-2024 Max. Marks: 70
Time: 03:00 AM To 06:00 PM

Instructions: 1) Draw neat Sketches wherever necessary.
2) Figures to the right indicate full marks.
3) Calculator to be allowed in the Examination.

Q.1 Choose the correct answer. **07**

1) Stack ventilation through rooms is increased by _____ distance between high & low.
a) Greater b) Shorter
c) Opposite d) none of the above

2) _____ that can tolerate temperature swings can be located between protected rooms and undesired heat & cold.
a) Cooling zone b) Stratification zone
c) Heat producing zone d) Buffer zone

3) Organisations of interwoven buildings and planting can be used to reduce the ambient _____.
a) Air velocity b) Air temperature
c) Humidity d) None of the above

4) The _____ characterizes a vertical shading device.
a) Shadow angle protractor b) Vertical shadow angle
c) Horizontal shadow angle d) All of the above

5) _____ is only possible by mechanical means, without this, in warm-humid climates, some relief can be provided by air movement.
a) Cross ventilation b) Dehumidification
c) Mechanical ventilation d) None of the above

6) Some materials when exposed to light, transmit a large part of it - these are referred as _____ materials.
a) Reflective b) Absorptive
c) Transparent d) None of the above

7) In _____ climates wide variations occur in natural lighting, between over-cast and clear sky conditions.
a) Tropical climates b) Warm-humid climates
c) Hot-dry climates d) Composite climate

Q.2 Write short notes on. (Any Three) **15**

a) Shadow angles
b) Stack effect
c) Day light in Hot-Dry climates
d) Mutual shading

Q.3 Write in Brief. (Any Four)

a) Explain any THREE techniques with sketches for building scale strategy. **12**

b) Explain- **12**

i) Vertical devices
ii) Horizontal device
iii) Egg-crate device.

In detail with sketches.

c) i) Write short note on Position of openings with sketches. **06**

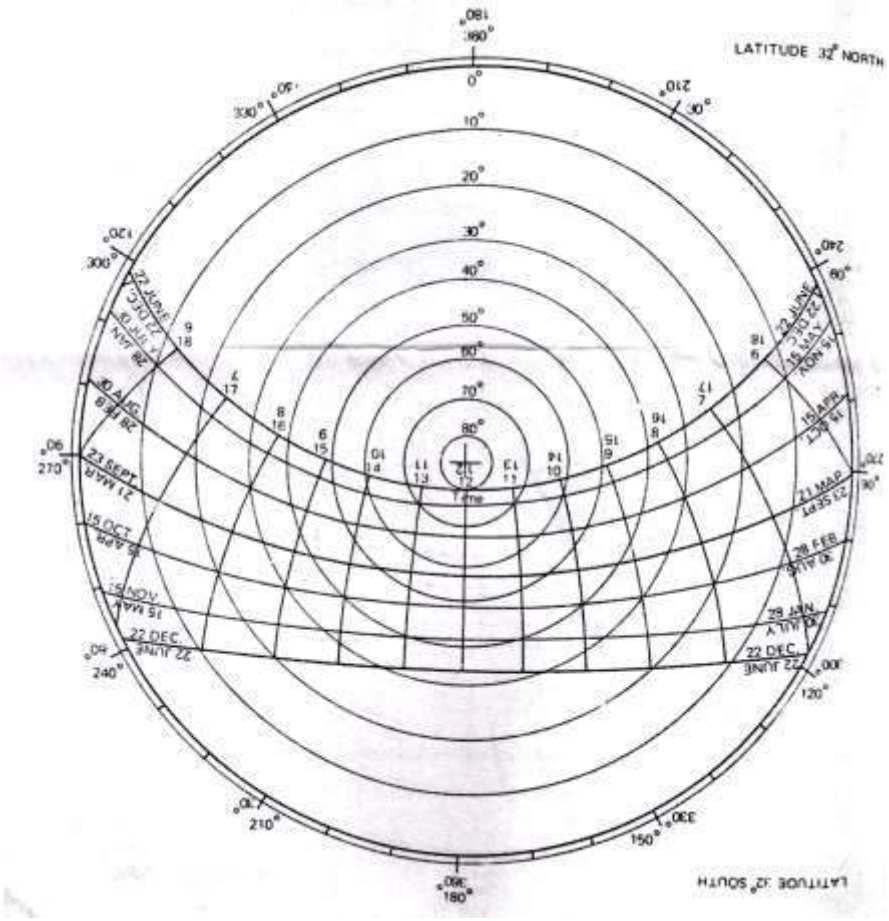
ii) Explain the Daylight Factor. **06**

d) i) Explain with sketches Evaporative cooling building scale strategy. **06**

ii) Explain with sketches Shady courtyards building scale strategy. **06**

e) i) Find solar Altitude & Azimuth Angle for given chart below 32° North at. **06**
-11am on 23rdSeptember.
- 16pm on 30th August.

ii) explain with sketches Thermal collector walls and roofs. **06**



SLR-GC-18

Seat No.		Set	P

B. Architecture (Semester-IV) (New) (CBCS) Examination: Oct/Nov-2023
Theory of Structure- IV (21AR4-03)

Day & Date: Monday, 08-01-2024 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) Use of Scientific Calculator, steel table and IS 875 is allowed.
2) All questions are compulsory.
3) Figures to the right indicates full marks.
4) Assume suitable data, if necessary.

Q.1 Choose the correct option. **07**

1) The standard loads are given in _____.
a) IS 885 b) IS 875
c) IS 675 d) IS 1375

2) The factor of safety is a ratio of _____.
a) Bearing stress and working stress.
b) Yield stress and working stress.
c) Tensile stress and working stress.
d) Compressive stress and working stress.

3) Which of the following is not a type of weld?
a) Butt weld b) Plug weld
c) Zigzag weld d) Lap weld

4) A riveted joint can fail in _____.
a) Tearing of plate only b) Bearing of plate or rivet only
c) Shearing of rivet only d) Any of the above

5) A strut is _____.
a) Tension member b) Compression member
c) Torsion member d) Flexural member

6) As per codal provision, the effective buckling length of a cantilevered steel column of length is given by _____.
a) 0.50 L b) 1.30 L
c) 2.00 L d) 0.80 L

7) In a steel beam section, the web carries _____.
a) Tension b) Compression
c) Moment d) Shear

Q.2 Write short notes on any 3 (5 each mark) **15**

a) Write a note on design steps of steel compression member.
b) Write a note on types of weld.
c) Differentiate between limit state and working stress methods of design.
d) Write a note on elements of a truss member.

Q.3 Solve any four of the following (12 each mark) **48**

a) Determine the rivet value of 18mm diameter 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 240 MPa resp.

b) Design a Simply supported beam of length 4.5m which is carrying UDL of 42 KN/m. Effective length of compression flange of beam is also 4.5m. The ends of beam are not free to rotate at the bearings.

c) Design a rolled steel I section column to carry an axial load of 1200 KN. The column is 4.0m long and adequately restrained in position but not in direction at both the ends.

d) Find the forces in the members of following truss.

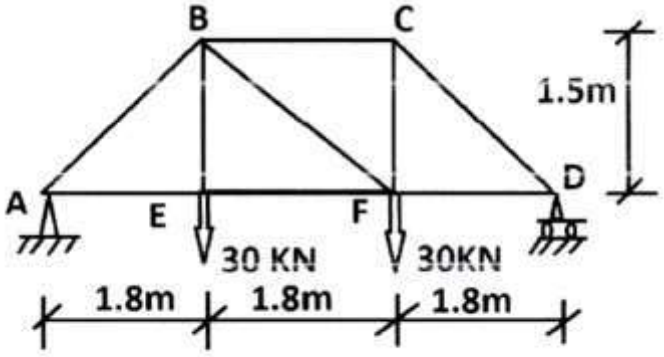


Figure - 1

e) i) Write a note on design steps of steel beam.

ii) Define effective length and slenderness ratio of a steel column.

SLR-GC-19

Seat No.		Set	P

B. Architecture (Semester - IV) (New) (CBCS) Examination: Oct/Nov-2023
Building Construction and Material- IV (21AR4-02)

Day & Date: Tuesday, 09-01-2024 Max. Marks: 100
Time: 02:00 PM To 06:00 PM

Instructions: 1) Write question number correctly.
2) Draw neat sketches wherever necessary.
3) Q.No-2 has to be compulsorily drafted on sheets provided by the university.
4) Make suitable assumptions Wherever necessary and mention it
5) Figures to the right indicate full marks

Q.1 Choose the correct Answer. **05**

1) Foundations are basically classified into shallow and ____ foundation.
a) Deep b) Black Cotton Soil
c) Eccentric d) Cantilever

2) RCC stand for ____.
a) Reinforced Cement Concrete b) Required Cement Concrete
c) Rapid Hardening Cement d) Portland Cement

3) RCC slab is designed as a two-way slab if the ratio of spans is less than _____.
a) 2 b) 4
c) 6 d) 8

4) _____ IS USED AS REINFORCEMENT IN RCC WORK
a) Steel b) Concrete
c) Cement d) Aggregate

5) ____ technology is a cost-effective technique that reduces the dead weight of slabs by replacing concrete with filler material.
a) Filler Slab b) Sloped Roof
c) Vault d) Dome

Q.2 Draw and label (Any 2) **30**

a) Draw plan, elevation and section of collapsible gate to a suitable scale, Size of the opening is 3.50 m x 3.00 m.
b) Draw the cross section and plan of a one-way slab showing the detail of reinforcement for a room of size 4.0m x8.0m.
c) The living room of area 4.50mx6.00m, a staircase is to be constructed an R.C.C staircase to communicate ground floor to first floor. Floor height is 3.20m. Draw plan, section showing reinforcement details? Give details of railing.

Q.3 With neat sketches write short notes on- **25**

a) Differentiate between RCC Framed Structure and load bearing structures.
b) Differentiate between flat and filler slab.
c) Various metal sections used in building construction
d) Formwork and its necessity
e) Differentiate between shallow foundation and deep foundation

Q.4 Choose the Correct Answer. **05**

1) The initial setting time for ordinary portland cement is about

a) 30 min. b) 60 min
c) 45 min d) 25 min

2) RCC stands for ____.

a) Cement Concrete b) Plan Cement Concrete
c) Reinforced Cement Concrete d) Fibre Reinforced Concrete.

