Seat No.	

Set **P**

B. Architecture (Semester - I) (New) (CBCS) Examination: March/April - 2025
Building Construction and Material - I (21AR1-02)

Day & Date: Thursday, 12-June-2025 Max. Marks: 100
Time: 02:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Drawing diagrams wherever necessary.
3) Make suitable data wherever necessary.

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

1) A continuous row of bricks either header or stretcher is known as _____.
a) Flemish bond b) English bond
c) header bond d) stretcher bond

2) A cantilevered part above the window is known as _____.
a) Lintel b) Beam
c) Sill d) Chajja

3) Standard size of stabilised Brick is _____.
a) 75mm X 100mm x 230 mm b) 50 mm X 100mm x 230 mm
c) 100 mm X 230mm x 450mm d) 100mm x 300mm x 600mm

4) The lowest artificially prepared parts of the structure which are in direct contact with the ground and which transmit the loads of the structures to the ground are known as _____.
a) plinth b) foundation
c) bricks wall d) beam

5) In stone wall construction where all stones are dressed or cut to a uniform shape and size with plain surface is known as _____.
a) Random Rubble masonry b) Ashlar masonry
c) Brick masonry d) None of the above

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

a) Draw plan, elevation, section and isometric view of Flemish bond 1 brick thick wall. (scale 1:10)
b) Draw, elevation, Section of ashlar fine, ashlar quarry faced, ashlar chamfered. (scale 1:10)
c) Draw any 3 types of foundation used in building construction. (scale 1:10)

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

a) Define Closer, queen closer, king closer.
b) Attached piers & Detached piers.
c) Classification of stone masonry.
d) Compare English and Flemish bond
e) Retaining walls

Q.4 Choose the correct answer **05**

1) Black cotton soil is unsuitable for foundations because its _____.
a) Property to undergo a volumetric change due to variation of moisture content
b) Permeability is uncertain
c) Particles are cohesive
d) None of above

2) The Raw material for manufacturing brick is ____.
a) cement b) mud
c) lime d) sand

3) The Process of taking out stones from natural rock beds is known as _____.
a) quarrying b) excavation
c) mining d) blasting

4) The portion of a brick cut across the width is called _____.
a) Closer b) Half brick
c) Bed d) Bat

5) Structure of stone or brick built against a wall to strengthen or support it.
a) Column b) Buttress
c) Retaining wall d) L-junction

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

a) Explain bearing capacity of soil and angle of repose.
b) What is meant by dressing of stone? Sketch various varieties of dressing.
c) Enumerate the qualities of good bricks and uses of bricks.

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

a) Uses of stone
b) Uses of Sand
c) Types of bricks

Seat No.	

Set **P**

B. Architecture (Semester - I) (New) (CBCS) Examination: March/April - 2025
Theory of Structure - I (21AR1-03)

Day & Date: Saturday, 14-06-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) Use of IS 456 AND 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 Choose the correct alternatives. **07**

1) Which of the following is the SI units of force?
a) Kg m/s^2 b) Kg m/$^{-s}$
c) Newton-metre d) Newton

2) In frame structure, what transfers the load to columns?
a) Foundation b) Beams
c) Slabs d) Roofs

3) Fixed beam is also known as _____.
a) Encastered beam b) Built on beam
c) Rigid beam d) Tye beam

4) Moving train is an example of _____ load.
a) Point load b) Cantered load
c) Rolling load d) Uniformly varying load

5) Units of U.D.L?
a) KN/m b) KN-m
c) KN-m×m d) KN

6) The point through which the whole weight of the body acts is called _____.
a) Inertial point b) Center of gravity
c) Centroid d) Central point

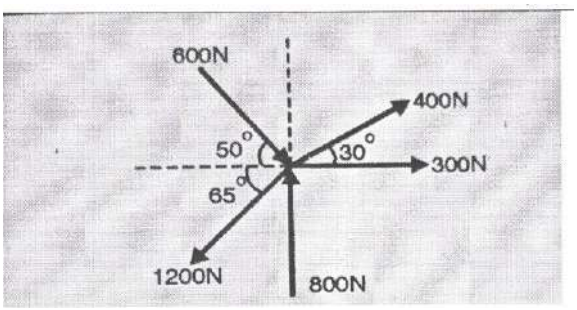
7) Where the center of gravity of a circle lies?
a) At its Centre
b) Anywhere on its radius
c) Anywhere on its circumference
d) Anywhere on its diameter

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

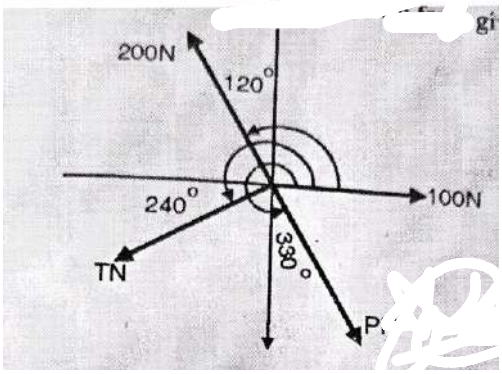
a) What is structure and its various component.
b) short note on types load acting on structure.
c) System of forces.
e) Difference between Centre of Gravity and Centroid.

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

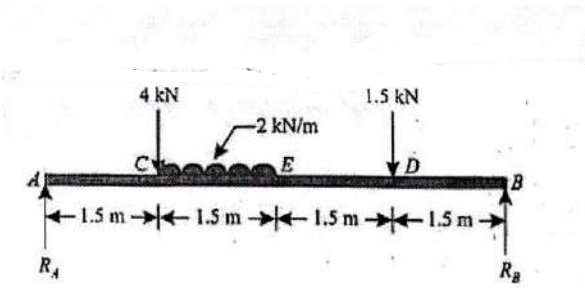
a) Find the resultant of the force system shown in figure. In magnitude and direction.



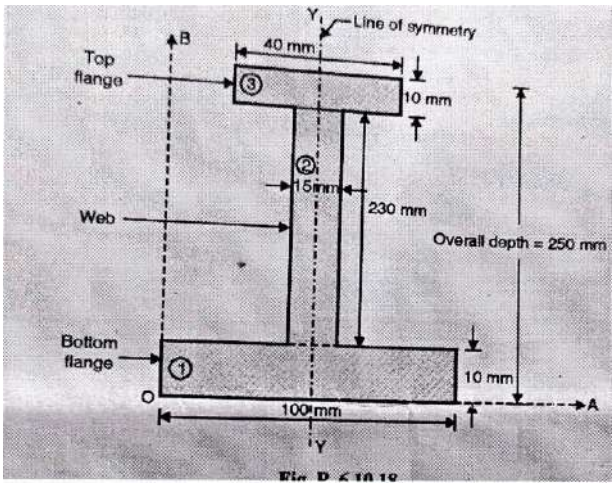
b) If 4 forces acting at a point away from the point 100 N, 200 N, determine the value of TN and PN. The system is in equilibrium.



c) Calculate support reaction for following diagram.



d) Find the centroid of the I- section shown below.



e) Find the common C.G. of the body from the base for a hemisphere of 60 mm dia. Is placed on the top of cylinder having equal diameter. Height of cylinder is 30mm.

Seat No.	

Set **P**

B. Architecture (Semester - I) (New) (CBCS) Examination: March/April - 2025
Human Settlement Planning (21AR1-04)

Day & Date: Monday, 16-June-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat sketches wherever necessary.

Q.1 Choose The Correct Option. **07**

1) _____ is an ancient Indian science of architecture and construction.
a) Mansara b) Rig Ved
c) Upnishada d) Vashtushastra

2) _____ are ancient centers of learning that played significant roles in the.
a) Harrapa and Mohenjodaro b) Ajantha and Ellora
c) Madurai and Ayodhya d) Taxshila & Nalanda

3) _____ was a powerful city-state and the cultural center of ancient Greece &.
a) Troy b) Mionan
b) Sparta d) Athens

4) Queen of all civilization _____
a) Egypt b) Rome
c) Babylon d) Greek

5) Which of the following is an example of a built environment?
a) Rainforest b) River
c) Neighborhood d) Desert

6) Which Roman Emperor founded Constantinople in 330 AD?
a) Julius Caesar b) Augustus
c) Nero d) Constantine the Great

7) Rothenburg Germany is an example of ancient _____ city.
a) Industrial b) Commercial
c) Fortress d) Religious

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

a) city of Ur
b) kahun city
c) Timgad city
d) Fatehpur Sikri

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

a) What is mean by Human Settlement Planning? Discuss the various patterns of human settlement?
b) Explain the concept of factory towns introduced during the Industrial Revolution. Sketch and explain tony Garniers Factory town.
c) What was the role of the banks of the River Nile in the growth of early settlements in Egypt?
d) "How did Christianity change medieval European cities, especially Constantinople?
e) "How did medieval settlements shape culture and religion by taking an example Madurai City?

Seat No.	

Set P

B. Architecture (Semester - II) (New) (CBCS) Examination: March/April - 2025
Building Construction and Material - II (21AR2-02)

Day & Date: Wednesday, 11-June-2025 Max. Marks: 100
Time: 10:00 AM To 02:00 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) Assume suitable data wherever necessary.
5) Figures to the right indicate full marks.

Q.1 Choose and write the correct answer. **05**

1) An _____ consists of small wedge- shaped units which are joined together with mortar to span an opening.
a) Arch b) Stair
c) Roof d) Window

2) _____ is a horizontal structure supporting member which is provided over opening to support the weight of the masonry above it.
a) Lintel b) Chajja
c) Porch d) Portico

3) _____ is a vertical member which is employed to sub divide a window panel/ shutter opening vertically.
a) Rail b) Transom
c) Mullion d) Style

4) _____ is defined as an unbroken series of steps between landings.
a) Baluster b) Tread
c) Rise d) Flight

5) _____ as the uppermost part of a building which is constructed in the form of framework to give protection to the building against rain, heat snow, wind etc _____
a) Wall b) Foundation
c) Chajja d) Roof

Q.2 Draw and label on any 2 - (15 marks each.) **30**

a) Draw to appropriate scale an arch, label its parts and define any 5 parts.

b) Draw plan, elevation, section and minimum 2 details of panelled window of size 1.2 mtr x 1.5 mtr

c) Draw to appropriate scale, plans of any 5 different types of staircases as per shape. Assume a flight width of 100cm, tread-30cm and riser-15cm

Q.3 With neat sketches write short notes on - (5 marks each.) **25**

a) Differentiate between an arch and a lintel.
b) Define the following components of a sloping roof- Eaves, Pitch, Purlins, Rafters, Span.
c) Define the following components of a door and window- Shutter, Style, Panel, Frame, Rail.
d) State the advantages of flat roof over pitched roof.
e) Define- Ladder, Ramp, Stair, Lift, Escalator.

Q.4 Choose and write the correct answer. **05**

1) Initial setting time for ordinary cement is _____ minutes.
a) 30 b) 60
c) 90 d) 120

2) Burning of limestone to red heat is known as _____.
a) Slaking b) Calcination
c) Mixing d) Grinding

3) The term _____ is used to indicate a paste prepared by adding required quantity of water to mixture of binding material and fine aggregate.
a) Slurry b) Paint
c) Mortar d) Adhesive

4) _____ are boards which are prepared from thin layers of wood or veneers.
a) Plywood b) Fibre board
c) White board d) Glass

5) _____ is used to bind the building units such as bricks, stones etc.
a) Adhesive b) Sealants
c) Mortar d) Glue

Q.5 Answer in brief on any 2 - (10 marks each) **20**

a) Write the properties and uses cement.
b) How is fat lime manufactured?
c) With a neat sketch show any 5 carpentry joints used in buildings elements.

Q.6 Write short notes on - (5 marks each) **15**

a) Field tests for cement
b) Types of mortar used in building construction
c) Uses of timber in building construction

Seat No.	

Set **P**

B. Architecture (Semester - II) (New) (CBCS) Examination: March/April – 2025
Theory of Structure – II (21AR2-03)

Day & Date: Friday, 13-June-2025 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 Choose the correct alternatives. **07**

1) A cantilever beam of span 'L' subjected to point load 'P' at free end has maximum shear force equal to _____.
a) P b) PxL
c) P/L d) PxL/2

2) The type of stress that causes a material to elongate is: _____.
a) Compressive stress b) Tensile stress
c) Shear stress d) None of the above

3) Which of the following expresses the relation between Young's modulus (E), modulus of rigidity (G), and bulk modulus (K)?
a) E=2G(1+μ) b) E=3k(1-2 μ)
c) Both (a) and (b) d) None of the above

4) The unit of moment of inertia in the SI system is: _____.
a) Kg·m^2 b) m^2
c) m^4 d) kg/m

5) The compressive strength of concrete is typically measured at: _____.
a) 7 days b) 14 days
c) 28 days d) 90 days

6) The unit of shear stress is:
a) N/m^2 b) Newton (N)
c) N/m d) N·m^2

7) The theory of pure bending assumes that:
a) The beam is subjected to both shear and bending moment
b) The beam remains straight before and after bending
c) The neutral axis remains straight and unstressed
d) Both (b) and (c)

Q.2 Solve the following. (Any Three) **15**

a) Write a note on stress - strain curve of mild steel.

b) Explain material properties of Soil and aggregate.

c) Enlist the formulas of Moment of Inertia about its centroidal axis for following cases.

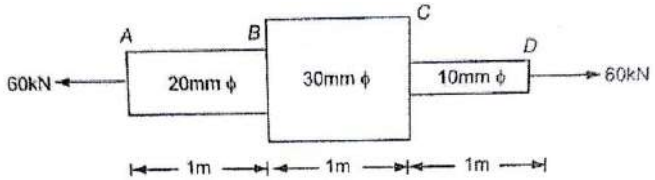
i) Hollow Rectangular Section

ii) Hollow Circular section

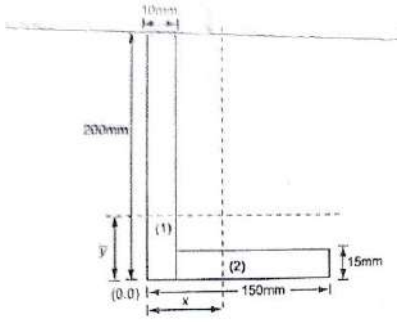
e) Write Assumption made in pure bending.

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

a) A bar is as shown in Figure subjected to axial tensile force of 6OkN. Calculate the total elongation if E = 1.5×10^6 Mpa. Also calculate stress in AB, BC CD.

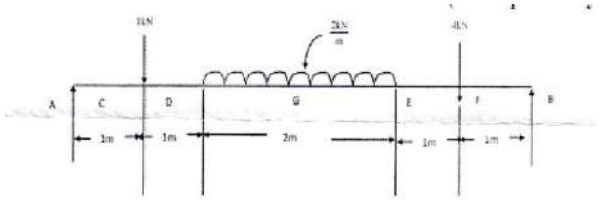


b) Find Moment of Inertia of following Figure.



c) A rectangular c/s beam of size 400 x 500 mm is subjected to a shear force of 20 kN. Calculate maximum shear stress, average shear stress and shear at 150 mm above N.A. Show stress distribution diagram.

d) Draw SFD and BMD of Following Figure



e) A beam of 200mm wide and 400mm deep is simply supported over a span of 3 m. It carries a UDL of 19 kN/m over entire span of 3 m. Find the maximum stress induced in section. Draw bending stress distribution diagram.

Seat No.		Set	P

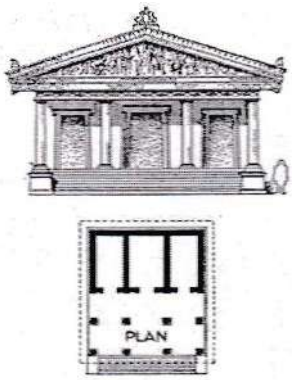
B. Architecture (Semester - II) (New) (CBCS) Examination: March/April - 2025
History of Architecture- I (21AR2-04)

Day & Date: Tuesday, 17-June-2025 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat sketches wherever necessary.

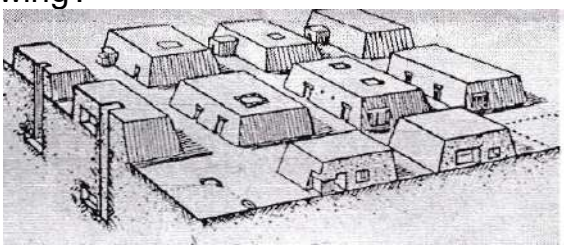
Q.1 Choose The Correct Option. **07**

1) Identify the following structure?