3) For ordinary Portland cement, the curing period is about _____days.

a) 5-10 b) 6-12
c) 7-14 d) 8-16

4) _____ is used to indicate a paste prepared by adding required quantity of water to a mixture of binding material like cement or lime and fine aggregate like sand.

a) Mortar b) Painting
c) Curing d) Plastering

5) _____ is a method widely used that adds a protective layer over the concrete surface for the sole purpose of preventing any leakage, cracks or unwanted shrinks which might appear due to atmospheric effects

a) Curing b) Mortar
c) Painting d) Plastering

Q.5 Answer in detail (Any 2) **20**

a) Write any 5 properties and 5 uses of cement.
b) write in brief the various materials used in making RCC
c) What is plaster of Paris? Mention its properties and uses.

Q.6 Write short notes on **15**

a) Types of cement
b) Curing of concrete
c) Methods of Plastering- smooth, rough, textured, grit plaster etc.

SLR-GC-20

Seat No.		Set	P

B. Architecture (Semester - IV) (Old) (CBCS) Examination: Oct/Nov-2023
Theory of Structure – IV (7022404)

Day & Date: Wednesday, 17-01-2024 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Use of scientific calculator is allowed.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary.

Q.1 Choose the correct option. **07**

1) The equivalent length of a column of length L having both ends fixed is given by _____.
a) $L/2$ b) $L/\sqrt{2}$
c) L d) $2L$

2) The flexural equation is given as _____.
a) $\frac{M}{I}=\frac{f}{y}=\frac{E}{R}$ b) $\frac{I}{M}=\frac{f}{y}=\frac{E}{R}$
c) $\frac{M}{I}=\frac{f}{y}=\frac{R}{E}$ d) $\frac{M}{I}=\frac{y}{f}=\frac{E}{R}$

3) The core of a circular section short column diameter d is a concentric circular area having a diameter _____.
a) $d/4$ b) $d/3$
c) $d/2$ d) $d/8$

4) An arch may be subjected to _____.
a) Shear force and thrust
b) Bending moment and shear force
c) Axial and shear force
d) Bending moment and axial force

5) Slope at the free end of a cantilevered beam of effective span L with a point load W at free end is given by _____.
a) $WL^2/3EI$ b) $WL^2/2EI$
c) $WL^2/8EI$ d) $WL^2/4EI$

6) The maximum deflection due to UDL w / unit length over entire span of a simply supported beam of length L and of flexural rigidity EI is _____.
a) $WL^3/3EI$ b) $WL^3/24EI$
c) $WL^4/8EI$ d) $5WL^4/384EI$

7) The Euler's crippling load for a column of length L with one end fixed and other hinged is _____.
a) π^2EI/L^2 b) $4\pi^2EI/L^2$
c) $\pi^2EI/4L^2$ d) $2\pi^2EI/L^2$

Q.2 Write shot note on the following. (Any 3) **15**

a) Write short note on equivalent length of column.

b) Derive the expression of core of section for circular section.

c) Write a note on limit state and working stress methods of design.

d) Write a note on types of retaining wall.

Q.3 Solve any four of the following. (12 marks each) **48**

a) A solid square bar 4m long and 6cm in size is used as a strut, determine the crippling load. Take $E=2\times10^5 N/mm^2$

1) One end hinged and other end fixed.
2) One end is fixed and other end is free.
3) Both the ends are hinged.

b) A simply supported beam of span 7 m carries two point loads 180 KN and 120 KN at 2 m and 5 m from left support. The beam is also subjected to UDL of 20 KN/m. Determine slope at supports and deflection at centre of beam. Take EI as constant.

c) A cast iron column of 500 mm×600mm carries a vertical load of 600 KN, at a distance of 100 mm from the centre along x-axis. Determine the maximum and minimum stress developed in the section. Also draw stress distribution diagram.

d) Explain the concept of core of section. Derive the expression of core of section for hollow rectangular section.

e) 1) State and explain different masonry structures.
2) Define Arch. And explain its types.

SLR-GC-25

Seat No.	

Set P

B. Architecture (Semester – IV) (Old) (CBCS) Examination: Oct/Nov-2023
Climatology and Environment-II (7022403)

Day & Date: Sunday, 07-01-2024 Max. Marks: 70
Time: 03:00 AM To 06:00 PM

Instructions: 1) Make suitable assumption whenever necessary and mention in your answer book.
2) Figures to right indicates full marks.
3) Question One and Two are compulsory.
4) Solve any Four from Question Three to Seven.

Q.1 Choose the correct Answer. **07**

1) A white light passing through a red glass, emerges as a _____ light.
a) White **b)** Red
c) Blue **d)** None of above

2) When a light absorbing body (called a black body) is heated, it first glows deep red, then cherry red, then orange until finally it becomes ____ hot.
a) blue-white **b)** Black
c) green **d)** none of above

3) People tend to be comfortable within a fairly narrow range of temp. & relative humidity called the "_____".
a) livable zone **b)** passive zone
c) comfort zone **d)** None of the above

4) In valleys wind blows _____ during the day.
a) uphills **b)** Latral
c) downhills **d)** None of the above

5) To determine architectural responses that produce thermal comfort in your climate, is derived by using _____.
a) Bioclimatic chart **b)** Sunpath diagrame
c) Wind rose **d)** None of the above

6) An object is, technically, said to be " _____ " when it does not exhibit selective absorption.
a) Blank **b)** Transparent
c) Colourless **d)** None of the above

7) R-value tells us how well a surface withstand heat transfer.
a) R **b)** K
c) U **d)** None of the above

Q.2 Write short notes (Any Three) **15**

1) Land wind Sea wind.
2) Light Shelves.
3) Exterior surface colour of building.
4) Bio-climatic Chart.

Q.3 **a)** Give Importance of sun penetration in cold climates and how to achieve it? **04**

b) From the given SUNPATH Diagram, for 28° N, find the Azimuth **08**

May 10 a.m.

September 5 p.m.

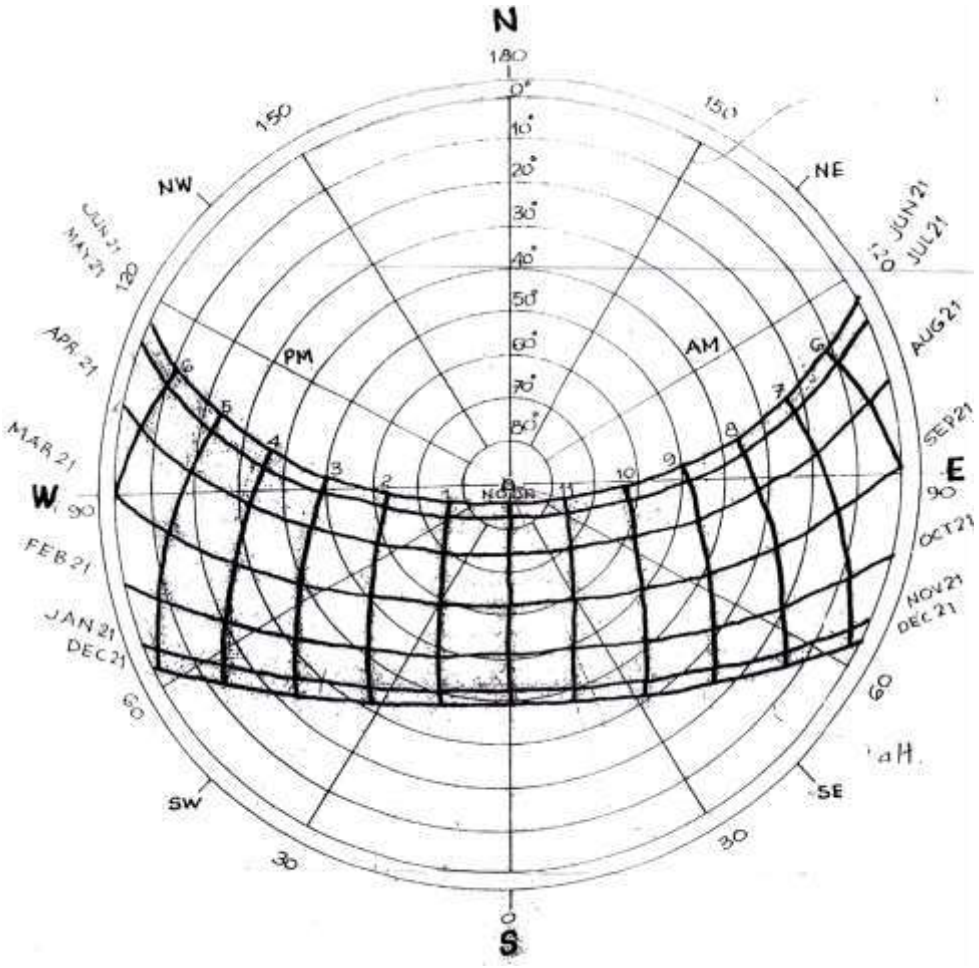
Q.4 Explain Hot and Dry Climate and give any three bioclimatic design strategies to be used in Hot and Dry climate. **12**

Q.5 **a)** Explain Heat Flow Through The Envelope. **05**

b) Explain with sketches LOCATING OUTDOOR ROOMS in site planning **07**

Q.6 Explain with sketches Solar Envelope and how they are plot. **12**

Q.7 Explain with sketches Day light designing in Hot and Dry climate. **12**



SLR-GC-26

Seat No.	