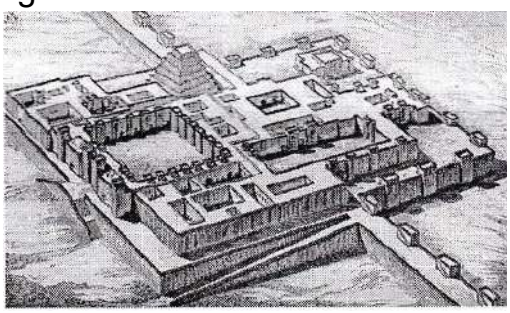
a) Chitya Hall
b) Temple of khons
c) Temple of Juno Sospita
d) None of the above

2) Identify the following?



a) Santuary
b) Mastabas
c) Pyramid
d) Dolmen

3) Identify the following monumental structure?

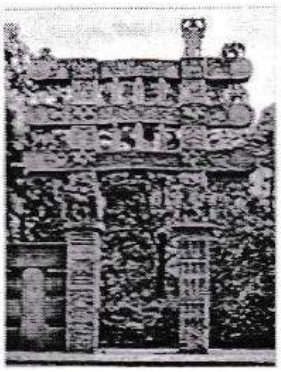


a) palace of Percepolis
b) Palace of King minos
b) palace of tiryns
d) Palace of Sargon

4) The following are the ruins of which palace?

a) palace of Percepolis
b) Palace of King minos
c) palace of Tiryns
d) Palace of Sargon

5) Identify the following?



a) Kings Gate
b) Lion Gate
c) Torana
d) Grand Gallery

6) Identify the following Image?

a) Terra Amata
b) Vedic Hut
c) Pit House
d) Lake dwelling

7) Sarnath pillar erected by emperor _____.

a) Vijaydutta
b) Chandragupta
c) Ashoka
d) Krishna

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

a) Planning of City of Babylon
b) Lion gate
c) Kings Chamber in pyramid of king cheops
d) Dolmen and Cromlech tomb at Ireland

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

a) Sketch and explain Stone Henge at Wiltshire England.
b) Sketch and explain different parts of Great Stupa at Sanchi.
c) Explain Egyptian Temple architecture with respect to Temple at Khons at Karnak.
d) Explore the architectural features of Palace of Percepolis.
e) Sketch and explain Planning and housing of Garden city of Patliputra.

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Seat No.	

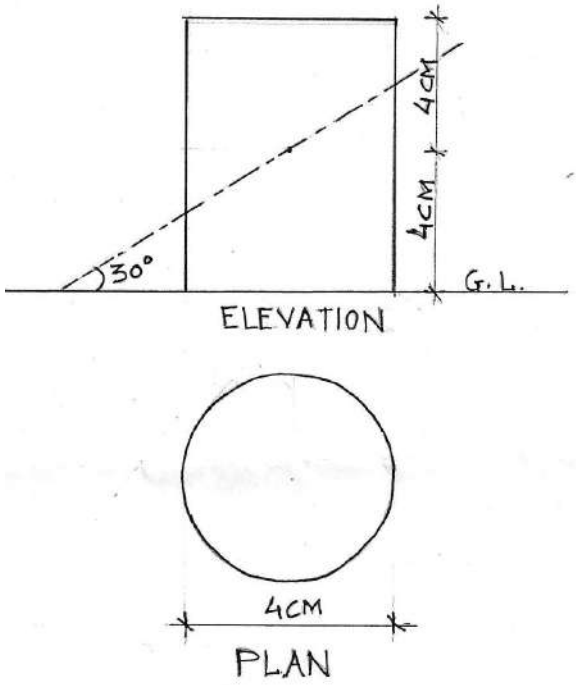
Set **P**

B. Architecture (Semester - II)(New) (CBCS) Examination: March/April -2025
Architectural Graphics and Drawing- II (21AR2-05)

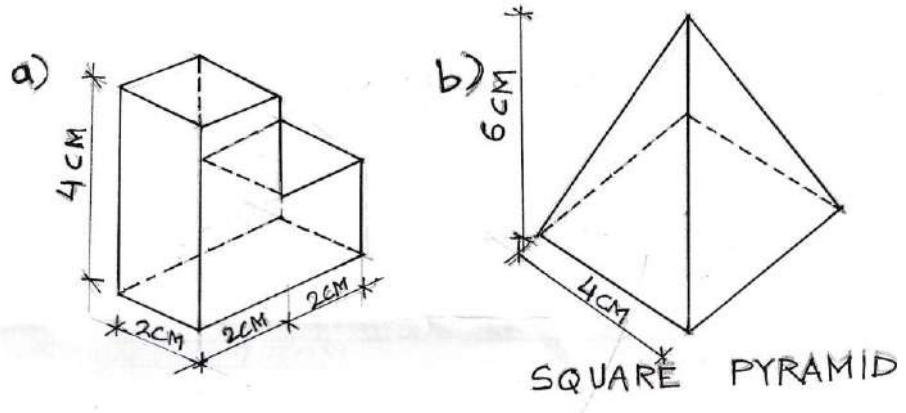
Day & Date: Thursday, 19-June-2025 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

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

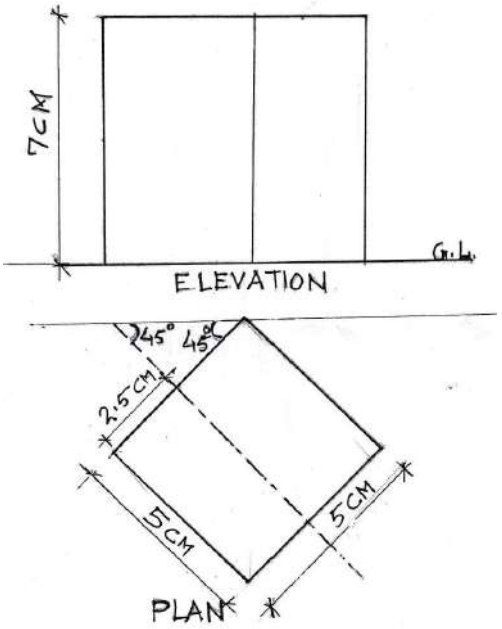
Q.1 Draw plan and sectional side elevation (left & right side of elevation) of the cut object. **25**



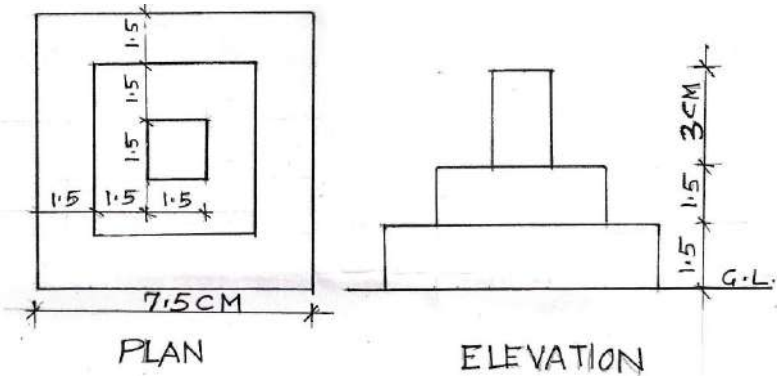
Q.2 Draw the development of surfaces of the following objects (2x5) **10**



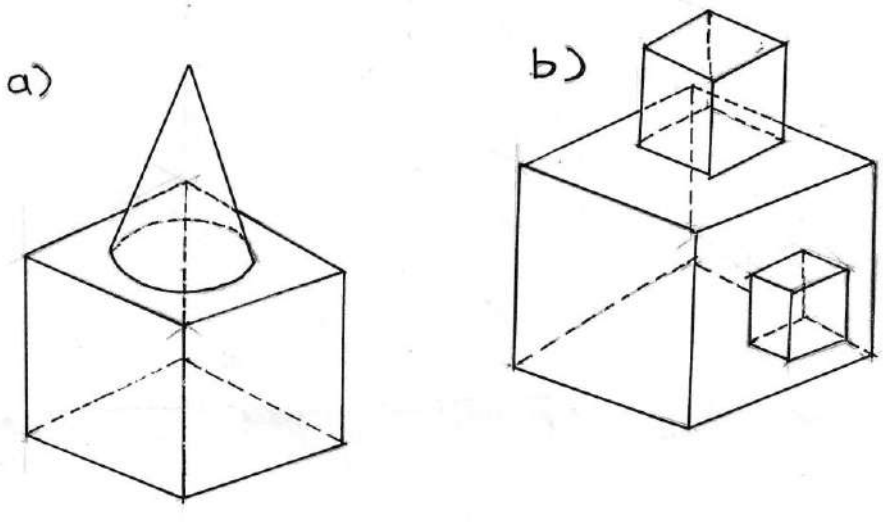
Q.3 Draw true cut portion of cut object **10**



Q.4 Draw isometric view of the following object (Dimensions in CM) **15**



Q.5 Mention the no. of surfaces of the following objects **05**



SLR-BB-8

Seat No.	

Set P

B. Architecture (Semester - III) (New) (CBCS) Examination: March/April - 2025
Building Construction and Material - III (21AR3-02)

Day & Date: Tuesday, 03-06-2025 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) Assume suitable data if necessary.

Q.1 Multiple choice question: **05**

1) How many vertical posts are there in a queen-post truss?
a) Two b) Three
c) Four d) Six

2) Due to _____ the external faces of wall become the sources of entry of dampness in structure.
a) paints b) heat
c) action of rain d) None of the above

3) What does R.C.C. stand for?
a) Reinforced Cement Concrete
b) Reinforced Concrete Cement
c) Reinforced Combined Cement
d) Reinforced Constituent Cement

4) The steel generally used in R.C.C. work, is _____
a) Mild steel b) High carbon steel
c) High tension steel d) all of the above

5) Vitrified tile is type of _____.
a) Ceramic tile b) wooden tile
c) stone d) none of the above

Q.2 Draw and Label (Any Two) **30**

a) Draw a RCC folded slab type staircase for a residential building where the floor height is 3.15 meters, including a 150 mm thick slab. Provide drawings for the plan and sectional elevation. (Scale 1:20)

b) Draw to the scale detailed section of waterproofing for terrace, toilet, (scale 1:20)

c) Draw a scaled plan and sectional elevation of a queen post truss with a 9.50 meter span. Provide detailed drawings of the joints at both ends and the ridge, (scale 1:20)

Q.3 Write short notes with sketches wherever necessary. **25**

a) Define ridge piece, common rafter, wall plate, Eaves board, battens
b) Define Newel, Balustrade, Head room, Pitch, Nosing
c) Define Hand rails, Stringers, Winders, Landing, soffit
d) Distinguish between framed structure and load bearing structure.
e) Lean to roof.

Q.4 Choose the correct answer. **05**

1) _____ flooring is just similar to Moorum flooring.
a) Mud b) Murum
c) Stone d) Plastic

2) Which among the following is not an iron ore?
a) Hematite b) Magnetite
c) Siderite d) Pyrrhotite

3) In order to prevent the entry of damp into a building, the course is provided are known as the _____ course.
a) Termite proofing b) Damp proofing
c) Corrosion proofing d) None of the above

4) The most commonly used material for damp proofing is _____.
a) Bitumen b) paraffin wax
c) cement solution d) cement concrete

5) DPC stand for:
a) Damp Proof Course b) Damp Proof Cutting
c) Damp Proof Cable d) Damp Proof Case

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

a) Explain marble, terrazzo, cement concrete and brick flooring.
b) Describe in details any 5 market forms of steel.
c) What is wrought iron? Describe its four properties, uses, advantages and disadvantages.

Q.6 Write Short Notes. **15**

a) Write short note on mild steel bars.
b) Describe properties of cast iron.
c) Describe forms/types of asphalt.

SLR-BB-9

Seat No.	

Set P

B. Architecture (Semester- III) (New) (CBCS) Examination:
March/April - 2025
Building Services –I (21AR3-07)

Day & Date: Thursday 05-06-2025 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 and write the correct answer **07**

1) 75mm vertical pipe which conveys waste water from Floor trap in a multistoried building is called as _____.
a) Soil Pipe b) Waste water pipe
c) Rain water pipe d) gas pipe

2) _____ is used to change the direction of flow between two pipes.
a) Elbow b) Coupler
c) Union d) Reducer

3) _____ pump is completely emersed in source of water for pumping.
a) Submersible b) Rotary
c) Centrifugal d) Air lift

4) _____ system from layout of water distribution is suitable for irregular developed towns or cities.
a) Grid iron b) Dead end
c) Radial d) Ring

5) _____ valve is used in hot water storages to avoid danger of expansion.
a) Butterfly b) Globe
c) Gate d) Pressure relief

6) The 50mm dia. vent pipe attached to trap to maintain the water seal is known as _____.
a) Soil pipe b) cowl
c) Anti-siphonage pipe d) Waste pipe

7) _____ is used to stop and start the water connection to the building in case of repair or maintenance of the pipe work.
a) Stop valve b) Goose neck
c) Service pipe d) Ferrule

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

1) Floor/Nahani trap with sketch.
2) Thermosiphon action in hot water.
3) Grid iron layout of water distribution system with sketch.
4) Gate Valve with sketch.

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

1) Sketch and label OHT or UGT and explain its components.
2) Explain with neat sketches water supply systems for towns and cities.
3) Explain with neat sketches Up-feed and Down-feed hot water supply system.
4) Explain with sketches P, S, Q trap and Anti-Siphonage action.
5) Explain with sketches Bottle trap and Intercepting trap.

SLR-BB-10

Seat No.	

Set P

B. Architecture (Semester - III) (New) (CBCS) Examination: March/April 2025
Architectural Graphics and Drawing- III (21AR3-05)

Day & Date: Monday, 09-June-2025 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 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

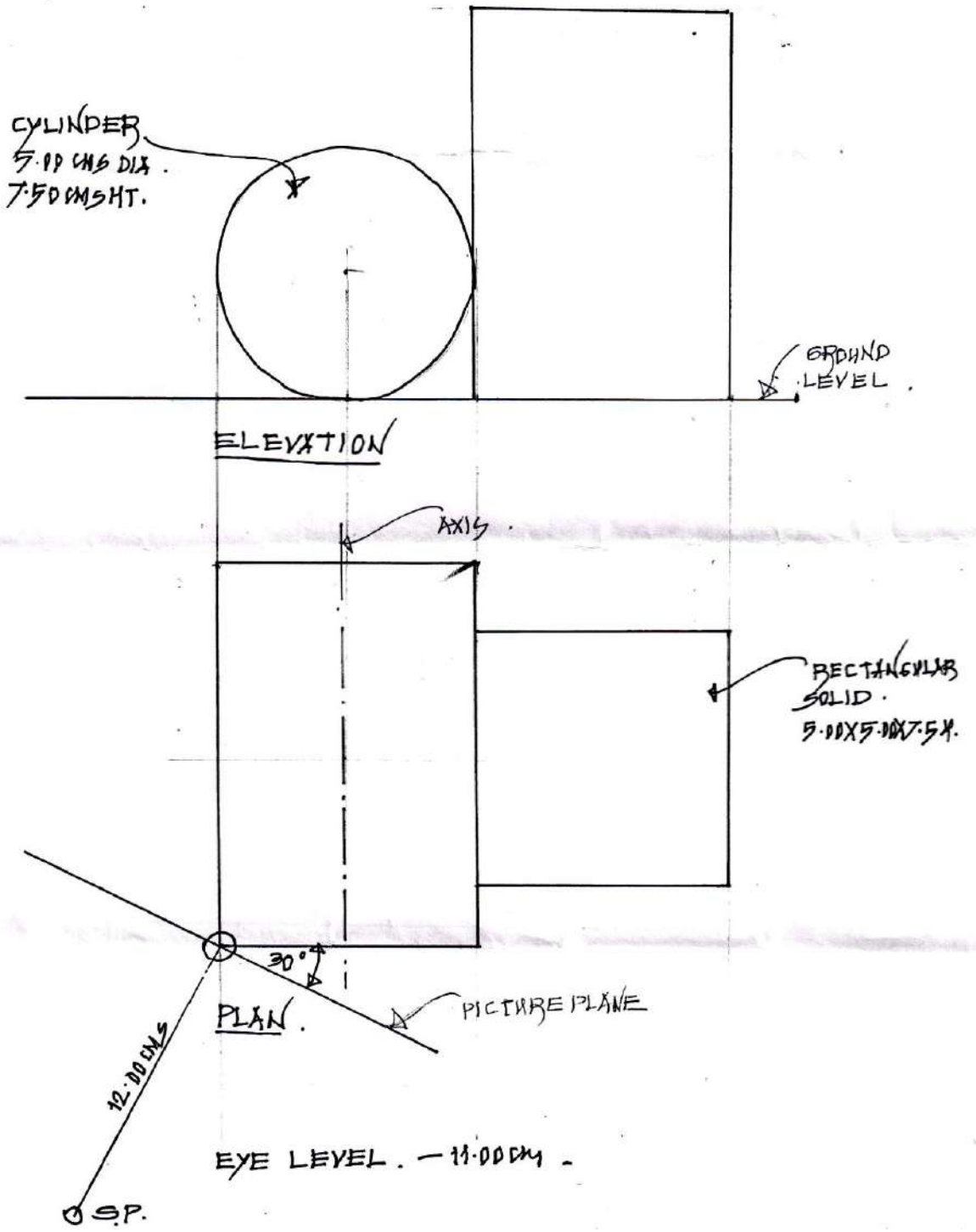

CYLINDER
5·00 CMS DIA.
7·50 CMS HT.
GROUND LEVEL
ELEVATION
AXIS
RECTANGULAR SOLID.
5·00X5·00X7·5H.
30°
PICTURE PLANE
PLAN.
12·00 CMS
EYE LEVEL. — 11·00 CMS.
S.P.

FIGURE B

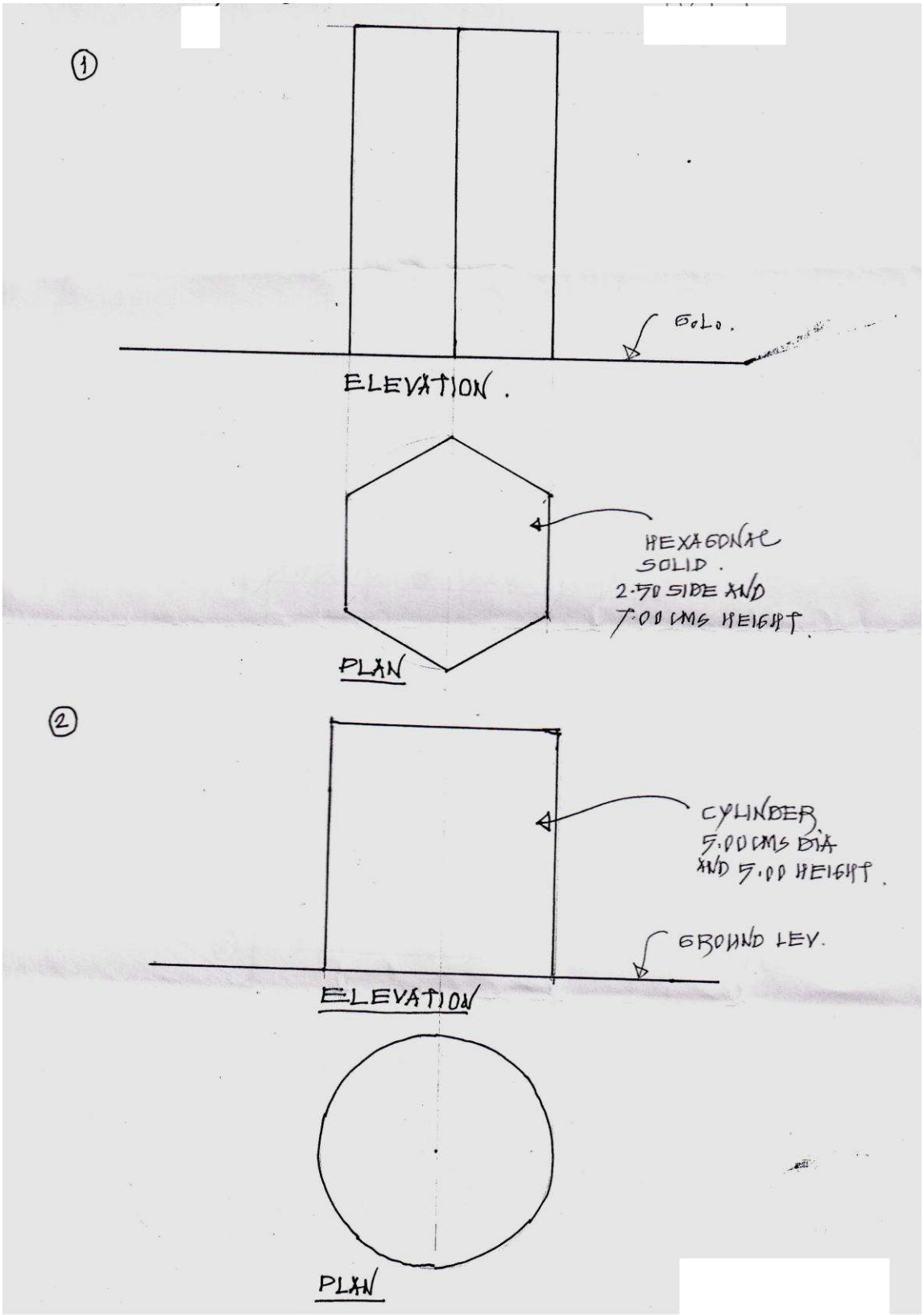
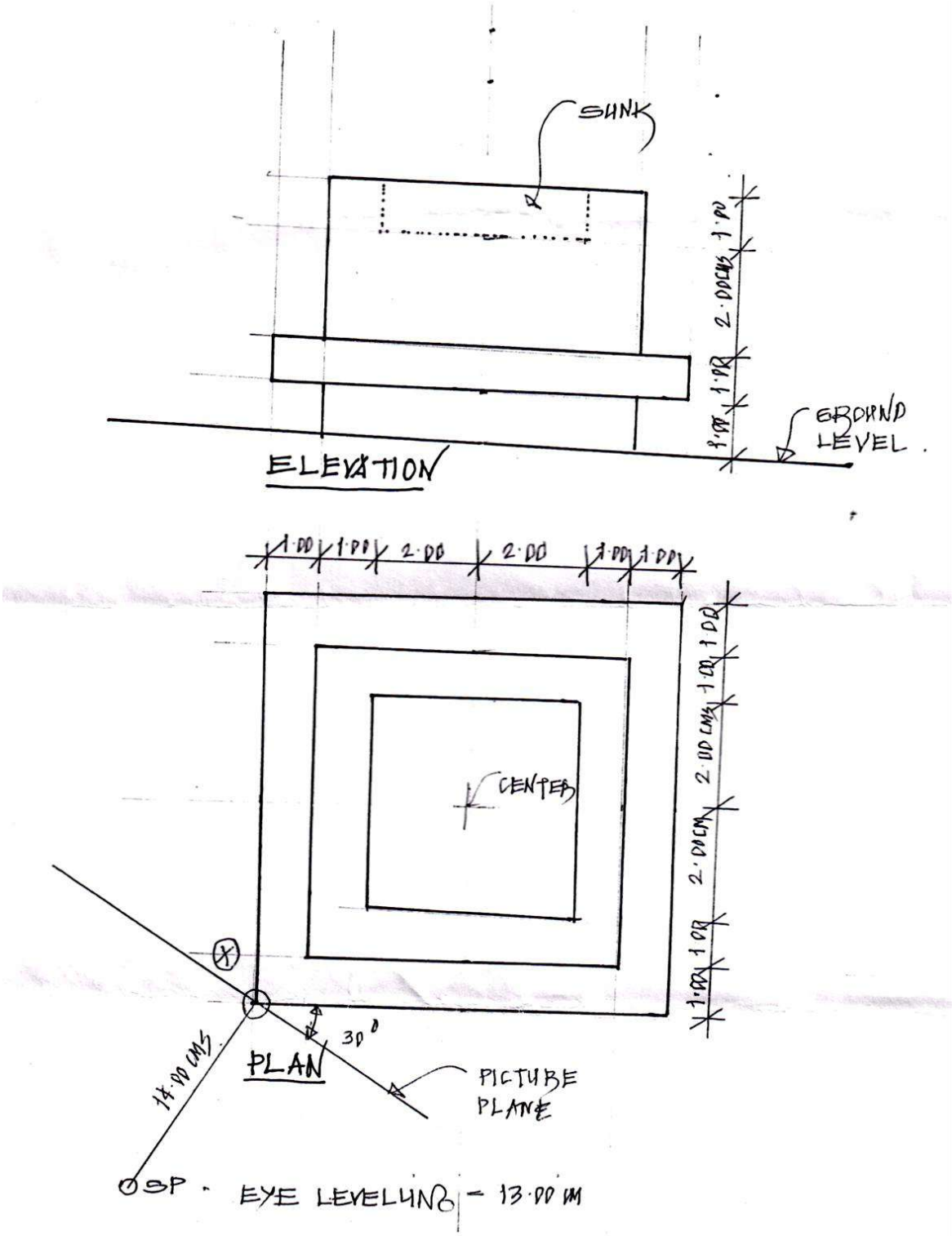

1
G.L.
ELEVATION.
HEXAGONAL SOLID.
2.50 SIDE AND
7.00 CMS HEIGHT
PLAN
2
CYLINDER
5.00 CMS DIA
AND 7.00 HEIGHT.
GROUND LEV.
ELEVATION
PLAN

FIGURE C


SINK
GROUND LEVEL
ELEVATION
1·00 1·00 2·00 2·00 1·00 1·00
CENTER
30°
PLAN
PICTURE PLANE
SP · EYE LEVELING – 13·00 m

Seat No.	

Set **P**

B. Architecture (Semester - III) (New) (CBCS) Examination: March/April - 2025
History of Architecture- II (21AR3-04)

Day & Date: Wednesday, 11-June-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

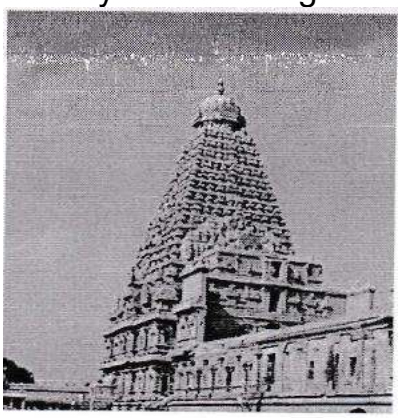
Instructions: 1) All questions are compulsory.
2) Draw neat sketches wherever necessary.

Q.1 Choose The Correct Option. **07**

1) Identify the following temple?

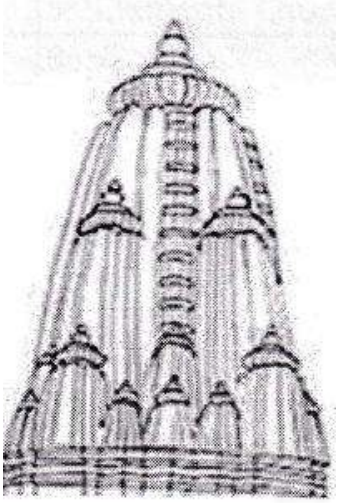
a) Durga Temple Aihole b) Vitthala Temple Hampi
c) Papanath temple Pattadkal d) Dashavtara temple, Deogarh

2) Identify the following Vimana?



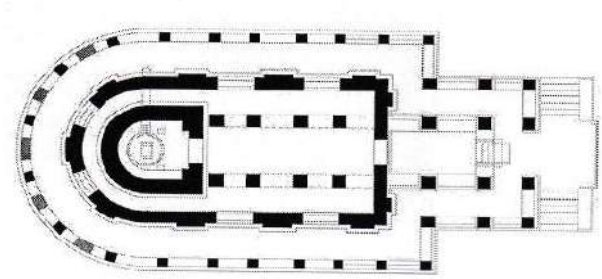
a) Sun Temple, Konark
b) Lingraja temple, Bhubaneshwar
c) Meenakshi Temple, Madurai
d) Brihdeshwara temple, Tanjavur

3) Identify the following type of _____



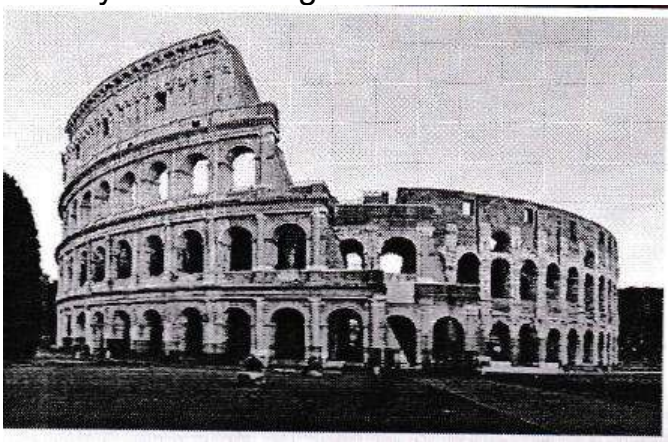
a) Latina
b) Bhumija
c) Shekhari
d) Pida deula

4) Identify the following temple plan?



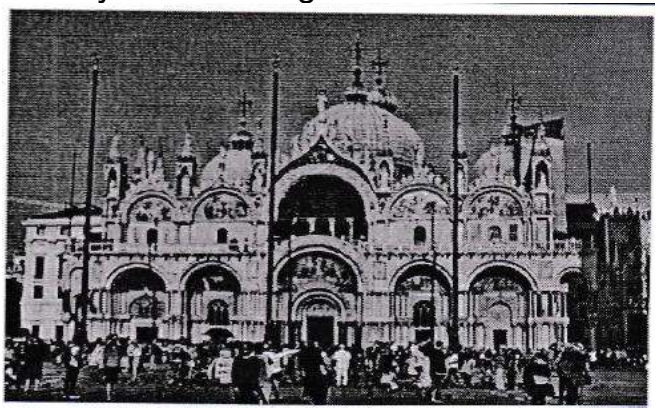
a) Durga Temple , Aihole
b) Sun Temple, Modhera
c) Mankeshwara temple, Jogda Nashik
d) Sun temle, Ossia Marwar

5) Identify the following structure?



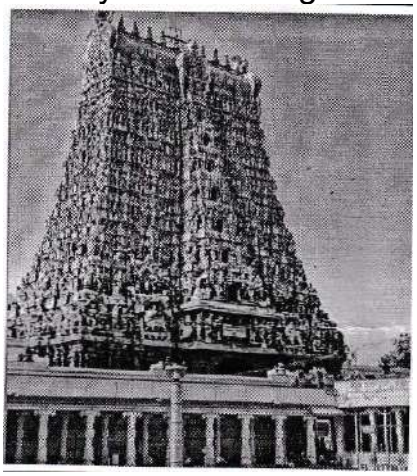
a) Thermae
b) Basilica
c) Colosseum
d) Pantheon

6) Identify the following structure?



a) St. Clemente church
b) Basilica
c) St. Marks Venice
d) Hagiya Sophiya

7) Identify the following monumental gateway?



a) Khakara Deula
b) Rekha deula
c) Gopura
d) Pida deula

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

a) Parts of Orrisan Temple
b) Pantheon rome
c) Mankeshwara temple , Jogda Nashik
d) Theatre at Epidarus

Q.3 Answer the Following In Detail. (Any - 4) **48**

a) 1) sketch and explain different parts of Khandariya Mahadev temple , Khajuraho Madyapradesh ?
2) Sketch and explain Vitthala temple at Hampi?

b) 1) Sketch and explain architectural features of the Vaikuntha Perumal Temple at Kanchipuram.
2) Sketch and explain Draupadi Rath and Arjuna Rath at Mahabalipuram?

c) Sketch and explain architecture of the Chaumukh Temple of Adinatha at Ranakpur.

d) 1) Compare and contrast architectural characteristic features of Classical Greek and Roman architecture ?

e) 2) Sketch and name different parts of parthenon temple Greek?

Seat No.	

Set **P**

B. Architecture (Semester - III) (New) (CBCS) Examination: March/April - 2025
Theory of Structure - III (21AR3-03)

Day & Date: Friday, 13-June-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 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 Choose the correct alternatives. **07**

1) If a point load is applied at the midspan of a fixed beam, the SFD will show: _____.
a) A triangular shape
b) A rectangular shape
c) A linear drop
d) A constant value across the length

2) The effective length of a column depends on: _____.
a) Material properties b) End conditions
c) Cross-sectional area d) Length only

3) Normal stress on an oblique plane is: _____.
a) Maximum
b) Minimum
c) Intermediate
d) Depends on the angle of the plane

4) Mohr's Circle is a graphical method used to determine: _____.
a) Principal stresses and shear stresses
b) Bending stress and deflection
c) Normal stress and strain
d) Torsional stress only

5) Slope in a beam is generally measured in: _____.
a) Degrees b) Radians
c) Length units d) Newtons

6) What causes deflection in a beam?
a) Axial load b) Shear force only
c) Bending moment and load d) Torsional stress

7) Which method is commonly used to analyze the forces in members of a truss?