Set P

B. Architecture (Semester - IV) (Old) (CBCS) Examination: Oct/Nov-2023
Architectural Graphics – IV (7022402)

Day & Date: Monday, 08-01-2024 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

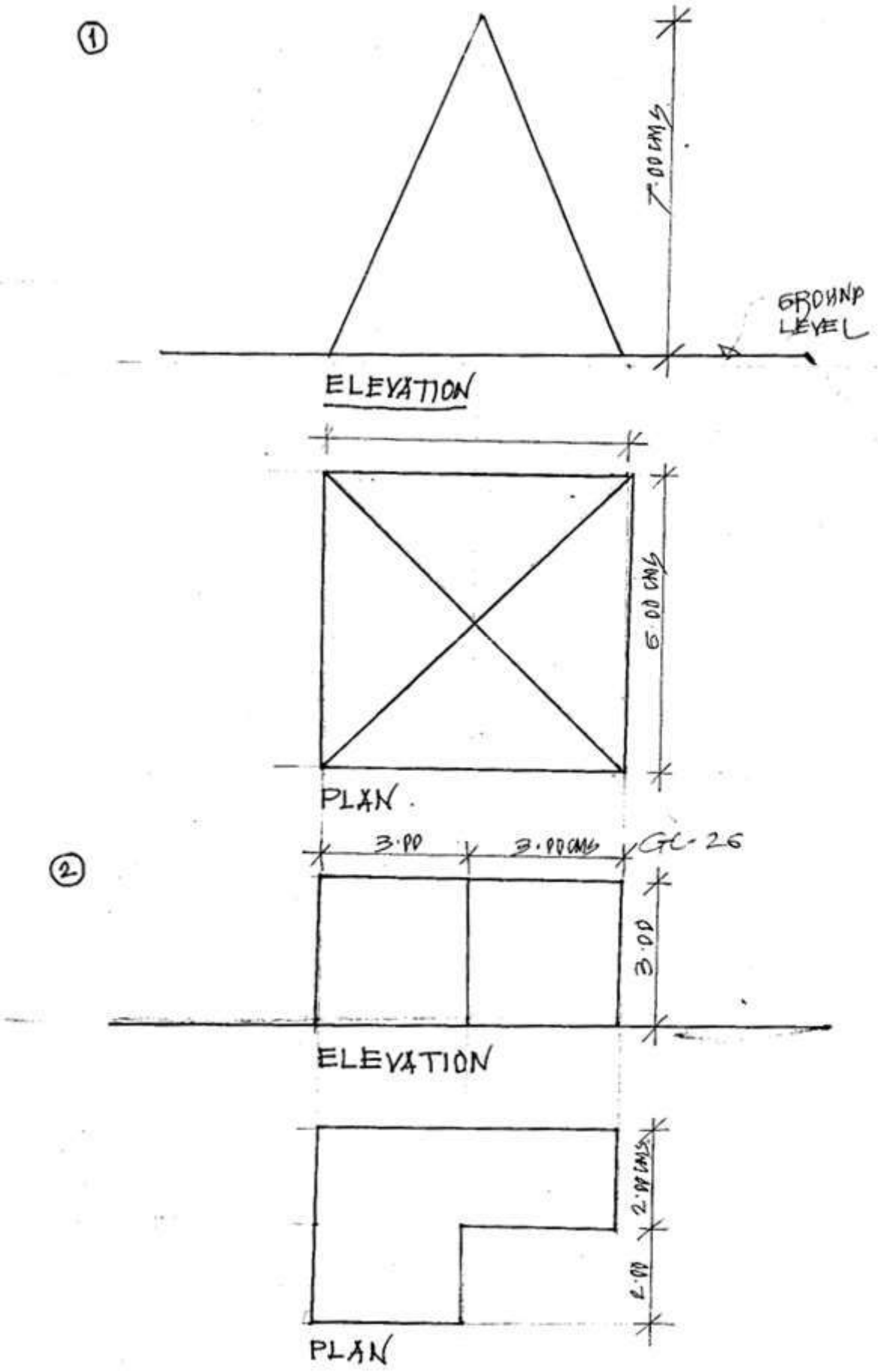
Instructions: 1) All questions are compulsory.
2) Retain all construction lines.
3) Figures to the right indicates full marks.
4) Five marks are reserved for neatness and good drafting quality.
5) Make suitable assumptions wherever required.

Q.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**

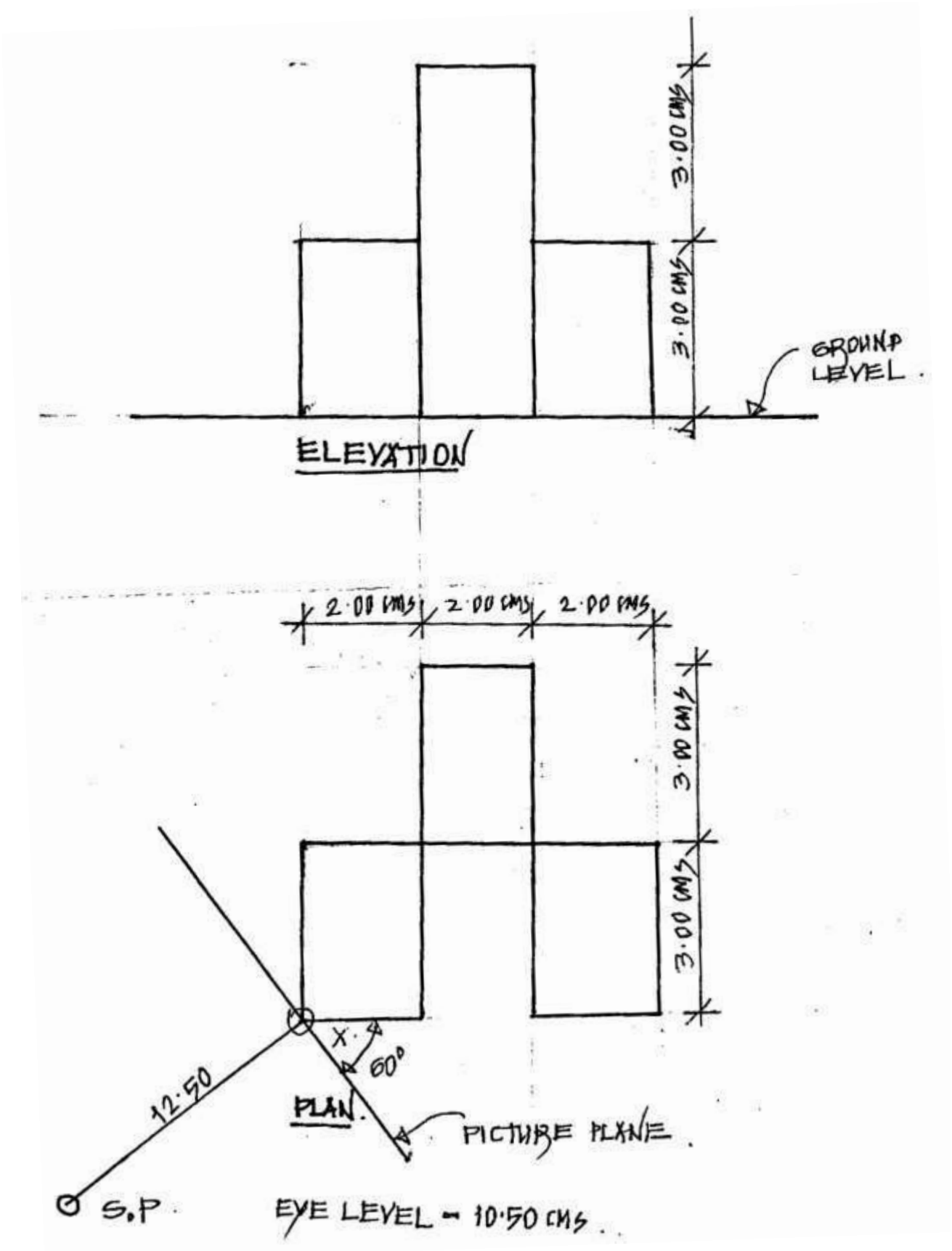
Q.2 Draw perspective view of the given object by observing points in Dia. B **20**
- **a)** A plane makes an angle as shown in Figure.
- **b)** The picture plane touches the object at X.
- **c)** Station point is 125 mm away from the 'X'.
- **d)** The eye level is 105 mm above ground level.

Q.3 Dia. C shows plan and elevation of the object as shown in the figure and draw perspective view observing the following points. **35**
- **a)** Picture plane passes through 'X'.
- **b)** Station point is 105 mm away from picture plane.
- **c)** Eye level is 105 mm away and above ground level and draw shades and shadows in perspective view.