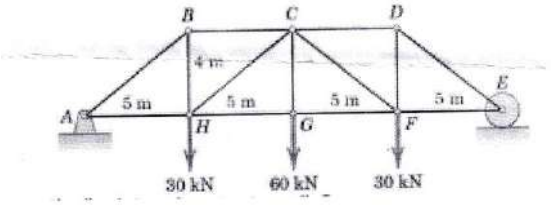
a) Finite Element Analysis b) Moment-Curvature Analysis
c) Method of Joints d) Principle of Superposition

Q.2 Solve the following. (Any Three) **15**

a) Write a note on Core of the section of circular section.
b) Write a note on degree of redundancy of truss with example.
c) Write a note on continuous beam.
e) Write a note on Mohr's circle method to find principal stresses and maximum shear stresses.

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

a) A hollow rectangular section with overall dimension 150x250mm is 10mm thickness is used as a compression member 6m long it is fixed at one end and hinged at another. Determine crippling load E=200GPa. Calculate safe load if F.O.S. = 1.5.
b) Draw SFD and BMD for fixed beam for fixed beam having 6m span subjected to 10kN, and 20kN force acing at 2m and 3m distance from left hand support respectively.
c) The stresses at point of a machine component are 150 MPa and 50 MPa both tensile. Find the intensities of normal, shear and resultant stresses on a plane inclined at an angle of 55° with the axis of major tensile stress. Also find the magnitude of the maximum shear stress in the component.
d) Derive the expression for maximum slope and deflection of cantilever beam subjected to uniformly distributed load.
e) Analyze the following truss.



SLR-BB-13

Seat No.		Set	P

B. Architecture (Semester - III) (New) (CBCS) Examination: March/April - 2025
Climatology And Environment – I (21AR3-08)

Day & Date: Tuesday, 17-June-2025 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.
4) Calculator to be allowed in the examination hall.

Q.1 Choose The Correct Answer **07**

1) The earth takes around _____ to complete one rotation around its own axis.
a) 24.00 hrs b) 12.00 hrs
c) 8.00 hrs d) 18.00 hrs

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

3) The earth's axis is tilted _____ degrees from the plane of it's orbit around the sun.
a) 23.5 b) 455
b) 90 d) 60

4) Relative humidity is expressed in _____
a) Percentage b) Ratio
c) Proportion d) None of the above

5) Deep body temperature is about _____
a) 30 degree C b) 34 degree C
c) 31 degree C d) 37 degree C

6) Light coloured smooth and shiny surfaces tend to have a higher _____
a) Shine b) Reflectance
c) Surface d) Opaque

7) A _____ is another tool in architecture that helps designers understand the climate of a particular location in relation to human comfort.

a) Bio-climatic chart
b) DBT
c) WBT
d) None of the above

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

a) Micro climate and macro climate
b) Thermal comfort
c) Temperature
d) Psychometric chart

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

a) Discuss about the global climate and its factors.
b) What are the various indices of thermal comfort? Explain any 3 in detail.
c) Explain conduction, convection & radiation with neat sketches.
d) Discuss characteristics, design considerations for hot and dry climatic region with neat sketches.
e) **Heat Loss Calculation.**
Office area: 5mx5m 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 Ti=20°C To= 19C
Ventilation rate is 3 air changes per hour
3 100W bulbs are used continuous use in rear part of the room
The exposed wall 5mx2.5m wall consist of single glazed window, 1.5mx5m=7.5m^2 U=4.48 W/m2
Clinker concrete spandrel wall, 200mm rendered and plastered 1mx5m=5m^2 U=1.35 W/M^2

SLR-BB-14

Seat No.		Set	P

B. Architecture (Semester - IV) (New) (CBCS) Examination:
March/April – 2025
Theory of Structure - IV (21AR4-03)

Day & Date: Wednesday, 04-June-2025 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) Use of scientific calculator is allowed.
4) Assume suitable data if necessary
5) IS 800:2007 is allowed.
6) Steel Tables are allowed.

Q.1 Choose the correct alternative from the following options. **07**

1) Steel structures are commonly used in:
a) Bridges b) Industrial buildings
c) High-rise buildings d) All of the above

2) The modulus of elasticity of structural steel is approximately:
a) 210 GPa b) 250 GPa
c) 180 GPa d) 100 GPa

3) Limit state of fatigue is most relevant in:
a) Foundations b) Bridges and cranes
c) Roof structures d) Walls

4) The deflection limit for beams as per IS 800-2007 is generally:
a) L/100 b) L/300
c) L/325 d) L/500

5) Bolted connections are commonly used because they:
a) Are difficult to assemble
b) Allow easy assembly and disassembly
c) Are lighter than riveted joints
d) Have lower strength than welded joints

6) A tension member is primarily designed to resist:
a) Compressive forces b) Tensile forces
c) Shear forces d) Bending moments

7) Buckling of compression members depends on:
a) The material strength
b) The cross-sectional shape and slenderness ratio
c) The connection type
d) The length of the member

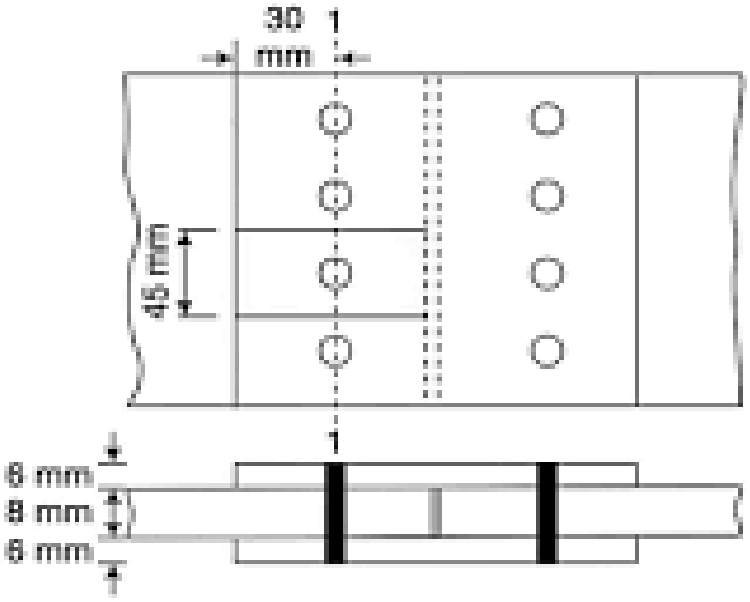
Q.2 Solve any three of the following. **15**

a) Write a note on advantages and disadvantages of Bolted Connection.
b) Write a note on design step of tension members.
c) What are the different types of trusses?
d) Write a note on effective length of column.

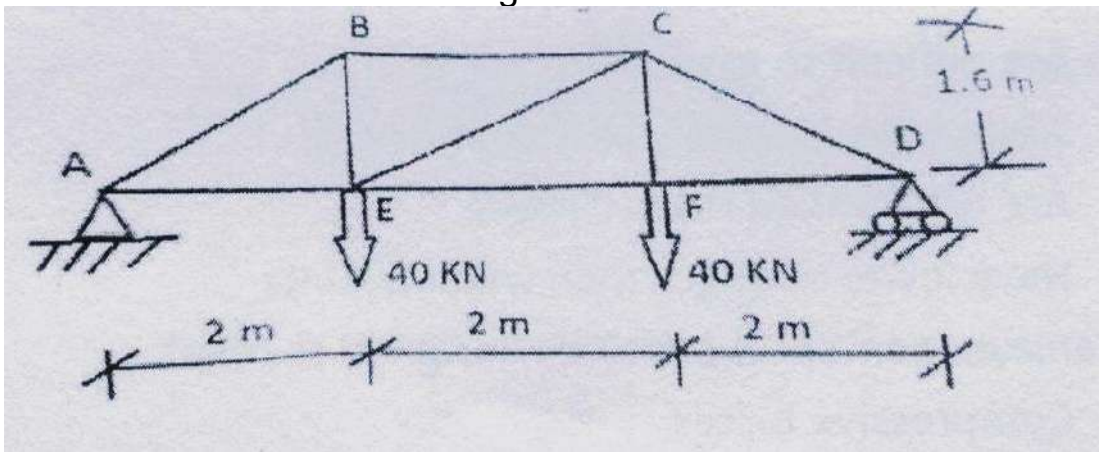
Q.3 Solve any four of the following. **48**

a) 1) What are the loads considered in steel structures?
2) Write a note on limit state method.

b) A single- bolted double cover butt Joint Is used to connect two plates which are 215mm wide and 8mm thick. Assuming 16mm diameter of bolts of grade 4.6 and cover plates to be 6 mm thick, calculate the strength per pitch length and efficiency of joints as shown in fig. 1



c) Design a simply supported beam of effective length 3 m carrying a factored load of 360 KN at mid span.
d) Design a single angle strut connected to a gusset plate to carry 280KN factored load. The length of strut between center-to-center correction is 3m.
e) Find the forces of the following truss.



SLR-BB-15

Seat No.	

Set P

B. Architecture (Semester - IV) (New) (CBCS) Examination: March/April - 2025
History of Architecture - III (21AR4-04)

Day & Date: Friday, 06-June-2025 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 right option. **07**

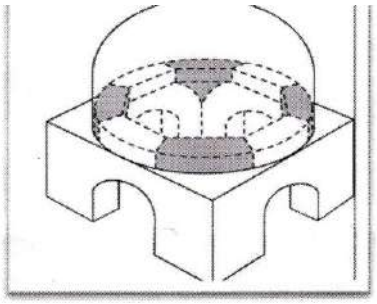
1) _____ is the Architectural feature of Gothic Style.
a) Semi-circular Arch b) Flying buttress
c) Vault d) All above options

2) Bauhause School designed by Ar _____.
a) Charlse Corea b) Mies Van Der Rohe
c) Antoni Gaudi d) Walter Gropius

3) Concept of Mughal garden is inspired from _____ Style of Architecture.
a) Hindu b) Indo-Islamic
c) Persian d) Arabian

4) Interior of Chatrapati Shivaji Maharaj Turminous is representing _____ style of Architecture.
a) Italy b) Gothic
c) Roman d) Renaissance

5) Highlighted building element from the following image is called as _____.



a) Pendentive b) Squinches
c) Wall d) Arch

6) Pisa Cathedral is the example of _____ style of Architecture.
a) Gothic b) Rennaisance
c) Romaneque d) Bazentine

7) _____ is the example was built during Tughlaq Dynasty.

a) Bara Gumbad b) Jami Masjid
c) Tomb of Ghiyas Ud din d) Fatehpur Sikri

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

a) Mughal Garden
b) Industrial Revolution
c) Bauhause School
d) Parliament House

Q.3 Explain in details. (Any Four) **48**

a) Explain Architecture of Ibrahim Rouza.
b) Explain imperial style in Indo-Islamic Architecture and discuss Tomb of Ghiyas Ud Din in detail.
c) Explain Colonial style in India and explain architecture of Victoria Terminus.
d) Explain Architecture of Fatehpur sikri and discuss Panch Mahal, Diwan-i-khas, Akbar's Tomb buildings in detail.
e) Explain provincial style of Indo-Islamic architecture with example Jama Masjid, Gulbarga.

Seat No.	

Set **P**

B. Architecture (Semester - IV) (New) (CBCS) Examination: March/April - 2025
Theory of Architecture (21AR4-05)

Day & Date: Tuesday, 10-June-2025 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) Q.1 and Q.2. are compulsory. From remaining questions solve any four.
2) Figures to the right indicates full marks.
3) Assume suitable data if necessary.

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

1) "_____" was written by Vitruvius.
a) Architectura b) Modern Architecture
c) Mayamata d) De Architectura

2) In, _____ the word Maya means- architect, Mata means-value.
a) Mayamata
b) The Four Elements of Architecture
c) De Architectura
d) The seven lamps of architecture

3) Villa Rotonda & Villa Barbaro are the works of _____.
a) Andreo Palladio b) Laugier
c) Laurie Baker d) Yatin Pandya

4) _____ was the architect behind restoration of Notre dame, Paris.
a) Viollet Le Duc b) Chares Correa
c) Kenzo Tange d) Andrea Palladio

5) _____ was the architect from post-modern era.
a) Robert Venturi b) Vitruvius
c) Christopher Alexander d) Gottfried Semper

6) _____, treatise on architecture by John Ruskin.
a) The seven lamps of architecture
b) The Four Elements of Architecture
c) De Architectura
d) Mayamata

7) _____ was the pioneer of Metabolism movement.
a) Erich Mendelsohn b) Robert venturi
c) Kenzo Tange d) Andrea Palladio

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

a) 3 rules of Vitruvius with his 6 principles.
b) Deconstructivism.
c) French Academic tradition.
d) What was the architectural views and design philosophy of Hassan Fathy.

Q.3 Write answer in Brief. (Any Four) **48**

a) Explain in brief about Yatin Pandya and his design principles with one example. Support your answer with sketches.
b) Explain in brief about characteristics of expressionist architecture and explain Erich Mendelsohn work (Einstein Tower). Support your answer with sketches.
c) Explain the theory/ideas on architecture by Gottfried Semper.
d) Explain Palladianism with its elements.
e) Write about Kenneth Frampton and critical regionalism Kenneth Frampton's design philosophy based on the idea that buildings should be:

Seat No.	

Set **P**

B. Architecture (Semester - IV) (New) (CBCS) Examination: March/April - 2025
Building Services – II (21AR4-07)

Day & Date: Thursday, 12-June-2025 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 from the options given below in the bracket **07**

1) In a refrigeration cycle, _____ component converts liquid freon to low temperature and low-pressure.
a) Compressor b) expansive valve
c) condenser d) Evaporator

2) 4 wires are used in _____ connection.
a) single phase b) three phase
c) two phase d) four phase

3) _____ provide superior glare control and high visual comfort.
a) Reflector b) Trim
c) Junction box d) Louver

4) _____ lift is used to vertically transport people in offices.
a) Dumb waiter b) Scissors
c) Passenger d) Stretcher

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

6) LED stands for _____
a) light emitting diode b) low emitting diode
c) light eliminating diode d) low emission diaphragm

7) _____ is an electric appliance that is designed to remove excess moisture from the air without cooling it.
a) Dehumidifier b) Air filter
c) Dust collector d) Silencers

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

a) Working of wind power plant
b) Circuit breaker
c) Characteristics of good illumination
d) Exhaust system of mechanical ventilation with sketch

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

a) Explain earthing for safety with wiring diagram showing fault in the appliance. Explain plate earth electrode.

b) Explain any 4 components of Mechanical ventilation.

c) Draw sketch of luminaire and explain all its components

d) Explain principles of comfort air conditioning. Draw schematic diagram of AC refrigeration cycle and explain working of air conditioner.

e) **i)** Explain any 4 types of lifts

ii) Sketch any 4 arrangements of escalators.

Seat No.	

Set **P**

B. Architecture (Semester - IV) (New) (CBCS) Examination: March/April - 2025
Climatology and Environment - II (21AR4-08)

Day & Date: Saturday, 14-06-2025 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) Make Suitable Assumptions wherever necessary and mention in your answer book.
2) Figures to the right indicate full marks.
3) Questions 1 and 2 are compulsory.
4) Solve **any four** from question 3 to 7

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

1) A white light reflected from red wall acquires _____ tint.
a) White b) Red
c) Blue d) None of above

2) An object is, technically, said to be "_____" when it does not exhibit selective absorption.
a) Colourless b) Black
c) White d) None of above

3) _____ simulates changing position of sun & shade during day & throughout year using a model.
a) Sunpath diagrame b) Bioclimatic chart
c) Sun dial d) None of above

4) _____ of people can contribute substantially to amount of heat generated in building.
a) Clothing b) Talking
c) Metabolic energy d) None of above

5) Most passive cooling systems cannot remove _____ from air.
a) Heat b) Water vapour
c) Smell d) None of above

6) An inevitable by-product of electric lighting is _____.
a) Steam b) Light
c) Heat d) None of above

7) Resistance of opaque walls increases dramatically as _____ is added to wall.
a) Puncture b) Insulation
c) Door d) None of above

Q.2 Write Short Note On (Any Three) **15**

a) Photo voltaic roofs and walls.
b) Ventilation and infiltration heat gain and loss.
c) Mutual Sanding.
d) Overhead Shades.

Q.3 Solve the following questions. **04**

a) Explain “MUNSELL” colour system with sketch.
b) From the Given Sunpath diagram, for 32N, Find the Azimuth and Altitude angles of the sun on. **08**
May 11 a.m.
September 5 p.m.