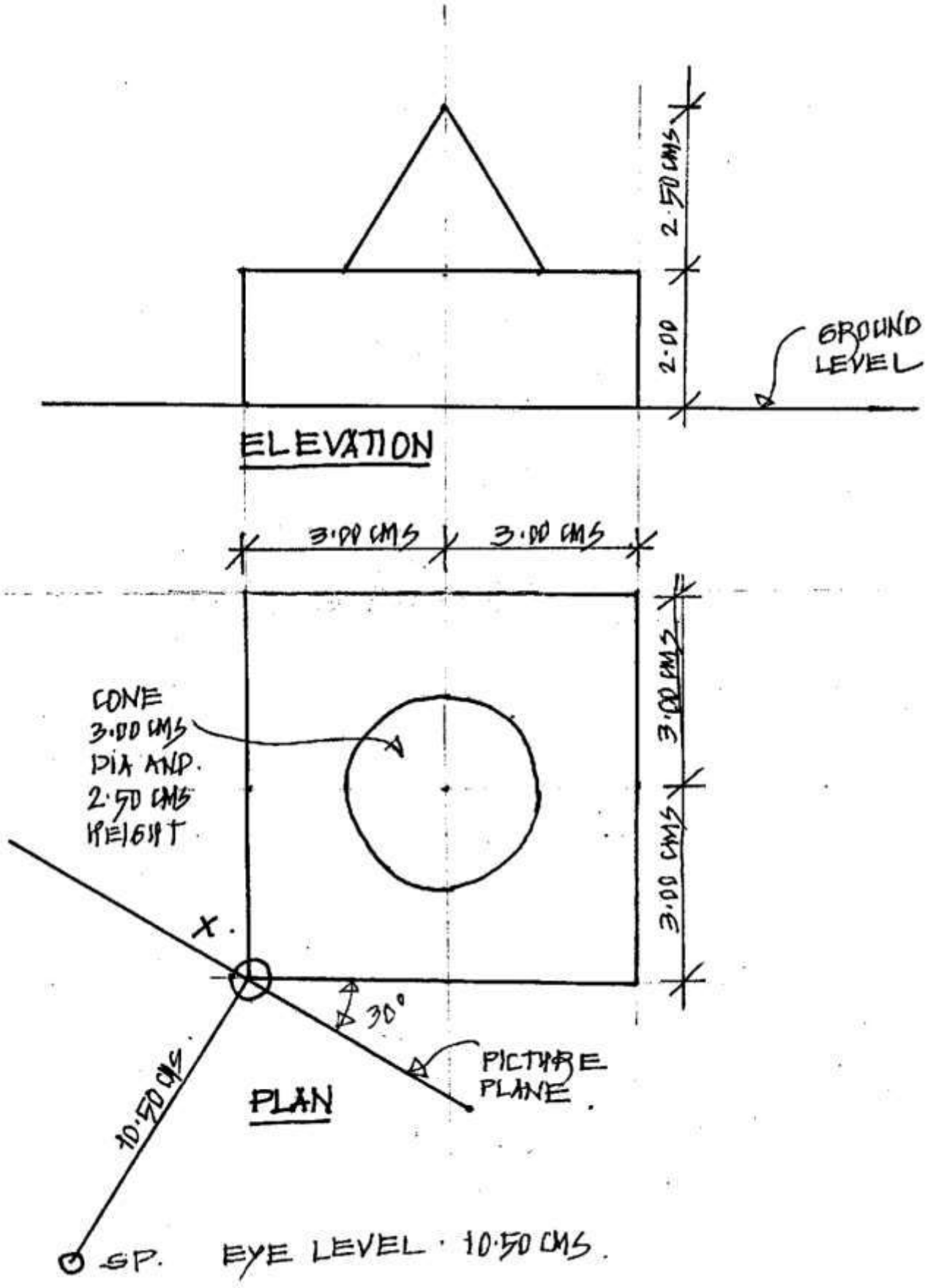
DIA-A


1
7.00 CMS
GROUND LEVEL
ELEVATION
6.00 CMS
PLAN
2
3.00
3.00 CMS
GL-26
3.00
ELEVATION
2.00 CMS
1.00
PLAN

DIA-B


3.00 CMS
3.00 CMS
GROUND LEVEL
ELEVATION
2.00 CMS
2.00 CMS
2.00 CMS
3.00 CMS
3.00 CMS
X
60°
12.50
PLAN
PICTURE PLANE
S.P
EYE LEVEL - 10.50 CMS

DIA-C


2·50 CMS
2·00
GROUND LEVEL
ELEVATION
3·00 CMS
3·00 CMS
3·00 CMS
3·00 CMS
CONE
3·00 CMS
DIA AND.
2·50 CMS
HEIGHT
X.
30°
PICTURE PLANE
PLAN
10·50 CMS
SP.
EYE LEVEL · 10·50 CMS.

SLR-GC-27

Seat No.	

Set P

B. Architecture (Semester – V) (New) (CBCS) Examination: Oct/Nov-2023
Theory of Structure-V (21AR5-03)

Day & Date: Friday, 29-12-2023 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) Use of Scientific Calculator and IS 456-2000 is allowed.
2) All questions are compulsory.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary.

Q.1 Choose the Correct Option? **07**

1) The partial safety factor for steel as per IS 456-2000 is _____.
a) 1.5 b) 1.15
c) 0.87 d) 0.466

2) The section of a reinforced beam where most distant fibre in compression and tension in steel attains permissible stresses simultaneously, called_____.
a) Balanced section b) Under reinforced section
c) Over reinforced section d) All of the above

3) In a cantilever beam, main reinforcement is provided _____.
a) Above the neutral axis b) As vertical stirrups
c) As helical reinforcement d) Below the neutral axis

4) The amount of reinforcement for main bars in a slab is based upon_____.
a) Minimum bending moment b) Maximum bending moment
c) Minimum shear force d) Maximum shear force

5) The minimum percentage of steel in RCC slabs using mild steel reinforcement is given by _____.
a) 0.35% b) 0.12%
c) 0.15% d) 0.30%

6) A minimum number of bars for a rectangular column should be ____.
a) 4 b) 5
c) 6 d) 8

7) The minimum thickness at the edge of footing supporting column is ____.
a) 100 mm b) 150 mm
c) 200 mm d) 300 mm

Q.2 Write short notes on the following (Any Three) **15**

1) Write a not on assumptions made in analysis and design of flexural member.
2) Define characteristic load and characteristic strength.
3) Differentiative between limit state and working stress methods of design.
4) Write a note on types of foundation.

Q.3 Answer the following in details (Any Four) **48**

1) Design simply supported two way slab for a room of 3.5m×5m with 230 mm thick wall. Assume live load of 3.25KN/m^2 and floor finish of 1.15 KN/m^2. Use M20 grade of concrete and Fe415 steel.

2) Design simply supported slab for a hall of 3.4m X 7.0m with 230mm thick wall. Assume live load of 3.3KN/m^2 and floor finish of 1.1 KN/m^2. Use M20 grade of concrete and Fe415 steel.

3) A simply supported beam of length 4.6m is carrying UDL of 30 KN/m inclusive of self-weight. Analyze and design the beam. Use M20 grade of concrete and Fe415 steel.

4) Design a rectangular column of 4.75m unsupported length, restrained in position and direction at both ends to carry an axial load of 1250KN. Use M20 grade of concrete and Fe415 steel.

5) Design footing to carry 780KN load. Take safe bearing capacity of soil as 190KN/m^2. Use M20 grade of concrete and Fe415 steel.

SLR-GC-28

Seat No.	

Set P

B. Architecture (Semester - V) (New) (CBCS) Examination: Oct/Nov-2023
History of Architecture – IV (21AR5-04)

Day & Date: Saturday, 30-12-2023 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

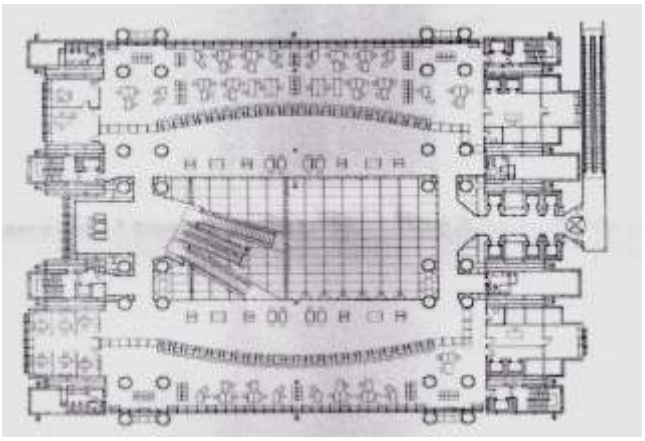
Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks
3) Draw neat sketches wherever necessary.

Q.1 Choose the correct alternative. **07**

1) AT and T building is designed by _____.
a) Renzo Piano b) Robert Ventury
c) John Raskin d) Philip Johnson

2) _____ Architect is called as Picasso of Concrete.
a) Oscar Neimeyer b) Charles Correa
c) Le Corbusier d) Zaha Hadid

3) Identify the Following Building Plan.



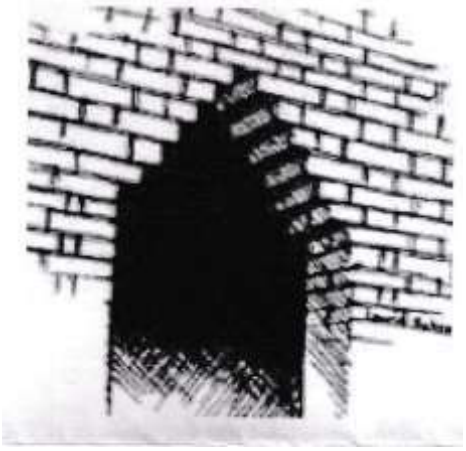
a) Guggenheim Museum b) HSBC Headquarter
c) National Congress of Brazil d) Sangath

4) FLW is pioneer of _____ Movement.
a) Bauhaus b) Prairie
c) Chicago d) Art and Craft

5) Five Points of Architectural philosophy designed by _____.
a) Charles Correa b) Le-corbusier
c) B.V Doshi d) Anant Raje

6) _____ Architect used discarded bottle, inset in the wall.
a) B.V Doshi b) Charles Correa
c) Laurie Baker d) Anant Raje

7) Below type of construction is called as _____.



a) Rat Trap Bond
b) Filler Slab
c) Corbelling
d) Arches

Q.2 Write a short note. (Any Three) (5 marks each) **15**

a) Deconstructivism
b) Ar. Anant Raje
c) Falling Water
d) HSBC Building

Q.3 Write answer in brief. (Any Four) (12 marks each) **48**

a) Explain philosophy of Ar. Le Corbusier with example Villa Savoy, France.
b) Explain philosophy of Ar. Charles Correa with example Kanchanjanga Apartment.
c) Explain Postmodernism with example Vanna Venture House designed by Ar. Robert Venturi.
d) Explain Cost Effectiveness in Architecture in India with example.
e) Explain International Style in Architecture with example National Congress Complex, Brazil.

SLR-GC-29

Seat No.	

Set P

B. Architecture (Semester - V) (New) (CBCS) Examination: Oct/Nov-2023
Building services – III (21AR5-07)

Day & Date: Sunday, 31-12-2023 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

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

Q.1 Fill in the Blanks. **07**

1) Sound is simply a series of _____variation in an elastic medium.
a) voice b) size
c) pressure d) none of the above

2) Travelling medium for structure borne sound it can be _____.
a) air b) water
c) concrete d) none of the above

3) The _____ is the number of square feet of floor area required per occupant.
a) Exit capacity b) Discharge
c) Occupant Load 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) Sound speed at sea level is _____m/s which is very slow compared to light.
a) 344 b) 740
c) 140 d) none of the above

6) Greater amplitude means _____ compression and greater rarefaction.
a) lower b) neutral
c) greater d) none of above

7) Firefighting lift is used to transport _____ in case of emergency.
a) firefighters and their equipment
b) all persons in building
c) VIP person
d) none of the above

Q.2 Write a short note. (Any Three) **15**

a) Fire escape route size
b) Different arrangements of escalator
c) Use of vegetation as sound barrier
d) Arrangement of window for Noise control

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

a) Give design guide lines for Auditorium. **12**

OR

Give design guide lines for Open Air Theatre.

b) Explain Escape Lighting and Exit Signage. **12**

c) Explain Acoustical zoning in sugar factory. **12**

d) Explain Noise control in mechanical system. **12**

e) Calculate total absorption required and design a seminar room for capacity of 90 people consider volume 4 m3 /person and Rt=0.8; use following absorption coefficient; give conceptual section and plan. **12**

1) pop -0.26
2) glass wool-0.15
3) occupied seat- 0.42
4) unoccupied seat-0.18
5) mineral fiber panel-0.53

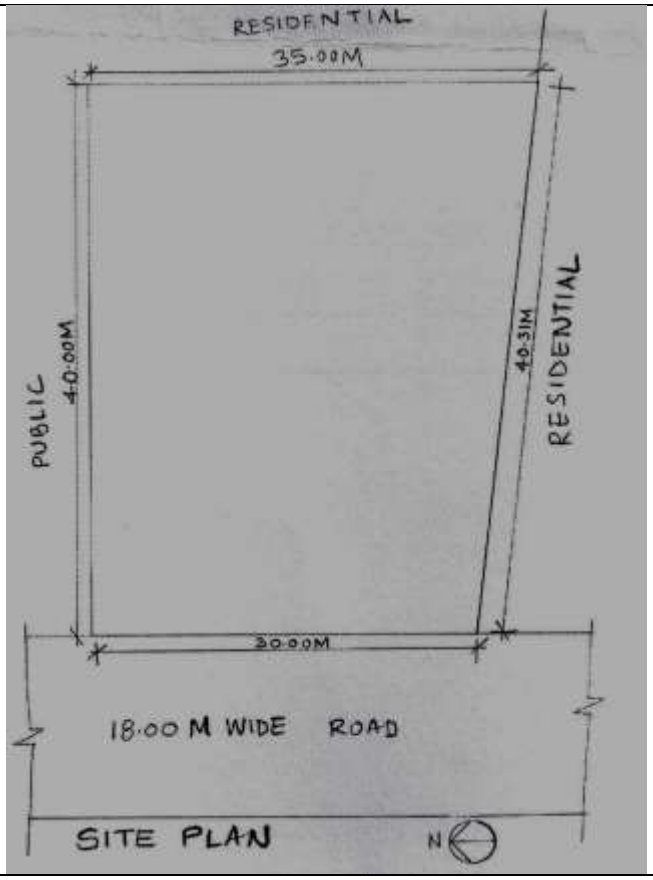
SLR-GC-30

Seat No.		Set	P

B. Architecture (Semester – V) (New) (CBCS) Examination: Oct/Nov-2023
Architectural Design -V (21AR5-01)

Day & Date: Monday, 01-01-2024 Max. Marks: 100
Time: 10:00 AM To 04:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat sketches wherever necessary.
3) Figures to the right indicate full marks.

Q. No	Project Title: Exhibition Pavilion		Marks
1	DESIGN BRIEF	Solapur Municipal Corporation has decided to Construct a Pavilion to hold Temporary Exhibitions of Art Works by various Artists in and around the City.	100
	PROPOSED SITE	About the site: Site is located at residential colony in Solapur. On One side is a Public Office Building and on other sides there are Residential Areas. Please refer to attached site plan for details	
			
		Setbacks for Site Front Setback - 6.00 m Rear and Side Setback - 3.00 m	

	DESIGN PROGRAM	ENTRANCE LOBBY	15	SQM	
		OFFICE AND WAITING AREA	15	SQM	
		DISPLAY PAVILLION	150	SQM	
		COLLECTION AND STORAGE ROOM	20	SQM	
		WORKSHOP	30	SQM	
		TOILETS FOR LADIES AND GENTS	20	SQM	
		ADEQUATE PARKING FOR 4 AND 2 WHEELERS FOR STAFF AND VISITIORS			
	DRAWING REQUIREMENT	1) Concept			15
		2) Site Plan			25
		3) All Floor Plans (Including Terrace if Applicable) Technically Complete			25
		4) One Elevation			10
		5) Two Sections			15
		6) Sketches, Details if any to explain scheme			05
		7) Neatness, Drafting etc.			05
		Note: Site Plan -1:100 Scale			
		All Floor Plans, Elevation and Section 1:50 Scale			

SLR-GC-31

Seat No.	

Set P

B. Architecture (Semester - V) (Old) (CBCS) Examination: Oct/Nov-2023
Theory of Structure – V (7023501)

Day & Date: Friday, 29-12-2023 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) Use of scientific calculator, steel table and IS 875 is allowed.
2) All questions are compulsory.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary.

Q.1 Choose the correct option. **07**

1) The standard loads are given in _____.
a) IS 885 b) IS 875
c) IS 675 d) IS 1375

2) The factor of Safety is a ratio of _____.
a) Bearing stress and 'working stress
b) Yield stress and working stress.
c) Tensile stress and working stress.
d) Compressive stress and working stress.

3) Which of the following is not a type of weld?
a) Butt weld b) Plug weld
c) Zigzag weld d) Lap weld

4) A riveted joint can fail in _____.
a) Tearing of plate only b) Bearing of plate or rivet only
c) Shearing of rivet only d) Any of the above

5) A strut is _____.
a) Tension member b) Compression member
c) Torsion member d) Flexural member

6) As per codal provisions, the effective buckling length of a cantilevered steel column of length is given by _____.
a) 0.50 L b) 1.30 L
c) 2.00 L d) 0.80 L

7) In a steel beam section, the web carries _____.
a) Tension b) Compression
c) Moment d) Shear

Q.2 Write short notes of any Three. **15**

a) Write a note on design steps of steel compression member.
b) Write note on types of weld.
c) Differentiate between limit state and working stress methods of design.
d) Write note on elements of a truss member.

Q.3 Solve any four of the following. (12 marks each) **48**

a) Determine the rivet value of 18mm diameter 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 240 MPa resp.

b) Design a Simply supported beam of length 4.5m which is carrying UDL of 42 KN/m. Effective length of compression flange of beam is also 4.5m. The ends of beam are not free to rotate at the bearings.

c) Design a rolled steel I section column to carry an axial load of 1200 KN. The column is 4.0m long and adequately restrained in position but not in direction at both the ends.

d) Find the forces in the members of following truss.

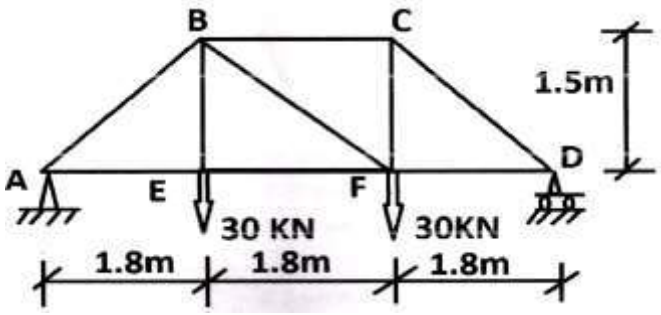


Figure - 1

e) i) Write a note on design steps of steel beam.

ii) Define effective length and slenderness ratio of a steel column.

SLR-GC-32

Seat No.	

Set P

B. Architecture (Semester - V) (Old) (CBCS) Examination: Oct/Nov-2023
History of Architecture – V (7023502)

Day & Date: Saturday, 30-12-2023 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat sketches.

Q.1 Choose the correct option. **07**

1) _____is the First Lady Architect to be awarded the Pritzker prize.
a) Revati Kamat b) Lina Bo bardi
c) Zaha Hadid d) Dame Drew

2) The Guggenheim Museum at Bilbao is designed by Architect _____.
a) Frank Gehry b) F.L. Wright
c) Zaha Hadid d) Alvar Alto

3) Architect known as Picasso of Concrete _____.
a) Norman Foster b) Mies Van der Rohe
c) Le Corbusier d) Oscar Niemeyer

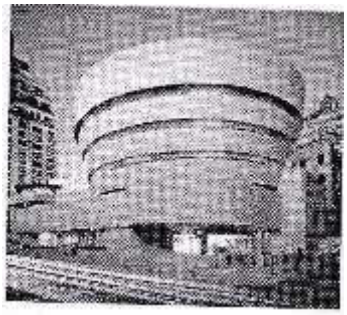
4) Architect who known as - father of skyscrapers or father modernism _____.
a) Walter Gropius b) Philip Johnson
c) Louis Sullivan d) Renzo Piano

5) "Less is More" was quoted by Architect _____.
a) Alvar Alto b) Antony Gaudi
c) Mies Van Der Rohe d) Laurie Baker

6) Identify the following structure?

a) Kanchanjunga b) Wainright building
c) At & T building d) IBA hosing

7) Identify the following structure?



a) Farnsworth House
b) Guggenheim building, New York
c) Guggenheim building Bilbao
d) Ron champ Church

Q.2 Write a short notes on (Any Three) **15**

a) Crystal Palace at London
b) Falling Water
c) Deconstructivism
d) Post modern Architecture

Q.3 Answer in brief with detailed sketches (any 4) (12 marks each) **48**

a) 1) Explain design philosophy of Mies Van Der Rohe? **4**
2) Sketch and explain Barcelona Pavilion? **8**
b) Define Industrial revolution? explain its effect on building industry?
c) Discuss how through the work, ar. Laurie baker has practiced Gandhis principles?
d) Define Art Nouveau movement? sketch and explain Casa Mila?
e) 1) Explain 5 principles of architect Corbusier? **5**
2) Explain characteristics of villa Savoye architecture? **7**

SLR-GC-33

Seat No.	