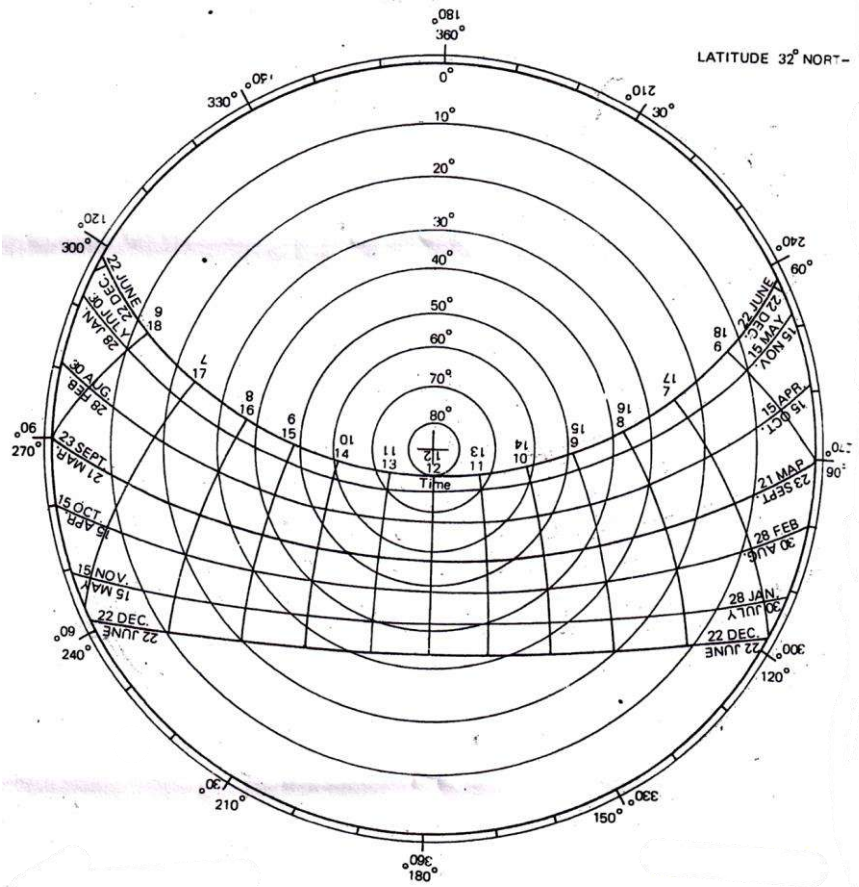
Q.4 Explain hot and humid Climate and give any three bioclimatic design strategies to be used in hot and humid climate. **12**

Q.5 Solve the following questions.

a) Explain Heat Flow Through The Envelope. **05**
b) Explain with sketches STACK VENTILATION. **07**

Q.6 Explain with sketches how to ensure solar access to the adjacent property and which strategy to be used. **12**

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



Seat No.	

Set P

B. Architecture (Semester - IV) (New) (CBCS) Examination: March/April - 2025
Building Construction and Material- IV (21AR4-02)

Day & Date: Monday, 16-June-2025 Max. Marks: 100
Time: 10:00 AM To 02:00 PM

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

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

1) P.C.C. stands for _____
a) Rapid concrete construction
b) Reinforced cement concrete
c) Reinforced concrete column
d) Plain cement concrete

2) In reinforced cement concrete structures, the steel reinforcement consists of _____
a) Mild steel bar b) medium tensile steel bars
c) deformed bar d) All of these

3) _____ is a type of foundation in which, thick concrete slab is provided resting on a large area of soil.
a) Isolated footing b) pile foundation
c) raft foundation d) Combined footing

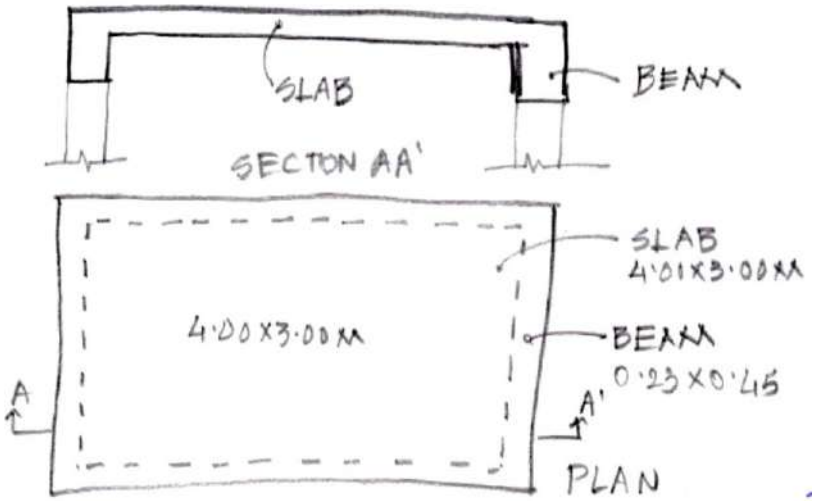
4) Which of the following material is not a filler material used in slabs?
a) burnt clay bricks b) earthen pots
c) Coconut shells d) Rubber pieces

5) In circular RCC column, a minimum of _____ longitudinal bars are required.
a) 4 b) 8
c) 6 d) 2

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

a) Draw reinforcement details to a suitable scale in singly reinforced beam section of size 0.23m wide and 0.45 m deep supporting RCC slab of size 4.00 m x 3.00m and 0.15 m thick. Assume necessary diameter of steel bars and spacing. Draw reinforcement details in Plan and sectional elevation?

b) Draw reinforcement details in the column and footing of -1. Isolated footing 2. combined footing? Assume suitable dimensions for base width & length, height of the footing and size of column?



c) A garage is to be provided with collapsible gate. Draw plan, elevation and section of collapsible gate to a suitable scale, Size of the opening is 4.50 m x 3.00 m.

Q.3 Write short notes with sketches on- **25**

a) Waffle Slab
b) Stabilized Earth Block
c) Form work for RCC work
d) Doubly Reinforced beam
e) Rolling Shutter

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

a) After curing concrete for 28 days, how much strength will it attain?

a) 10-20% b) 20-40%
c) 50-80% d) 90-95%

b) The binding material used in the mortar for plastering is _____

a) Cement b) Lime
c) Mud d) All of the above

c) A typical water cement ratio varies between _____ for different grades of cement concrete.

a) 0.10-0.40 b) 0.40-0.60
c) 0.70-0.80 d) 0.90-0.95

d) The process of placing and compaction of concrete is essential for _____

a) Improving chemical admixture efficiency
c) Reducing the water-cement ratio
b) Enhancing concrete strength
d) Allowing entrapped air to escape and ensuring proper bonding

e) The maximum Final setting time for cement is _____

a) 5 hr's
b) 30 minute's
c) 2 Hour
d) 10 hr's

Q.5 Answer in detail: (Any Two) **20**

a) **i)** Describe the properties of Ceramics?
ii) Enlist various ceramic products used in building Industry?
b) **i)** Define cement concrete and mention its properties?
ii) Enlist various types of cement concrete?
c) What Is Plaster and Plastering? What is the purpose of plastering? Enlist the type of plasters used for plastering?

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

a) Construction joint and expansion joint in RCC work.
b) Curing of concrete
c) Lime plaster

SLR-BB-20

Seat No.	

Set P

B. Architecture (Semester - IV) (CBCS) Examination: March/April 2025
Architectural Graphics - IV (7022402)

Day & Date: Wednesday, 18-June-2025 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 indicate 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**

FIG- A

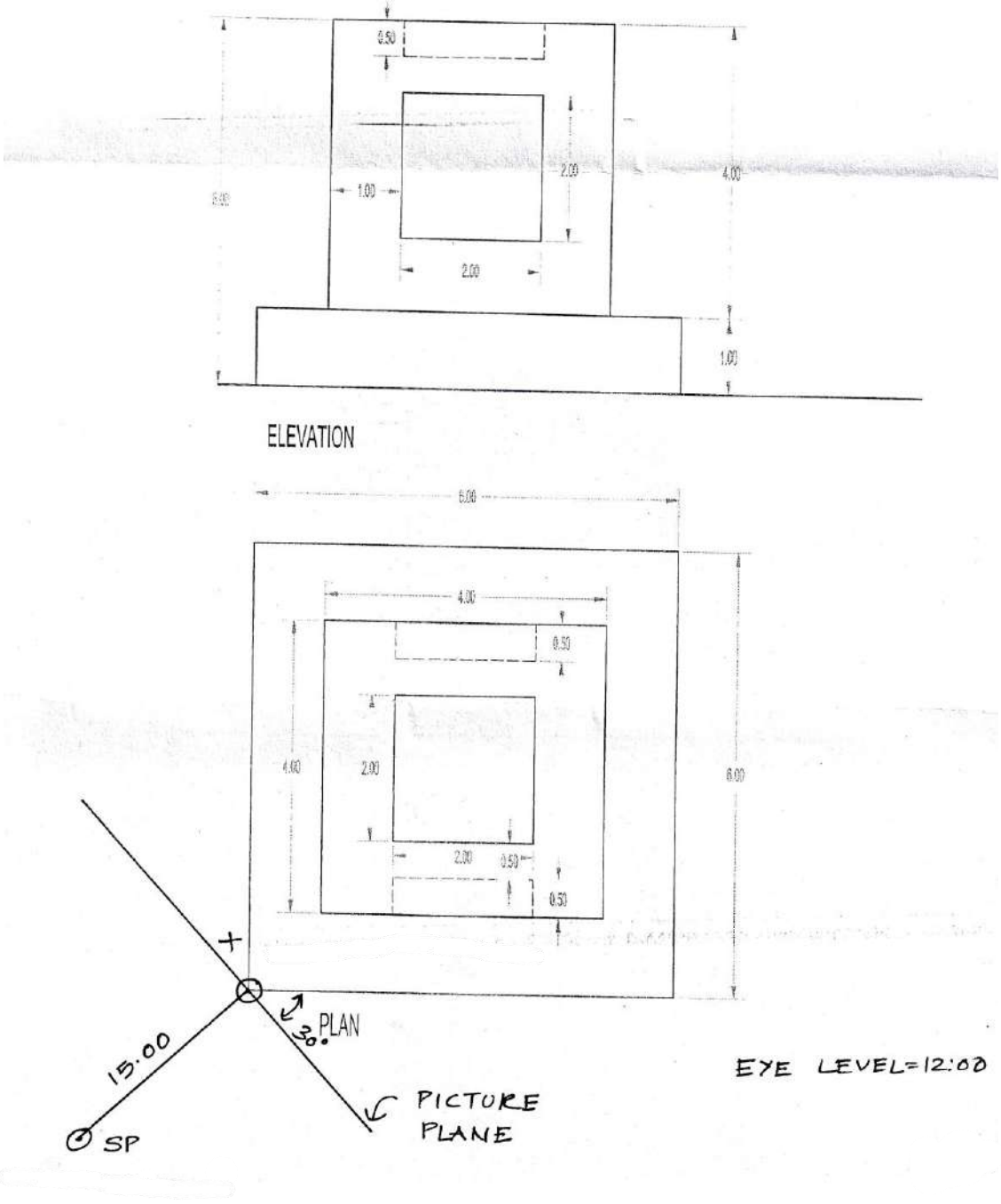
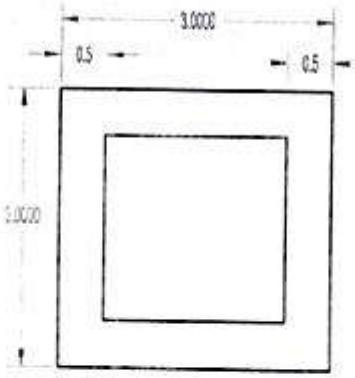
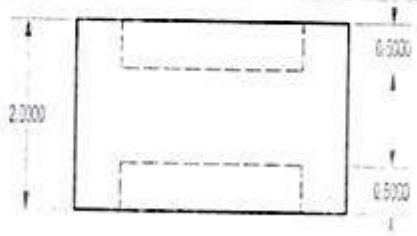

0.50
2.00
1.00
2.00
4.00
1.00
ELEVATION
6.00
4.00
0.50
4.00
2.00
6.00
2.00
0.50
0.50
30°
PLAN
15.00
SP
PICTURE
PLANE
EYE LEVEL=12:00