Set P

B. Architecture (Semester - V) (Old) (CBCS) Examination: Oct/Nov-2023
Building Services -III (7023503)

Day & Date: Sunday, 31-12-2023 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

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

Q.1 Fill in the Blanks. **07**

1) _____ Fires are fires involving energized electrical equipment such as computers, servers, motors, transformers, and appliances.
a) Class A b) Class B
c) Class C d) Class D

2) Room air conditioners and packaged units are examples of _____.
a) Direct expansion systems b) Indirect expansion systems
c) Chilled water systems d) Indirect contraction systems

3) The unit of luminous flux is _____.
a) Steradian b) Candela
c) Lumen d) Lux

4) _____ are airflow control devices in air conditioning system of building.
a) Dampers b) Dry filter
c) Spray washers d) Electric precipitators

5) Removal of inside air and supply of fresh outside air in a closed room is known as _____.
a) Ventilation b) Absorption
c) Adsorption d) Transmission

6) Ventilation arising from the temperature difference between outside and inside takes place due to _____effect.
a) Stack b) Stark
c) Zeeman d) Spark

7) Speed of an escalator is usually:
a) 10-20m/min b) 30-45m/min
c) 40-50m/min d) 25-30m/min

Q.2 Write a short note (Any Three) **15**

a) Fluorescent lamps
b) Earthing for safety
c) Portable fire extinguishers
d) Filters in Air conditioning

Q.3 Answer the following. (any 4) (12 marks each) **48**

a) What are the different kinds of air conditioning systems and explain various elements of central air conditioning with the help of neat sketch?

b) What is meant by fire protection? Enumerate points of safety measures.

c) State the importance of ventilation in a building and explain types of ventilation systems.

d) Explain electric installation in small residential building. Enumerate the steps followed.

e) Discuss requirements of illumination in building.

SLR-GC-34

Seat No.		Set	P

B. Architecture (Semester – V) (Old) (CBCS) Examination: Oct/Nov-2023
Acoustics (7023504)

Day & Date: Monday, 01-01-2024 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Make suitable assumptions wherever necessary.

Q.1 A) Fill in blanks. **07**

1) A _____ resonator is an air cavity within a massive enclosure, connected to the surroundings by a narrow neck opening.
   a) panel b) volume
   c) solid d) none of the above

2) Air borne sound is generally _____ disturbing than Structure borne.
   a) less b) more
   c) same d) none of the above

3) The physical process by which sound passes around obstructions & through small openings is called "_____".
   a) diffraction b) reflection
   c) amplification d) none of the above

4) Diffusion is converse of focusing and occurs primarily when sound is reflected from _____ surfaces.
   a) convex b) concave
   c) none of the above d) flat

5) Low frequency sounds have _____ wave lengths and high frequency sound have _____ wavelengths.
   a) long, short b) short, long
   c) None of the above d) both of the above

6) A point source produces _____ wave.
   a) spherical b) cylindrical
   c) irregular d) none of the above

7) Flutter is perceived as a buzzing or clicking sound and in comprised of repeated echoes traveling between tow _____ reflecting surfaces.
   a) inclined b) curved
   c) parallel d) none of the above

B) Calculate total absorption required and design a multipurpose hall for capacity of 350 people consider volume 4.5 m3 /person and Rt=1.0; use following obsorption 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) 3/4 inch plywood paneling-0.17
7) curtain-0.12

Q.2 **a)** Explain with sketched Sound Fields in an Enclose space. **12**

OR

b) Give design guide lines for auditorium design.

Q.3 **a)** Explain with sketchs ripple tank method. **05**

b) Explain with sketches Ray diagram with celing profile design. **07**

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

a) Reverberation time and Sabines formula.

b) The mechanics of absorption.

c) Duct System Noise Control.

d) Thin wall barrier as noice barrier.

SLR-GC-35

Seat No.		Set	P

B. Architecture (Semester - V) (Old) (CBCS) Examination: Oct/Nov-2023
Sustainable Building Material (7023509)

Day & Date: Tuesday, 16-01-2024 Max. Marks: 50
Time: 10:00 AM To 01:00 PM

Instructions: 1) Q.1 & Q.2 are compulsory & solve any four from Q.3 to Q.7.
2) Make suitable assumptions wherever necessary.
3) Figures to the right indicate full marks.

Q.1 Choose correct alternatives. **05**

1) Nubian technique was revived and disseminated by the Egyptian architect ____.
a) Hassan Fathy b) Laurie Baker
c) Hafiz Contractor d) Tadao Ando

2) _____ is the fastest-growing renewable natural building material.
a) Cement b) Soil
c) Bamboo d) Paper

3) _____ volume of aluminum can be recycled.
a) 95-98% b) 65-75%
c) 45-55% d) none of the above

4) Sustainable building material means that _____.
a) Green building b) Environmental building
c) Both A and B d) none of the above

5) Which of the following is not the purpose of a green building?
a) To reduce use of water
b) To minimize damage of the environment
c) Re-use of waste materials
d) None of the above

Q.2 Write a short note. (Any Three) **09**

a) Field tests for soil
b) Rat trap bond
c) Fly ash bricks
d) Embodied energy of material

Q.3 a) Explain composite column using sustainable material. **05**
b) Explain Composition of good soil. **04**

Q.4 a) Explain with three examples reuse of building material at the end of building life span. **05**
b) LCA of building material. **04**

Q.5 Explain with sketches Ferro-cement system and give advantages of ferrocement. **09**

Q.6 a) Explain with sketches two details where steel can be replaced with bamboo as alternate material. **05**
b) Give points to be consider for selection of building material. **04**

Q.7 Explain with sketches Design Principals of Brick Dome construction. **09**

SLR-GC-38

Seat No.	

Set P

B. Architecture (Semester–VI) (CBCS) Examination: Oct/Nov-2023
Theory of Structure-VI (7023601)

Day & Date: Friday, 29-12-2023 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) Use of scientific calculator is allowed.
2) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data, if necessary.
4) IS 456:2000 is allowed.

Q.1 Choose the correct answer. **07**

1) The section of reinforced beam where most distant concrete fibre in compression and tension in steel attain permissible stresses simultaneously is called _____.
a) Over reinforced section b) Balanced section
c) Under reinforced section d) Tee section

2) The maximum percentage of reinforcement in short columns is about _____.
a) 2% b) 4%
c) 5% d) 6%

3) The maximum ratio of span to depth of a slab simply supported and spanning in one direction is _____.
a) 20 b) 25
c) 30 d) 35

4) The main reinforcement in RCC cantilever beam is placed at _____.
a) Bottom fibre b) Mid span
c) Top fibre d) End span

5) Distribution reinforcement in a simply supported slab is provided to distribute _____.
a) Load b) Temperature stresses
c) Shrinkage stresses d) All of the above

6) The foundation should be safe in _____.
a) One way shear b) Two way shear
c) Both a) and b) d) None of the above

7) Which of the following statement is incorrect?
a) Minimum cross sectional area of longitudinal reinforcement in a column is 0.8%
b) Spacing of longitudinal bars measured along the periphery of column should not exceed 300mm.
c) Reinforcing bars in a column should not be less than 12mm in diameter
d) The number of longitudinal bars provided in a circular column should not be less than 4

Q.2 Solve any three of the following. **15**

a) Define characteristic strength and characteristic load.
b) Draw detailed sketch of staircase slab reinforcement for a single flight staircase.
c) Write a note on effective length of column.
d) Write a note on one way slab and two way slab. Also show its reinforcement detail.

Q.3 Solve the following (Any Four) **48**

a) Design a rectangular beam simply supported on supports of 230mm width. The clear span of beam is 6m. The beam is to have width of 300mm. The live load on beam is 12 KN/m. Use M20 concrete and Fe 415 steel.
b) A hall has a clear dimensions 3m X 9m with wall thickness 230mm. The live load on slab is 3KN/m^2 and the finishing load is 1KN/m^2. Using M20 concrete and Fe 415 grade steel. Design the slab.
c) Design a column 4 m long restrained in position and direction at both ends to carry an axial load of 1700KN. Use M20 concrete and Fe415.
d) Design axial footing to carry 800KN load. Take safe bearing capacity of soil as 180KN/m^2. Use M20 grade of concrete and Fe500 steel.
e) Write a note on types of staircases along with neat sketches.

SLR-GC-39

Seat No.		Set	P

B. Architecture (Semester – VI) (CBCS) Examination: Oct/Nov-2023
Urban Planning (7023604)

Day & Date: Saturday, 30-12-2023 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) Make suitable assumptions wherever necessary and mention in your answer book.
2) Figures to right indicates full marks.
3) Question no.1 & 2 are compulsory solve 4 from remaining 5 question.

Q.1 Fill in the blanks. **07**

a) _____ laid emphasis on the survey before plan.
b) In traffic O.D. stands for _____.
c) Chandigarh city is divided into _____ sectors.
d) F.A.R stands for _____.
e) In case of height zoning, the ratio of height to the width of road will be _____ in case of air plane rule 63½".
f) _____ prepared the town plan for Radburn city in new- jersey.
g) New Delhi was planned by eminent town planer _____.

Q.2 Write short note on. (Any Three) **15**

a) Garden City.
b) Necessity of Zoning.
c) Road Aeasthetics.
d) Le Corbusier.

Q.3 What are the major urban planning features in ancient India illustrate with sketches. **12**

Q.4 Explain with neat sketches the urban planning of Chandigarh. **12**

Q.5 Explain the concept of zoning and differentiate between profit making and nonprofit making use of land. **12**

Q.6 What is traffic control? What are is objectives and how is it achieved? **12**

Q.7 Mention the requirements of good city roads and discuss various category of street system. **12**

SLR-GC-40

Seat No.	

Set P

B. Architecture (Semester - VI) (CBCS) Examination: Oct/Nov-2023
Building Services – IV (7023603)

Day & Date: Sunday, 31-12-2023 Max. Marks: 70
Time: 03:00 AM To 06:00 PM

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

Q.1 Fill in the Blanks. **07**

a) Waste management is the _____ transportation and disposal of waste material.
b) The process of settling suspended particles in STP is known as _____.
c) Percolation filters are also known as _____.
d) The term B.O.D means _____.
e) When decomposition of organic matter takes place in presence of oxygen, it is known as _____.
f) Lagooning and composting are the methods of _____.
g) _____means cultivation of earthworms.

Q.2 Write a short note. (Any Three) **15**

a) Advantages of Vermiculture and Precautions to be taken in Vermiculture.
b) Industrial waste. Mention its 2 types and write any 3 effects of industrial waste on environment.
c) Open and closed Drainage system with disadvantages of open drainage system.
d) Pro and Cons of sewage farming.

Q.3 **a)** Explain any 1 type of Grit Chamber with neat sketch. **06**
b) Explain working principle of Grit Chamber. **06**

Q.4 Write an essay on Rural Sanitation in India. **12**

Q.5 Draw a section through septic tank and explain Dimensioning and its components. **12**

Q.6 Explain Trickling Filter with sectional sketch. **12**

Q.7 Attempt the following.

a) Explain in short what is refuse chute and draw a neat section through it. **04**
b) Explain major components of Refuse chute. **04**
c) Write advantages of Refuse chute. **04**

SLR-GC-41

Seat No.	

Set P

B. Architecture (Semester - VI) (CBCS) Examination: Oct/Nov-2023
Estimating Specifications & Costing – I (7023602)

Day & Date: Monday, 01-01-2024 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks
3) Assume suitable data, if necessary
4) Use of non-programmable calculator is allowed.

Q.1 Choose the correct option. **08**

1) Mode of measurement For Inspection chamber is _____.
a) Square meter b) Cubic meter
c) Running meter d) Nos

2) Quantity of sand required for 10Cum of brickwork in CM (1:6) IS.
a) 3.7 Cu.m b) 1.7 Cum
c) 2.7 Cum d) Nos

3) IS1200 PART V is related to measurement of _____.
a) Formwork b) Brick masonry
c) Stone masonry d) Plastering

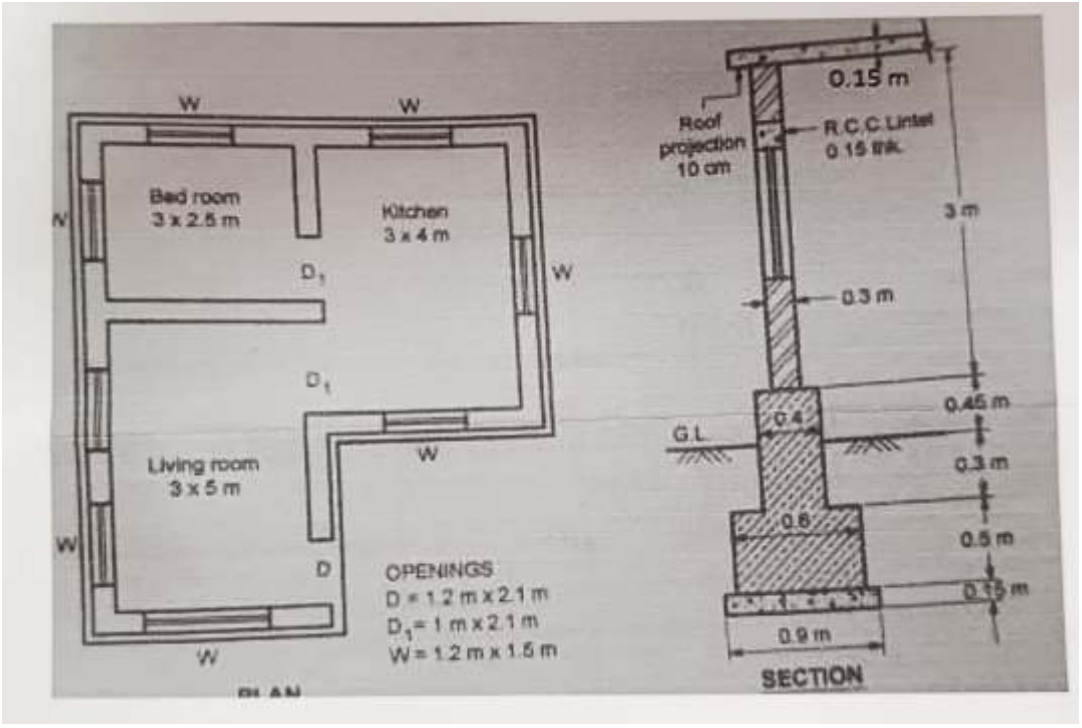
4) Flooring is measured in _____.
a) Square meter b) Cubic meter
c) Running meter d) Nos

Q.2 Answer Any two of the following questions. **12**

a) Describe how will you prepare an approximate estimate of Cinema Theatre of 1000 seats.
b) State factors affecting process of rate analysis.
c) Enlist types of estimates. Mention the situations when supplementary estimate is prepared.

Q.3 Workout quantities of the following items of work. **35**

- **a)** Earthwork in excavation
- **b)** U.C.R. masonry in C.M. I : 6 in foundation and plinth
- **c)** Brickwork in C.M. 1 : 5 in superstructure,Thk. - 30 cm
- **d)** R.C.C. work in roof slab (M20 concrete).
- **e)** Flooring
- **f)** Doors and windows



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

- **a)** Earthwork in excavation :600/cum.
- **b)** P.C.C. in foundation bed:.3500/cum.
- **c)** U.C.R. masonry in foundation and plinth3500/cum.
- **d)** Brick masoniy:6000/cum.
- **e)** Internal plaster:450 /sq. meter.
- **f)** Internal flooring: 1500/sq. meter.
- **g)** Doors and windows: 6000/sq. meter.

SLR-GC-44

Seat No.	

Set P

B. Architecture (Semester - VI) (CBCS) Examination: Oct/Nov-2023
Building by laws (7023611)

Day & Date: Tuesday, 16-01-2024 Max. Marks: 50
Time: 03:00 PM To 06:00 PM

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

Q.1 Fill in the Blanks. **05**

1) For Residential Development, the minimum width of internal road in any layout or subdivision of land shall be ____ for length of road up to 150 m.
a) 12 b) 6
c) 15 d) 9

2) For the building height above _____ m fire stair is mandatory.
a) 16 b) 28
c) 12 d) 24

3) The head room under mezzanine floor shall not be less than _____ m.
a) 2.1M b) 3.0M
c) 1.8M d) 4.2M

4) Every basement shall be in every part at least _____ -. in height from the floor to the soffit of beam.
a) 2.1M b) 2.4M
c) 3.0M d) 4.0M

5) Minimum width of stair case is _____ m for residential building.
a) 1.2 b) 1.5
c) 0.9 d) 1.8

Q.2 Write short notes. **09**

a) Off street parking
b) Marginal open spaces
c) Recreational open space

Q.3 Answer in brief. (Any Three)

a) Write a note on subdivision/ layout of a plot. **12**
b) Explain Commencement Certificate and Procedure to Produce It. **12**
c) Explain necessity of fire protection requirement and write a note on exit requirements. **12**
d) Explain Various Land Use Classifications Provided for In the Urban Development Control And Promotion Regulations? **12**

SLR-GC-45

Seat No.		Set	P

B. Architecture (Semester - VII) (CBCS) Examination: Oct/Nov-2023
Professional Practice - I (7024701)

Day & Date: Tuesday, 26-12-2023 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

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

Q.1 Fill in the blanks. **07**

a) To keep a check over the cost of the work this form of tender is slightly modified and is known as _____ with Bonus and Penalty.
b) The contractor agrees to carry out the complete _____ of all the items of the work at the rates quoted by the contractor.
c) The amount or earnest money varies from _____ of the estimated cost of the project.
d) The _____ documents occupy important position not only from the view point of contractors and employers, but also to the architects.
e) Indian contract Act was enacted in the Year _____.
f) The _____ is the National body of Architects in the country.
g) The present _____ being used by Architects and Engineers for the building works has been approved by Indian Institute of Architect.

Q.2 Write short notes on. (Any Three) **15**

a) Explain in short types of tender.
b) Mobilization fund.
c) Defects liability period.
d) Duties and liabilities of an architect.

Q.3 Answer the following. (any four) **48**

a) Architect's scale and fees.
b) Advantage and disadvantage of Labour Tender.
c) Cost plus percentage or cost-plus fee contract.
d) Different ways to Invite the tender.
e) Role of COA and IIA.

SLR-GC- 46

Seat No.	

Set P

B. Architecture (Semester – VII) (CBCS) Examination: Oct/Nov-2023
Theory of Structure- VII (7024702)

Day & Date: Wednesday, 27-12-2023 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) Use of scientific calculator is allowed.
2) All question are compulsory.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary.
5) IS 456:2000 and IS 3370 are allowed.

Q.1 Choose the correct answer. **07**

1) The enlarged head of a supporting column of flat slab is called _____.
a) Supporting end of column b) Top of column
c) Capital d) Drop panel

2) A pile transfers load majorly by the action of _____.
a) Fixity b) Friction
c) Compression d) All of the above

3) Normally prestressing wires are arranged in _____.
a) Upper part of beam b) Lower part of beam
c) Centre d) Aywhere

4) The gantries carry _____.
a) Lateral load only b) Longitudinal load only
c) Lateral and longitudinal load d) None of the above

5) The Indian standard code used for the design of water retaining structures is _____.
a) IS 3370 b) IS 456
c) IS 800 d) IS 875

6) As per IS 1893, we have _____ earthquake zones in India.
a) Two b) Three
c) Four d) Five

7) Shells structures are of following shapes _____.
a) Hyperboloid b) Paraboloid
c) Saddles c) All of the above

Q.2 Solve any three of the following. **15**

a) What are the advantages and disadvantages of prestressed concrete?
b) What do you mean by raft foundation. Also classify its types.
c) Define Gantry girder and cranes.
d) Explain what do you mean by rigid and portal frames.