FIGURE B, 1

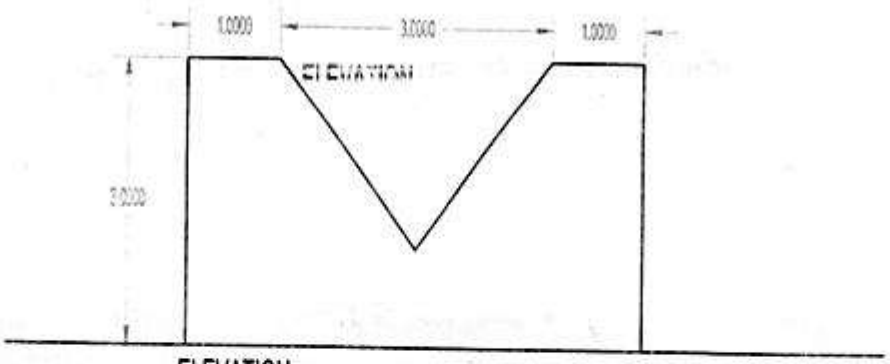


ELEVATION

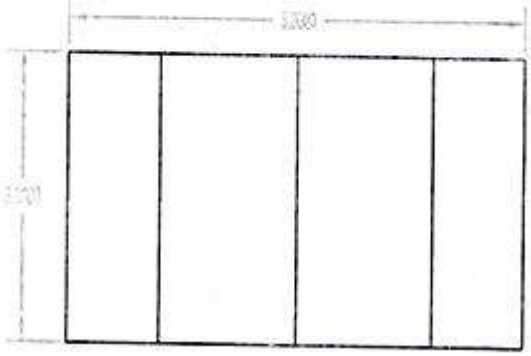


PLAN

FIGURE B ,2

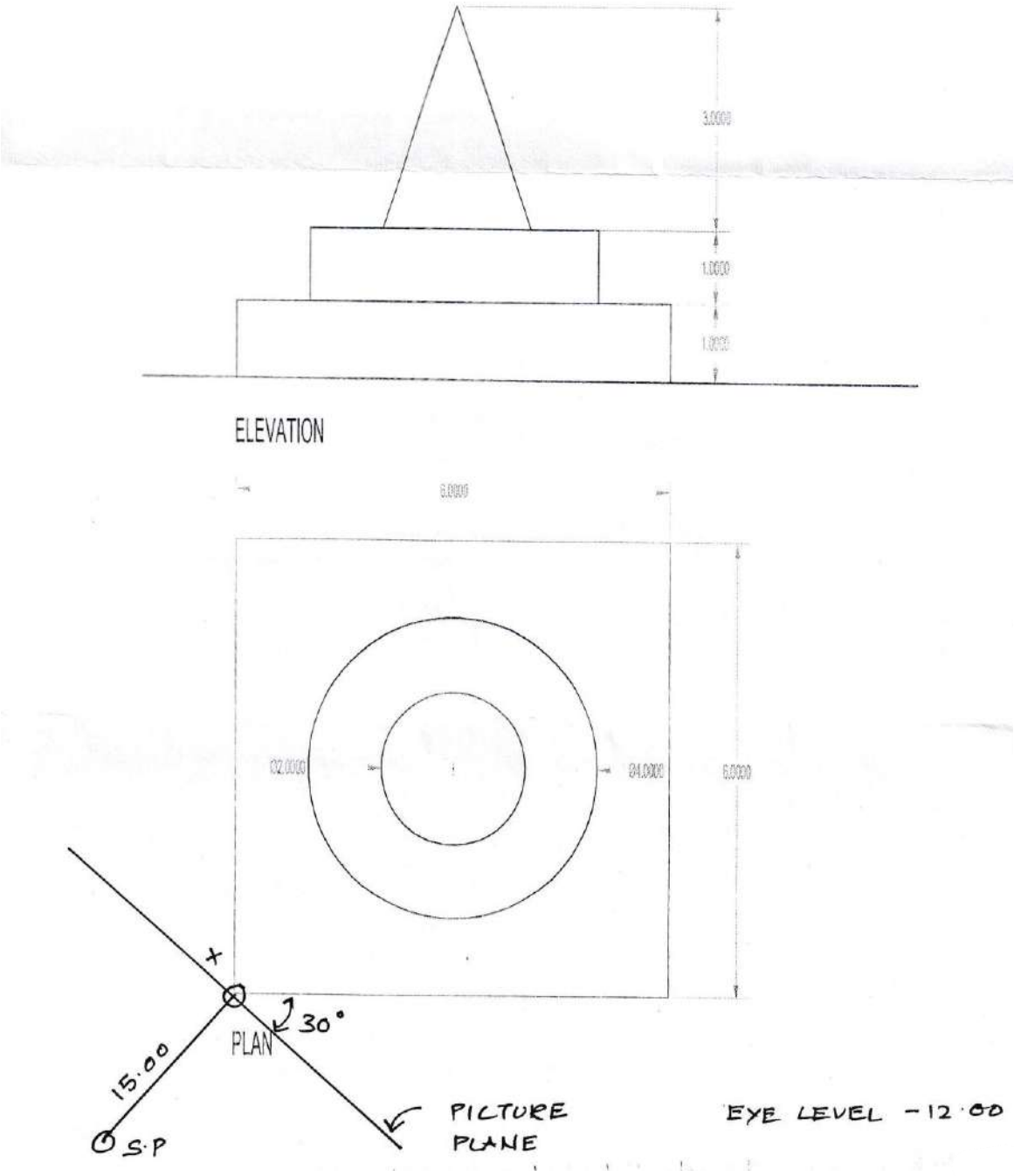


ELEVATION



PLAN

FIG- C


3.0000
1.0000
1.0000
ELEVATION
6.0000
02.0000
04.0000
6.0000
X
30°
PLAN
15.00
S.P
PICTURE
PLANE
EYE LEVEL - 12.00

SLR-BB-21

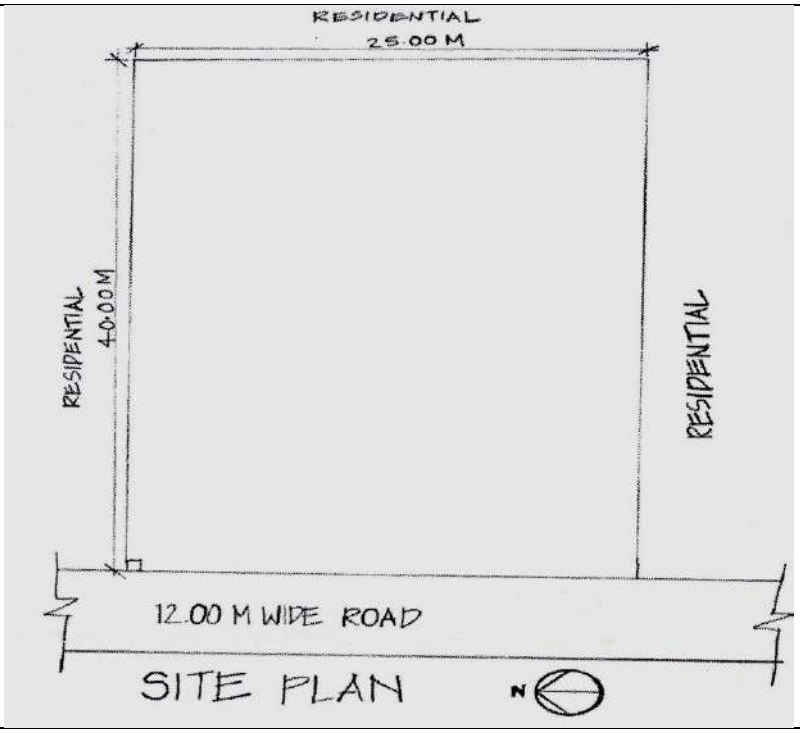
Seat No.	

Set P

B. Architecture (Semester - V) (New) (CBCS) Examination: March/April-2025
Architectural Design - V (21AR5-01)

Day & Date: Tuesday, 24-06-2025 Max. Marks: 100
Time: 10:00 AM To 04:00 PM

Instructions: 1) Make suitable assumptions wherever necessary and mention on drawing.
2) Figures to the right indicate full marks.

Q. No		PROJECT TITLE: **CAFE RESTURENT**	Marks
1	DESIGN BRIEF	Solapur has grown as smart city in last few years with number of Commercial, Industries, Art and Culture mushrooming in and around the city. Hospitality is gaining prime importance in industry's success. A well-known hospitality chain is planning to set cafe resturent at one of the prime residential areas in Solapur.	100
	PROPOSED SITE	About the site: Site is located at residential colony in Solapur. 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	INDOOR DINING FOR 100 PEOPLE	150	SQM
		KITCHEN	45	SQM
		STORE	25	SQM
		UTILITY AND WASHING AREA	15	SQM
		ENTRANCE AND CASH COUNTER	20	SQM
				MARKS
	DRAWING REQUIREMENT	1) Concept		15
		2) Site Plan		25
		3) All Floor Plans (including Terrace if applicable) Technically Complete		25
		4) One Elevations		10
		5) Two Sections		15
		6) Sketches, Details if any to explain scheme		05
		7) Neatness, Drafting etc.		05
		8) PARKING AND TOILETS AS PER REQUIREMENT		
	Note: Site Plan - 1:100 Scale			
	All Floor Plans, Elevation and Section 1:50 Scale			

SLR-BB-22

Seat No.	

Set P

B. Architecture (Semester - V) (New) (CBCS) Examination: March/April - 2025
Theory of Structure - V (21AR5-03)

Day & Date: Monday, 02-June-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 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.
5) IS456:2000isallowed.

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

1) The term "ultimate limit state" in IS 456:2000 refers to: ____.
a) The serviceability of the structure
b) The failure of the structure
c) The maximum load-carrying capacity
d) The aesthetic appeal of the structure

2) The primary aim of a serviceability check in slab design is to ensure: ____.
a) Load-carrying capacity
b) Minimal deflection and cracking
c) Aesthetic appearance
d) Construction speed

3) The term "doubly reinforced beam" refers to: ____.
a) A beam with tension reinforcement only
b) A beam with reinforcement in both tension and compression zones
c) A beam with no reinforcement
d) A beam with increased width

4) According to IS 456:2000, what is the minimum diameter of main bars in beams?
a) 12 mm b) 16 mm
c) 20 mm d) 25 mm

5) The effective length of a column is: ____.
a) Always equal to its actual length
b) Based on its end conditions
c) Half of its actual length
d) Zero

6) The minimum clear cover for the main reinforcement in a column should be: ____.

a) 15 mm b) 25 mm
c) 40 mm d) 50 mm

7) Which reinforcement is typically provided in the bottom of an isolated footing?

a) Stirrups b) Longitudinal bars
c) Ties d) None of the above

Q.2 Solve the following: (Any Three) **15**

1) Write a note on types of slabs.
2) Write a note on partial safety factors for limit state design.
3) Write a note on assumptions made in analysis and design of flexural member.
4) Define types of columns with based on load acting on column.

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

1) Design Cantilever slab for balcony having width of 1.5 m. 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.
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 M2.0 grade of grade of concrete and Fe415 steel.
3) A simply supported beam of length 6m is carrying UDL of 25 KN/m inclusive of self-weight. Analyze and design the beam. Use M30 grade of concrete and Fe415 steel.
4) A 4 m high column is effectively held in position at both ends and restrained against rotation at one end. Its diameter is restricted to 400mm. Calculate the reinforcement if it is required to carry a factored axial load of 1500kN. Use M25 and Fe 415 steel grade.
5) Design footing to carry 1500KN load with 500mm x500mm column. Take safe bearing capacity of soil as 200KN/m^2. Use M30 grade of concrete and Fe415 steel.

SLR-BB-23

Seat No.	

Set P

B. Architecture (Semester - V) (New) (CBCS) Examination:
March/April - 2025
History of Architecture - IV (21AR5-04)

Day & Date: Wednesday, 04-June-2025 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 options. **07**

1) Kanchanjanga Apartment designed by Ar _____
   a) Renzo Piano b) Robert Ventury
   c) Charles Correa d) Philip Johnson

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

3) _____ is the example of Postmodernism
   a) Guggenheim Museum b) HSBC Headquarter
   c) National Congress of Brazil d) Venna Venture House

4) National Congress complex, brazil designed by ar _____
   a) Robert Ventury b) Chralse correa
   c) Oscar Niemeyer d) Alvar Alto

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) Colourful, undulating tile work used for exterior finishes by the _____ Architect
   a) Alvar Alto b) Zaha Hadid
   c) Mies Van der rohe d) Antoni Gaudi

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

a) Falling Waters
b) International Style
c) Cost effective construction techniques by ar. Laurie Baker
d) HSBC Building

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

a) Explain philosophy of Ar. Le Corbusier with example Villa Savoy, France.
b) Explain philosophy of Ar. Charles Correa with example Jawahar Kala Kendra
c) Explain Deconstructivism and discuss Architectural philosophy of architect Frank Gehry with example Guggenheim Museum
d) Explain Cost Effectiveness in Architecture in India with example.
e) Explain philosophy of Ar. Antoni Gaudi and discuss architecture of Casa Mila

Seat No.	

Set **P**

B. Architecture (Semester - V) (New) (CBCS) Examination: March/April - 2025
Building Services - III (21AR5-07)

Day & Date: Friday, 06-June-2025 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. **07**

1) Large vibrating surfaces such as walls produce _____ waves.
a) cylindrical b) spherical
c) plane d) none of above

2) Sound, simply, is an audible signal, within _____ hertz (hz) range.
a) 500 To 10,000 b) 20 To 20,000
c) 0 To 30,000 d) None of these

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

4) Which safety device to stop descending car and counter weight beyond normal limit in lift car?
a) limit governor b) safety gear
c) buffer d) none of the above

5) Generally sound systems will be required in spaces larger than _____ m3. In terms of population this translates in to 550 persons in
a) 500 b) 2000
c) 50 d) 1400

6) Echoes occur when reflected sound at sufficient intensity reaches the listener more than _____ ms after he has heard the direct sound.
a) 100 b) 50
c) 7 d) None of the above

7) Which material is used to make Hand rail is escalator?
a) mica b) copper
c) rubber d) none of the above

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

a) Classification of fire
b) Ray diagram in auditorium
c) Specular reflection
d) Sound Fields in an Enclosed Space

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

a) Give design considerations for open air theatre.

OR

a) Explain in details elevators and components of elevators.
b) Explain categories of active fire protection system.
c) Explain Acoustical zoning in industrial building.
d) Explain in details Loudspeakers and Loudspeakers Consideration in design.
e) Calculate total absorption required and design a seminar room for capacity of 100 people consider volume 4 m3 /person and Rt=1.0; use following absorption coefficient; and derive sizing of acoustical material

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

Seat No.	

Set **P**

B. Architecture (Semester- VI) (New) (CBCS) Examination: March/April-2025
Theory of Structure - VI (21AR6-03)

Day & Date: Friday, 30-05-2025 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.
5) IS 456:2000 and IS 3370 allowed.

Q.1 Choose the correct alternatives from the options. **07**

1) The most common type of retaining wall used in civil engineering is:
a) Gravity wall b) Cantilever wall
c) Counterfort wall d) Buttress wall

2) To check the stability of a retaining wall, the most important criterion is:
a) Bending stress
b) Factor of safety against sliding
c) Shear force
d) Structural integrity of the material

3) The maximum permissible deflection of a water tank is:
a) 10 mm b) 20 mm
c) $1/250^{th}$ of the span d) $1/100^{th}$ of the height

4) Friction piles are designed to resist the load through:
a) Point contact at the tip
b) Skin friction along the length of the pile
c) Both end-bearing and skin friction
d) Pressure from the surrounding soil

5) Pile settlement depends on:
a) Skin friction, end-bearing capacity, and pile length
b) Only the length of the pile
c) Only the type of soil
d) Material of the pile

6) A trapezoidal combined footing is used to:
a) Equalize the load between columns
b) Distribute the load more efficiently when the columns are at different distances
c) Support multiple columns at equal distance
d) Reduce the concrete volume used

7) The thickness of a combined footing is determined by:
- a) The load from the columns, the soil bearing capacity, and the geometry of the footing
- b) The type of slab material
- c) The height of the building
- d) The type of reinforcement used

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

1) Difference between rectangular combined footing and trapezoidal combined footing.

2) Write a note on the counterfort retaining wall.

3) State design steps of circular water tanks by IS code method.

4) Describe the different types of pile foundations based on their function and materials used.

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

1) Differentiate between cantilever and counterfort retaining wall with proper sketch.

2) Determine the plan dimensions of a combined footing for two axially loaded columns with following data if
- a) width is not restricted
- b) width is restricted to 2.5m

Columns	C1	C2
Type	Interior	Interior
Size	450mm x 450mm	450mm x 450mm
P	1500kN	1500kN
Spacing	3 m c/c from C1 to C2	
SBC	150kN/m^2	

3) Design a retaining wall to retain the earth 4.5m high. The top surface is horizontal behind the wall. The soil behind the wall is well drained medium dense sand with following properties:

Unit weight = 18 kN /m^3

Angle of internal friction = 30°

The material under the wall is the same as above with S.B.C. of 180 kN /m^2. The coefficient of friction between base and soil is 0.55. Design the wall using M20 grade concrete and Fe415 grade steel.

4) Design a circular water tank with flexible base and open at top for a capacity of 700000 liters resting onground. The materials are M30 grade concrete and HYSD reinforcement of grade Fe415.

SLR-BB-26

Seat No.	

Set P

B. Architecture (Semester - VI) (New) (CBCS) Examination: March/April - 2025
Urban planning (21AR6-05)

Day & Date: Tuesday, 03-June-2025 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

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

Q.1 Mutiple Choice Question **07**

1) _____ It consists of two houses with common walls such there is considerable amount of saving in side margins and also in plot area
a) semi-detached b) Apartments
c) Detached d) group housing

2) _____ is an independent housing unit with separate facilities for living, cooking and sanitary requirements
a) Tenement b) semidetached house
c) Chawl d) row house

3) _____ laid emphasis on the survey before plan.
a) Edwyen Lutyens b) Sir Patrick Geddes,
c) Le-Corbusier d) C.A Doxiadis

4) Chandigarh city is divided into _____ sectors.
a) 7 sectors b) 49 sectors
c) 47 sectors d) 27 sectors

5) In case of height zoning, the ratio of height to the width of road be _____ in case of $45°$ air plane rule.
a) 1:1 b) 01:02
c) 01:13 d) 01:04

6) Broad Acre is a linear city designed by _____.
a) Lewis Mumford b) Frank Loyd Wright
c) C. A Doxiadis d) Soria Y Mata

7) _____ defines the uses to which various parts of the town will be put.
a) Use zoning b) Height zoning
c) density zoning d) zoning power

Q.2 Write a short note. (Any 3) **15**

a) Satellite Town
b) Patric Geddes
c) Scales of urban planning
d) Multiple nuclei Model

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

a) Write a note of principles of neighbourhood planning and Describe neighbourhood theory with an example.
b) Write in brief on models of urban growth and explain concentric zone theory with the help of neat sketch.
c) What is meant by the term planning and discuss natural growth of town with reference to origin and direction of growth
d) **1)** Write a note on importance of zoning and explain zoning regulations.
2) Explain concept of Height zoning and its advantages.
e) What is importance and objective of planning of urban roads How are urban roads classified and discuss various road pattern with the help of neat sketches

Seat No.	

Set | P

B. Architecture (Semester - VI) (New) (CBCS) Examination: March/April – 2025
Building Services – IV (21AR6-07)

Day & Date: Thursday, 05-06-2025 Max. Marks: 70
Time: 10:00 AM To 01:00 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 Fill in the blanks. **07**

1) Natural methods of sewage disposal is _____.
a) Dilution and land disposal b) Refuse chute
c) Sedimentation d) Sludge digestion

2) The liquid waste from kitchen, bathroom, and wash basin is known as _____.
a) Sullage b) Putrescible solid waste
c) Non-Putrescible solid waste d) Compost

3) _____ is the process of disinfecting well water with bleaching powder in a regular interval of time period.
a) Low rate trickling filter b) Incineration
c) Bio-gas d) Chlorination

4) Leachate is a colored liquid, that comes out of _____.
a) Bio-gas b) Sullage
c) Compost d) Putrescible solid waste

5) The strength of sewage means _____.
a) Non-Putrescible solid waste b) Sludge
c) Putrescible solid waste d) Biochemical oxygen demand

6) _____ are also known as percolating filters.
a) Low rate trickling filter b) Sedimentation
c) Grit chamber d) Self-purification of stream

7) The process of settling suspended particles is known as _____.
a) Incineration b) Sedimentation
c) Sludge drying d) Composting

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

1) Self-purification of streams
2) Grit chamber
3) Pit privy
4) Objectives of sewage treatment

Q.3 Explain in details. (Any Four)

a) What is refuse chute? Where it is used, explain with the help of neat sketch. **12**

b) Draw and explain the layout of typical sewage treatment plant. **12**

c) Explain construction and working of septic tank with a neat sketch. **12**

d) 1) State the basic principles of waste water treatment? **08**
2) State the objectives of waste water treatment. **04**

e) What are types of pool in terms of materials? Explain all the types. **12**

Seat No.	