Q.3 Attempt the following Question (Any Four) **48**

a) Write a note on ribbed slab and waffle slab. Also write about flat slab along with its classification.
b) Write a note on-
i) Earthquake resistant construction.
ii) Shells
c) What are pile foundations? Give its detailed classification with neat sketches.

d) Design a circular water tank with flexible base and open at top for a capacity of 600000 litres resting on ground. The materials are M30 grade concrete and HYSD reinforcement of grade Fe415

e) Calculate the stresses at top and bottom fibres for the beam as shown in Fig.-1, at the centre and at the end for -

i) dead load + prestressing force

ii) dead load + prestressing force + imposed load

A prestressing force of 1800KN is applied at an eccentricity e = 150mm. The beam is loaded with imposed load of 40KN/m and self weight of the beam is lOKN/m

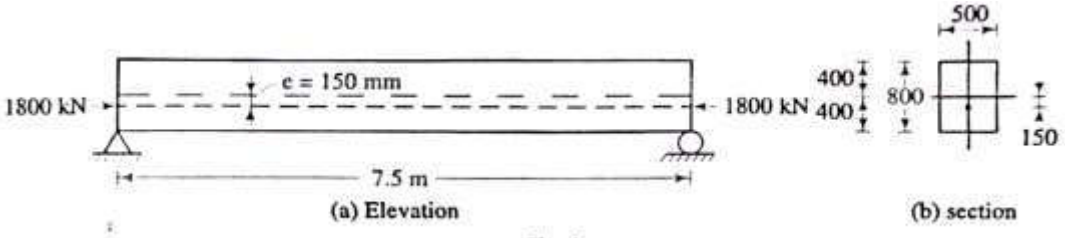


Fig.-1

SLR-GC-47

Seat No.		Set	P

B. Architecture (Semester - VII) (CBCS) Examination: Oct/Nov-2023
Estimating Specification & Costing – II (7024703)

Day & Date: Thursday, 28-12-2023 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory
2) Figures to the right indicate full marks.
3) Assume suitable data, if necessary
4) Use of non-programmable calculator is allowed

Q.1 Choose the correct option. **08**

1) Quantity of DPC for footing 1 m × 1 m, thickness 150 mm and projections of 150 mm beyond footing is _____.
a) 2.62 cu.m b) 2.1 cu.m
c) 1.69 cu.m d) 0.25 cu.m

2) In absence of detailed design, volume of steel in RCC column is taken as _____of RCC volume.
a) 1 % to 2% b) 0.5 % to 1 %.
c) 0.7 % to 1 % d) 2 % to 5 %

3) In absence of detailed design, volume of steel in RCC beam is taken as _____of RCC beam.
a) 1 % to 2% b) 0.5 % to 1 %.
c) 0.7 % to 1 % d) None of these

4) Equation for sand Requirement (In kg) as Recommended by CBRI for Double Storey building is _____.
a) 0.376A-5.6 b) 21.3A-314
c) 21.97A-305 d) None of these

Q.2 Answer any two of the following questions. **12**

a) Draw standard format of measurement sheet and abstract sheet.
b) Prepare approximate estimate of a building using following data. Proposed area of the building 150 sq.m. Similar types of building is recently constructed nearby locality having built-up area 110 sq.m, and the total cost of construction is Rs. 12 lakhs.
c) Calculate the quantity of sand required for 12 mm thick plastering to a wall of 1m × 1m area Cement mortar is of proportion 1:6.

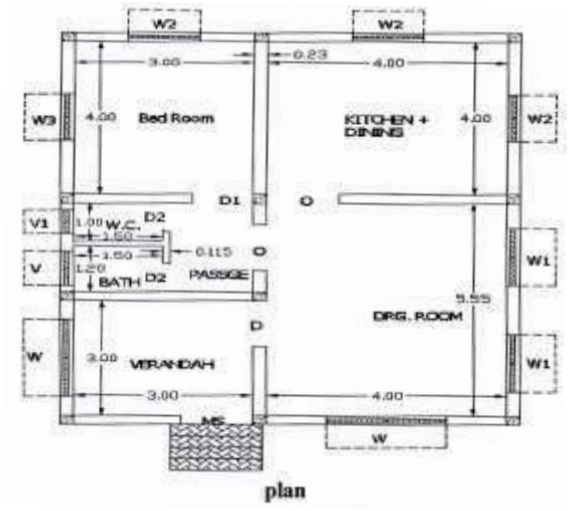
Q.3 Answer any three of the following questions. **15**

a) Draft a tender notice for construction of library building of polytechnic college costing Rs 2 crore. Assume all necessary information.
b) Describe in brief 'Schedule A'. Schedule A:
c) Differentiate between Item rate contract and Percentage rate contract.
d) Describe in brief administrative approval and technical sanction. Administrative approval.

Q.4 Workout any five quantities of the following items of work. **35**

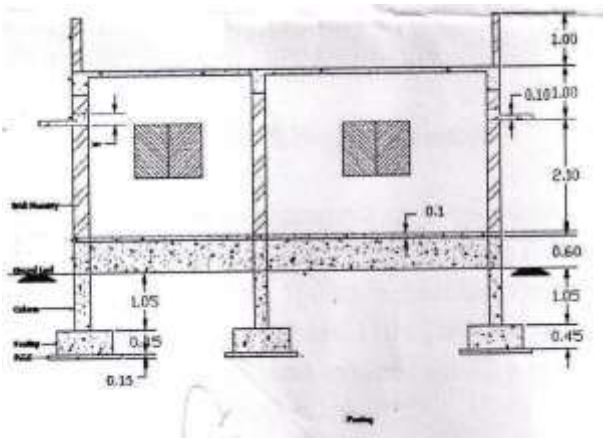
a) Excavation
b) RCC column
c) Brickwork
d) Plastering Internal wall
e) Slab beam
f) Plinth Beam

SCHEDULE OF OPENING AND RCC WORK:



plan

CHEDULE OF OPENING AND RCC ELEMENTS
D1: (1.2 × 2.1)
D2: (1 × 2.1)
D3: (0.75 × 2.1)
MS: (2 × 1.2)
W: (2 × 1.2)
W1: (1 ×1.5)
W2: (2 × 1.5)
W3: (1.2 × 1.2)
V: (0.6 × 0.9)
V1: (0.9 × 0.6)
Column: (0.3 × 0.3)
Plinth beam (0.3 × 0.3)
Floor beam: (0.23 × 0.3)



SLR-GC-48

Seat No.		Set	P

B. Architecture (Semester - VIII) (CBCS) Examination: Oct/Nov-2023
Prof. Practice – II (7024801)

Day & Date: Tuesday, 26-12-2023 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat sketches wherever necessary.

Q.1 Fill in the blanks. **07**

a) _____ competition in which all architects are invited to participate through an announcement by advertisements in suitable media and through circulars which may be issued by the promoters.
b) _____ gives an opportunity to young architects to show their talents and abilities.
c) An _____ is a right which the owner or occupier of certain land possesses, as such, for beneficial enjoyment of the land.
d) The land for the beneficial enjoyment of which the right of easement exists is called the _____.
e) The minimum width of internal road in any layout or subdivision of land shall be for upto 150 is _____.
f) Generally there will be two partners or more number of partners _____ firm.
g) _____ is a person who plans, designs and reviews the construction of Buildings.

Q.2 Write short notes on (Any Three) **15**

a) Describe in brief Necessity of building byelaws
b) Mean of Arbitral award
c) Explain in brief the Advantage of architectural competitions
d) What is Earnest Money?
e) explain in brief about Limited competition

Q.3 Answer the following (Any Four) **48**

a) Explain in brief about Land Acquisition Act.
b) What are the various services rendered or offered by an Architect?
c) Explain in detail Municipal bye laws for Industrial building in Solapur city.
d) Explain the term Easement and its types.
e) Explain in brief the Tenement act and its important of Tenement act.
f) Explain the factors considered for labour under labour act.

SLR-GC-49

Seat No.	

Set P

B. Architecture (Semester – VIII) (CBCS) Examination: Oct/Nov-2023
Project Management (7024802)

Day & Date: Wednesday, 27-12-2023 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

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

Q.1 Fill in the blanks from the option given below **07**

1) _____ is a technique used to manage uncertain activities of any project.
a) CPM b) PERT
c) WBS d) None from the options

2) _____ is the method of acquiring or obtaining goods, services or works from an external source.
a) Procurement b) Preparation
c) Storage d) Recruitment

3) The average vertical distance between level of excavation and to the place of spreading or heaping is called _____.
a) Lid b) Lift
c) Lead d) Leaf

4) The _____ tax was been levied on those sales which the movement of goods is from one state to another i.e., inter-state.
a) State VAT b) State Excise
c) Central sales d) Service

5) The _____ Act 1948 was brought into force by the Parliament of India in order to provide due remuneration to the workers and to prevent unfair exploitation of the workers by the employers.
a) Minimum wages b) Labour union
c) Workmen's compensation d) Fund

6) _____ study is the improvement in performance both in terms of quality and quantity of output by analyzing the body posture, body movement and hand movement.
a) Time b) Revision
c) Motion d) Cardio

7) Bar chart was introduced by _____ around 1900 AD.
a) Hennery Gantt b) Hennery Gay
c) Hennery Goose d) Hennery Gore

Q.2 Write Short Notes (Any Three) **15**

a) Differentiate between PERT and CPM
b) Three types of Time Estimate
c) Construction Quality control
d) Bar chart with benefits

Q.3 Attempt the following Question (Any Four) **12**

1) Explain in detail Taxation in India

2) a) Explain what do you understand by Material Procurement **04**

b) Explain factors to be considered for Material Procurement **08**

3) Explain use of computers by using software's in Construction Project Management. **12**

4) a) Differentiate between Time study and Motion study. **06**

b) Explain Purpose of Project Programming and explain its Stages **06**

5) Considering the overhead cost of 60/- rs per day: **12**
Draw the Network Diagram and determine **minimum total time** and **corresponding cost** from the table given below.

Activities	Normal time (Tn)	Crash time (Tc)	Normal cost (Cn)	Crash cost (Cc)
1-2	9	6	640	700
1-3	8	5	500	575
1-4	15	10	400	550
2-4	5	3	100	120
3-4	10	6	200	260
4-5	2	1	100	140