Set **P**

B. Architecture (Semester - VI) (New) (CBCS) Examination: March/April - 2025
Estimating Specifications & Costing - I (21AR6-06)

Day & Date: Monday, 09-June-2025 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 Choose the correct alternative from the following options. **08**

1) Unit of Reinforcement is ____
a) Kg or Metric Ton b) Meter
c) Cubic Meter d) Numbers

2) Unit of Railing is _____
a) Square Meter b) Running Meter
c) Cubic Meter d) Numbers

3) While preparing Abstract sheet the contingencies charges added _____ % of total amount.
a) 3-5 b) 7-10
c) 1-2 d) 3-8

4) Quantity of sand required for 10Cum of brickwork in CM (1:6) is _____.
a) 1.7 Cum b) 2.7 Cum
c) 3.7 Cum d) 4.7 Cum

Q.2 Solve any two of the following. **12**

a) State factors affecting process of rate of analysis.
b) Enlist types of estimate.
c) Write specification for 1ST class Brickwork in c.m. (1:6)

Q.3 Calculate quantity of any five - following item of work and enter the same in Standard format of measurement sheet with brief description of item. (Refer fig.1). **35**

a) Excavation in soft murum in foundation
b) PCC bed in foundation (1:4:8)
c) UCR masonry in foundation and plinth in CM (1:6)
d) B.B. masonry in superstructure in CM (1:5)
e) Mosaic tiled flooring in all rooms
f) Woodwork for door and window frames

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

a) Excavation in soft murum in foundation, Rs 500/- per cum
b) PCC bed in foundation (1:4:8), Rs. 5600/- per cum
c) UCR masonry in foundation and plinth in CM (1:6), Rs. 3700/- per cum
d) B.B. masonry in superstructure in CM (1:5) Rs. 5430/- per cum
e) Mosaic tiled flooring in all rooms, Rs. 1685/- per sq.m
f) Woodwork for door and window frames, Rs. 2420/- per sq.m

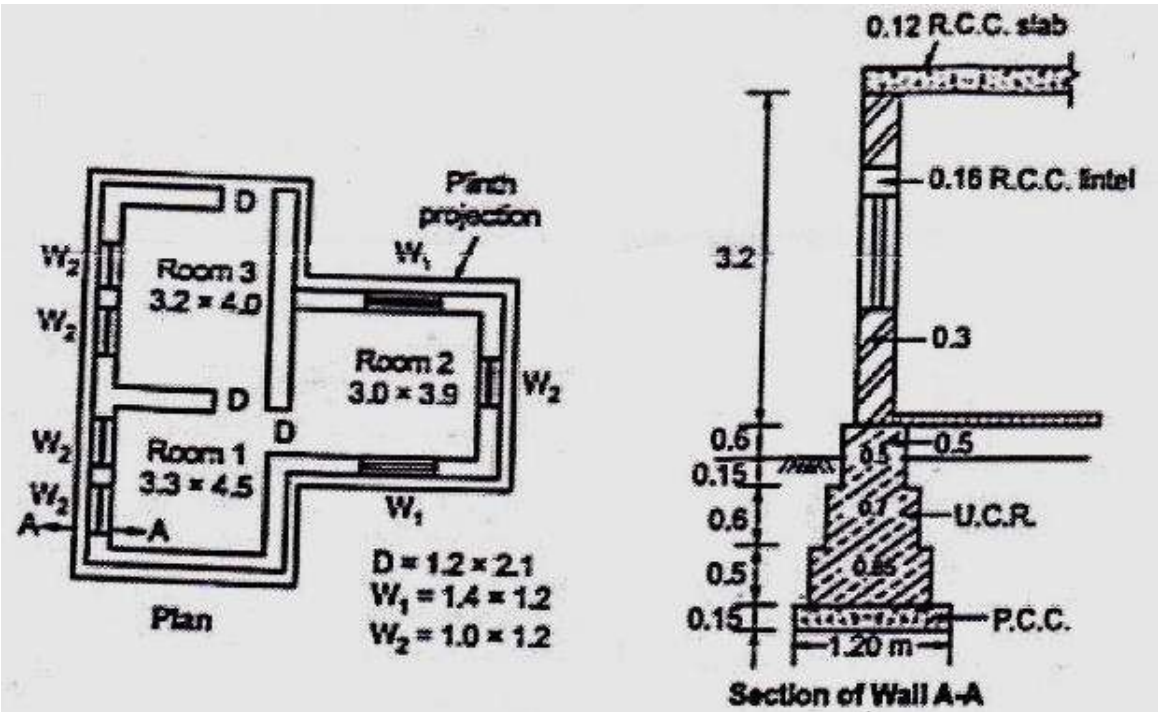


Figure 1.

Seat No.		Set	P

B. Architecture (Semester - VII) (New) (CBCS) Examination: March/April-2025
Architectural Design - VII (21AR7-01)

Day & Date: Wednesday, 25-06-2025 Max. Marks: 150
Thursday, 26-06-2025
Time: 10:00 AM To 04:00 PM

Instructions: 1) The candidates are required to submit the concept and rough scheme and final presentation at the end of day.
2) Assume suitable data wherever necessary.
3) You are allowed to exceed/decrease the given areas by 10% as per your design.

Title of the topic: Club House at Goa

Design Requirements

1) Entrance Area

a) Main Entrance and Reception Lobby

- Foyer and circulation: 15 sq.m
- Reception desk: 6 - 8 sq.m
- Waiting area (informal): 12 - 15 sq.m
- Display/notice area: 5 - 7 sq.m

b) Extended Waiting Area

- Seating for 6 - 8 people: 6 - 8 sq.m
- Coffee table/magazine rack: 1 - 2 sq.m

c) Attached Toilet (for visitors)

- Toilet and basin: 3 sq.m
- Hygiene/circulation: 2 - 3 sq.m

2) Admin Office Block area

- Manager's Cabin / Office: 20 - 25 sq.m
- Staff Workstation / Reception Desk: 10 - 15 sq.m
- Waiting Area: 10 - 12 sq.m
- Filing/Storage Room: 8 - 10 sq.m
- Toilet: 5 - 6 sq.m

3) Multipurpose Hall with Indoor Courts

- Badminton Courts (2 Nos.): 13.4 m x 6.1 m per court with circulation.
- Basketball Court (Combined with Badminton): 350 - 400 sq.m (Overlapping with badminton space).
- Spectator Seating (Retractable): 20 - 25 sq.m (For up to 50 people).
- Storage for Sports Equipment: 8 - 10 sq.m (Lockable storage space for equipment).
- Changing Rooms / Showers (Attached): 40 - 50 sq.m (Separate male and female facilities).

4) Cafe / Snack Bar

- Cafe Seating Area: 50 - 60 sq.m
- Service Counter / Display Area: 10 - 12 sq.m
- Cooking/prep area: 10 - 12 sq.m
- Storage and washing area: 5 - 6 sq.m
- Storage Room (for supplies): 8 - 10 sq.m
- Toilet (Attached): 5 - 6 sq.m

5) Library / Reading Room Block

- Main Reading Area: 60 - 70 sq.m
  Seating for 20-25 people.
- Bookshelves / Storage for Books: 15 - 20 sq.m
- Study Carrels / Quiet Study Area: 15 - 18 sq.m
- Librarian's Desk / Information Counter: 8 - 10 sq.m
- Magazine and Newspaper Section: 10 - 12 sq.m
- Computer Workstations: 10 - 12 sq.m (Space for 3-4 computers).
- Toilet (Attached): 5 - 6 sq.m

6) Indoor Games Room

- Games Area (Multiple Activities): 58 - 63 m^2
  Includes table tennis, pool, and board games.
- Seating Area: 15 - 20 m^2
- Storage for Games Equipment: 8 - 10 m^2
- Changing Room / Locker Area: 10 - 12 m^2
- Toilet (Attached): 5 - 6 m^2

7) Gym / Fitness Center

- Main Workout Area: 80 - 100 m^2 (Includes cardio and strength training).
- Group Class Area: 30 - 40 m^2
- Changing Rooms: 15 - 20 m^2
- Shower Area: 10 - 15 m^2
- Reception/Entry Area: 10 - 12 m^2
- Toilet Facilities (Attached): 5 - 6 m^2

8) Swimming Pool Block (To be shown in Site Plan only)

- Swimming Pool: 250 m^2
- Deck Area / Surrounding Space: 50 - 70 m^2 (Space for lounging around the pool.)
- Changing Rooms / Shower Facilities: 20 - 30 m^2
- Pool Equipment Storage: 5 - 8 m^2
- Lifeguard Station: 5 - 6 m^2
- Toilet Facilities (Attached): 5 - 6 m^2

9) Changing Rooms / Shower Facilities (used for Gym/swimming)

- Men's Changing Room: 10 - 15 m^2
- Women's Changing Room: 10 - 15 m^2
- Shower Area: 10 - 15 m^2
- Toilets: 8 - 10 m^2

10) Outdoor Courts (To be shown in Site Plan only)

- Tennis Court (2 in nos.): Standard size: 23.77 m x 10.97 m for singles, 23.77 m x 8.23 m for doubles.
- Recommended buffer zone: 1.5 m around the court.
- Basketball Court (1 in no.): Standard size: 28 m x 15 m. Recommended buffer zone: 2 m around the court.
- Volleyball Court (1 in no.): Standard size: 18 m x 9 m. Recommended buffer zone: 3 m around the court.

11) Restaurant

- Dining Area: 50 - 70 m^2
- Kitchen: 30 - 50 m^2
- Service Counter: 10 - 15 m^2
- Staff toilet: 5 - 10 m^2
- Storage Room: 5 - 10 m^2

12) Male and Female Staff Facilities

- Male Staff Changing Room: 10 - 15 m^2
- Female Staff Changing Room: 10 - 15 m^2
- Male Staff Toilets: 10 - 15 m^2
- Female Staff Toilets: 10 - 15 m^2
- Dining hall: 20 - 25 m^2

13) Building Services

- HVAC Room: 15 - 25 m^2
- Electrical Room: 10 - 15 m^2
- Fire Safety Equipment Storage: 5 - 10 m^2
- Waste Management Area: 5 - 10 m^2
- Telecommunication Room: 5 - 10 m^2

14) Parking

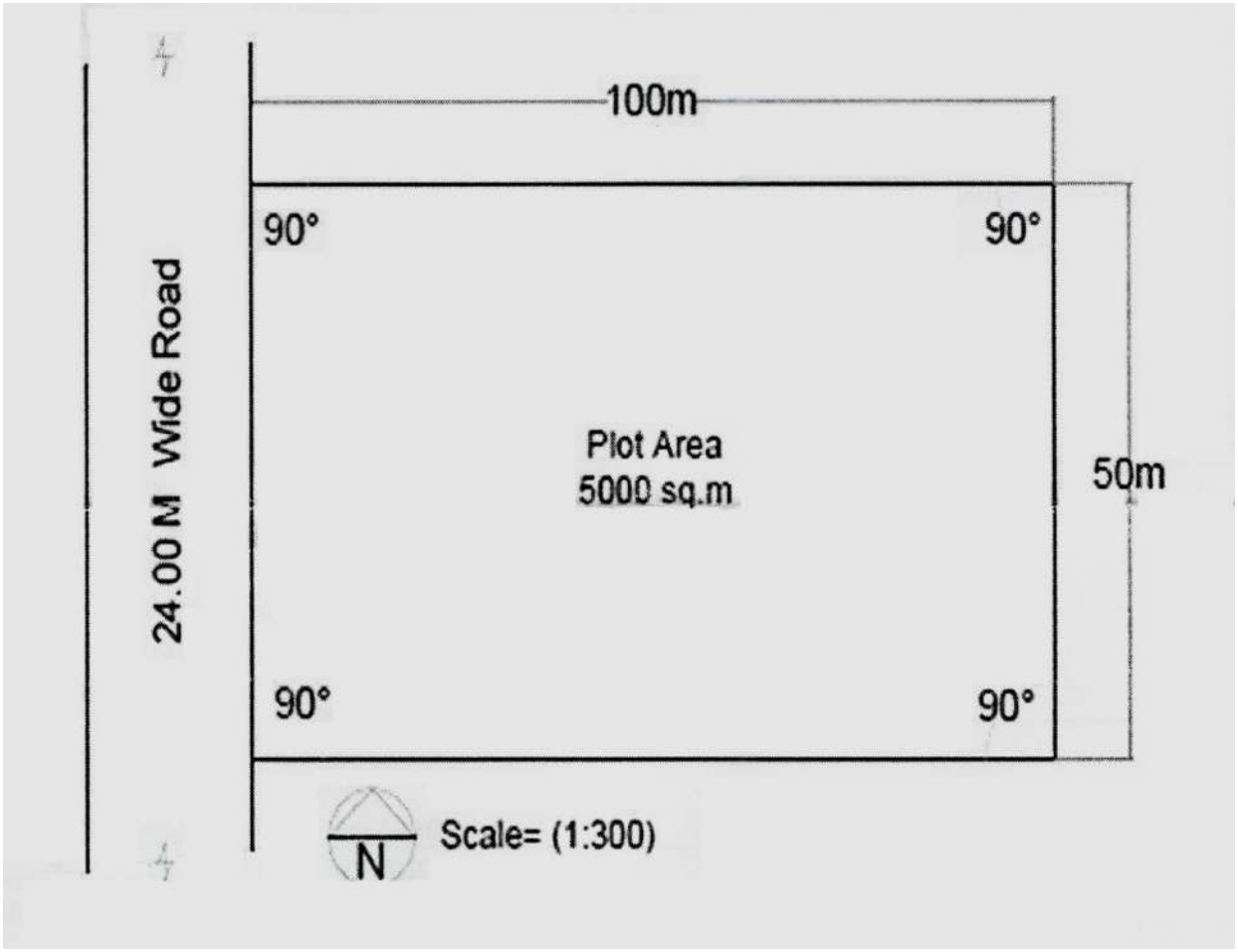
- Four wheelers: 50
- Two wheelers: 50

Drawing requirement	Marks
Concept	30
Site Plan	30
All Floor Plans (Including Terrace if Applicable) Technically Complete	30
One Elevation	20
One Section	20
Sketches, Details if any to explain scheme	10
Neatness, Drafting etc.	10

Scale of Drawings

Drawing	Scale
Site Plan	1:300
Floor Plans, Elevation and Section	1:100

Site Plan


100m
90°
90°
24.00 M Wide Road
Plot Area
5000 sq.m
50m
90°
90°
N
Scale= (1:300)

Seat No.	

Set **P**

B. Architecture (Semester - VII) (New) (CBCS) Examination: March/April - 2025
Theory of Structure - VII (21AR7-03)

Day & Date: Thursday, 29-May-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 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.
5) IS 456:2000 is allowed.
6) IS 10262:2019 is allowed

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

1) What is the characteristic compressive strength usually tested at?
a) 7 days b) 14 days
c) 28 days d) 56 days

2) High-performance concrete is characterized by _____
a) Higher strength and durability b) More water content
c) Higher slump d) Reduced cement content

3) Which type of prestressing involves stressing the tendons before the concrete is poured?
a) Post-tensioning b) Pre-tensioning
c) External prestressing d) Bonded prestressing

4) The minimum thickness of a flat slab, as per IS 456:2000, should be ____
a) 100 mm b) 125 mm
c) 150 mm d) 200 mm

5) The maximum spacing of reinforcement bars in a flat slab is specified by IS 456 as _____
a) 300 mm b) 450 mm
c) 600 mm d) 750 mm

6) The IS code that deals with earthquake-resistant design of structures is _____
a) IS 875 b) IS 1893
c) IS 456 d) IS 16700

7) A long-span beam typically requires ____
a) Higher depth-to-span ratios b) Lower depth-to-span ratios
c) High axial compression d) High torsional resistance

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

a) State the properties of cement.

b) Write a note on Special Loads and Load Combinations.

c) What structural systems are recommended for tall buildings in IS 16700?

d) Difference between pretension and post tensioning system of prestressing.

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

a) Perform the concrete mix design

STIPULATIONS FOR PROPORTIONING

1)	Grade designation	:	M 65
2)	Type of cement conforming to IS 269	:	OPC 53 grade
3)	Silica fume 15388	:	Conforming to IS
4)	Maximum nominal size of aggregate	:	20 mm
5)	Exposure conditions as per Table 3 and Table 5 of IS 456	:	Serve (for reinforced concrete)
6)	Workability	:	120 mm (slump)
7)	Method of concrete placing	:	Pumping
8)	Degree of supervision	:	Good
9)	Type of aggregate	:	Crushed angular aggregate
10)	Maximum cement (OPC) content	:	450 kg/m^3
11)	Chemical admixture type	:	Superplasticizer (polycaboxylate ether based)

TEST DATA FOR MATERIALS

11)	Cement used conforming to IS 269	:	OPC 53 grade
12)	Specific gravity of cement	:	3.15
13)	Specific gravity of		
	i) Coarse aggregate (at SSD condition)	**:**	2.74
	ii) Fine aggregate (at SSD condition)	:	2.65
	iii) Fly ash	:	2.20
	iv) Silica fume	:	2.20
	v) Chemical admixture	:	1.08
14)	Water absorption		
	i) Coarse aggregate	:	0.5 percent
	ii) Fine aggregate	:	1.0 percent
15)	Moisture content		
	i) Coarse aggregate	:	Nil
	ii) Fine aggregate	:	Nil
16)	Sieve Analysis		
	i) Coarse aggregate	:	Zone II
	ii) Fine aggregate	:	Zone II

b) Design the interior panel of a flat slab of size 5.5 x 5.5m supported by columns of a circular column of diameter 600mm. Provide suitable drop. Take live load as 6 kN/m^2. Use M25 and Fe415 steel.

c) A beam of cross- section 400mm x 800mm is simply supported over a span of 20 m. It is suitable to transfer prestress force of 2000 kN at 28 days. The profile of the cable is parabolic with maximum eccentricity if 200mm at mid-span. The beam is prestressed with 8 cables. Each cable consists of 10 wires of 5mm diameter. Determine the loss of prestress in pretension and post tension. Take Es = 210 kN/mm^2, Ec = 35 kN/mm^2. Relaxation of steel is 5%, Creep coefficient =1.6, shrinkage strain in concrete = $2x10^{-4}$, slip in anchorage = 3 mm, frictional coefficient 15 x 10^{-4}

d) Evaluate the design methodology and applications of portal frames in structural engineering.

SLR-BB-32

Seat No.	

Set P

B. Architecture (Semester - VII) (New) (CBCS) Examination: March/April - 2025
Professional Practice - I (21AR7-07)

Day & Date: Tuesday, 10-June-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) Write question numbers properly.
2) Assume suitable data wherever necessary.

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

1) Architects act was enacted in the year _____.
a) 1872 b) 1972
c) 1782 d) 1892

2) IIA stands for _____.
a) Indian Institute of Architecture
b) International institute of Architects
c) International Institute of Architecture
d) Indian Institute of Architects

3) Tender is an _____ made by one party to another for execution of specified work at a specified cost.
a) Offer b) Contract
c) Quotation d) Execution

4) EMD stands for _____.
a) Earnest money deposit b) Earned money deposit
c) Estimate money deposit d) Electronic money

5) Architects may exhibit his/her name outside the office/building provided the lettering does not exceed _____ in height.
a) 12 b) 14
c) 13 d) 10

6) _____ deposit of contractors whose tenders are not accepted will be refunded.
a) Earnest money b) Security
c) Retention d) Mobilization

7) Which of the following is not competent to contract?
a) A minor
b) A person who has been disqualified from contracting by some law
c) A person of unsound mind
d) All of these

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

a) Ways of Securing a Client in an Architectural firm.
b) Invitation of tender.
c) Security deposit.
d) Virtual and final certificate.

Q.3 Answer in Brief. (Any Four) **48**

a) Explain the various type of Architectural firms that an architect can work for, with their advantages and disadvantages.
b) Mention the various architectural and comprehensive services provided by an Architect in architecture and allied fields.
c) Define Tender, Mention the documents required for tendering process and write a tender notice for construction of a School at Solapur.
d) Mention the different types of tender and explain any two in detail with its advantages and disadvantages.
e) Define Contract, Explain Cost Plus Fixed Fee Contract and Cost- Plus Percentage Contract.

Seat No.	

Set P

B. Architecture (Semester - VII) (New) (CBCS) Examination: March/April - 2025
Estimating Specification & Costing - II (21AR7-06)

Day & Date: Wednesday, 18-June-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) Make suitable assumption wherever necessary and mention in your Answer book.
2) All questions are compulsory.
3) Figures to the right indicate full marks.
4) Use of scientific calculator is allowed.

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

1) In the absence of detailed design, volume of steel in RCC beam is taken as _____ of RCC Volume.

a) 1% to 2% b) 0.5% to 1%
c) 0.7% to 1% d) 2% to 5%

2) Detailed specification forms a part of contract document, and they are divided into _____.

a) General provision b) Technical provision
c) Standard provision d) All the above

3) Weight of the 25 mm diameter bar is _____.

a) 1.58 b) 3.85
c) 2.46 d) 0.61

4) Quantity of PCC for footing 1.5 m x 1.5m, thickness 150 mm and projections of 150mm beyond footing is _____.

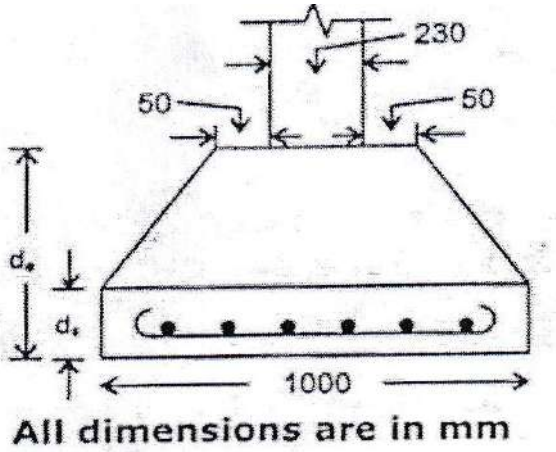
a) 0.40 cu. m. b) 0.25 cu. m.
c) 0.9 cu. m. d) 1.5 cu. m.

Q.2 Solve the following. (Any One) **12**

a) Workout the quantity of RCC slab size 6500mm x 3000 mm and thickness of 175mm is provided with 12 mm main bars bent-up alternately and placed at 150 mm c/c. The distribution steel of 8 mm diameter is provided at 200mm c/c. Find out the quantity of steel and prepare bar bending schedule. Take cover as 20 mm.

b) Work out the quantity of cement and steel in RCC footing for the following data:

Column size	Footing Size	De/ds	Footing reinforcement details
230x350	1000x1200	450/150	10 mm @150 c/c both way

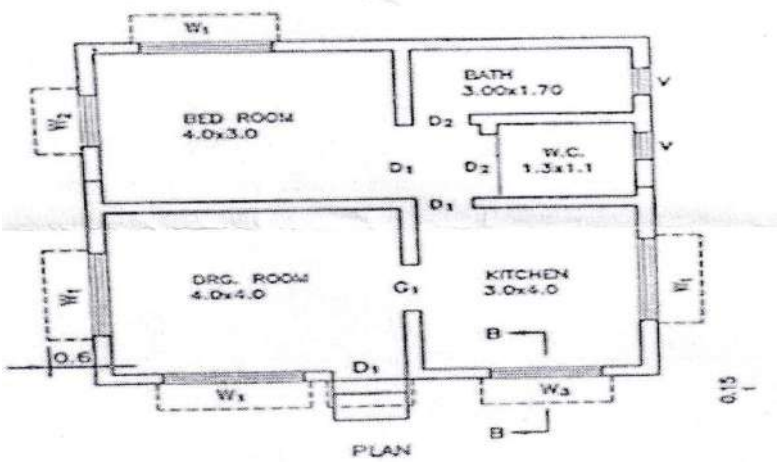


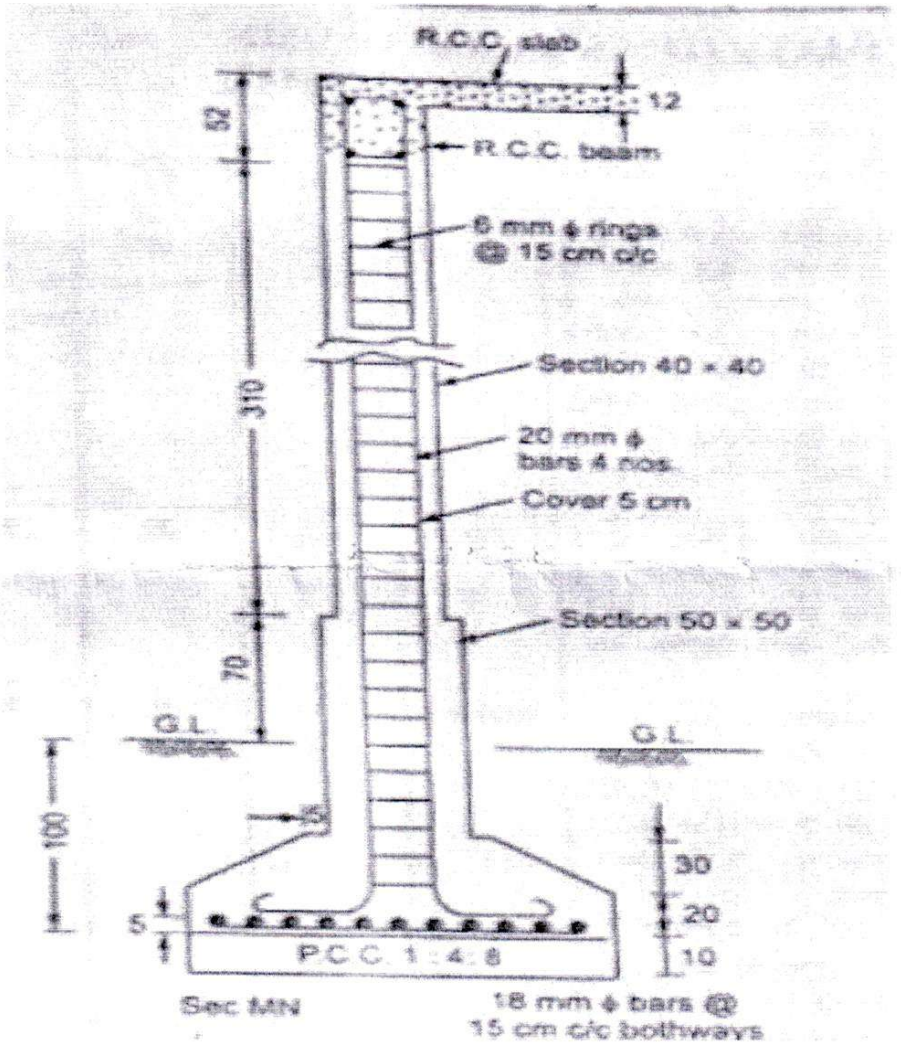
Q.3 Solve the following. (Any Three) **15**

a) Write a note on direct purchase and hiring.
b) Enlist the essential requirements of a valid contract.
c) Write specification of first-class Brickwork.
d) What is the role of valuer?

Q.4 Calculate the quantity of Any Six following item of work and enter the same in format of measurement sheet with brief description of item. (Assume column and beam positions). **35**

a) Excavation in foundation.
b) Brickwork in superstructure
c) Concrete in RCC beam
d) Concrete in RCC Column
e) External plaster
f) Internal plaster





DOOR–WINDOW SCHEDULE

D_1 = 1.10×2.10
D_2 = 0.90×2.10
G_1 = 1.20×2.10
W_1 = 1.80×1.40
W_2 = 1.20×1.40
W_3 = 1.50×1.40
V = 0.60×0.60

Seat No.	

Set P

B. Architecture (Semester- VII) (Old) (CBCS) Examination: March/April-2025
Theory of Structure- VII (7024702)

Day & Date: Thursday 29-05-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 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 Choose and write the correct answer - (1 mark each.) **07**

1) According to IS 456-2000, what should be the nominal cover to reinforcement for footings?
a) 45 mm b) 50 mm
c) 30 mm d) 25 mm

2) Indian code of practice for liquid retaining structures is ____.
a) IS 456 b) IS 1893
c) IS 3370 d) IS 875

3) PSC stands for ____.
a) Post stressed concrete b) Post-strained concrete
c) Pre stressed concrete d) Pre strained concrete

4) A ribbed slab is provided for ____.
a) Plain ceiling b) Thermal insulation
c) Acoustic insulation d) All of the above

5) Which of the following construction procedure is adopted for building to be earthquake resistant structure?
a) Strong column- Weak beam b) Strong beam- Weak column
c) Soft storey d) Weak storey

6) The loads acting on a gantry girder are ____.
a) Longitudinal forces b) Lateral forces
c) Vertical forces d) All of the above

7) The types of pile foundation based on the action of load transfer are ____.
a) Load bearing piles b) Friction piles
c) Both a and b d) None of these

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

a) Write a note on the design procedure of piles.

b) What do you mean by Waffle slab and ribbed slab? Explain with neat sketch.

c) Write a note on types of raft foundation.

d) Explain types of prestressed concrete techniques.

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

a) i) Write a note on shell structure.

ii) Differentiate between rigid frames and portal frames.

b) Design a reinforced concrete circular water tank for a capacity of 4,00,000 liters with flexible base. The tank is resting on the firm level ground. The tank is open at top with free board of 180mm. Use M20 concrete and Fe 415 steel.

c) Find the stresses at quarter span and mid span of a beam subjected to 18KN/m udl. The prestressing force is 1200KN passing through the longitudinal axis of beam. The beam is having width 550mm and depth 750mm. The span of beam is 5m. Also draw stress distribution diagram.

d) Explain in detail gantries and cranes.

e) Write note on earthquake proof design and construction procedure.

Seat No.	

Set **P**

B. Architecture (Semester - VII) (Old) (CBCS) Examination: March/April - 2025
Professional Practice- I (7024701)

Day & Date: Tuesday, 10-June-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) Write question numbers properly.
2) Assume suitable data wherever necessary**.**

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

1) Architects act was enacted in the year _____.
a) 1872 b) 1972
c) 1782 d) 1892

2) Architects may exhibit his/her name outside the office/building provided the lettering does not exceed _____in height.
a) 12 b) 14
c) 13 d) 10

3) In demolition tender, it is in general practice to approve the _____ and not the lowest tender.
a) Highest b) Lowest
c) Free d) None of these

4) COA stands for _____.
a) College of Architecture b) Chamber of Architecture
c) Council of Architecture d) Consultancy of Architecture

5) The Indian contract act was enacted in the year _____.
a) 1872 b) 1972
c) 1782 d) 1892

6) The amount of earnest money varies from _____ percent of the estimated cost of the project.
a) 1-2% b) 2-5%
c) 2-3% d) 2-4%

7) Architectural _____ gives protection to an architect for his design work.
a) Law b) Rules
c) Regulations d) Copyright

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

1) Securing Client in an Architect's Office.
2) Retention amount.
3) Architectural Services rendered by an architect.
4) Quotation, tender and contract.

Q.3 Answer in Brief. (Any Four) **48**

a) Explain in brief "Architects Act 1972".
b) Explain the Code of Conduct for architects as suggested by Council of Architecture. (COA)
c) What is Tender? Explain how the tenders are called or invited. Mention the documents required for tender.
d) Distinguish between Item rate contract and Lumpsum contract.
e) What are the Architects duties and liabilities as per Indian contract act?

Seat No.	

Set **P**

B. Architecture (Semester – VII) (Old) (CBCS) Examination: March/April - 2025
Estimating Specification & Costing- II (7024703)

Day & Date: Wednesday, 18-June-2025 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 scientific calculator is allowed.

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

1) The rate of payment is made for 100 cu m (per % cu m) in case of
a) Earthwork in excavation
b) Rock cutting
c) Excavation in trenches for the foundation
d) All the above

2) The plinth area of a building does not include
a) Area of the walls at the floor level
b) Internal shaft for sanitary installations up to 2 sq m. in area
c) Lift and wall including landing

3) The damp proof course (D.P.C.) is measured in_____
a) Cub. m b) Sq. m
c) Meters d) RMT

4) Usually contractor's profit is taken_____% for rate analysis of an item.
a) 10 b) 15
c) 8 d) 20

5) The most reliable estimate is_____?
a) Detailed estimate b) Preliminary estimate
c) Plinth area estimate d) Cube rate estimate

6) No agreement is between_____
a) Client & Engineer b) Engineer & Contractor
c) Client & Contractor d) Contractor & Sub Contractor

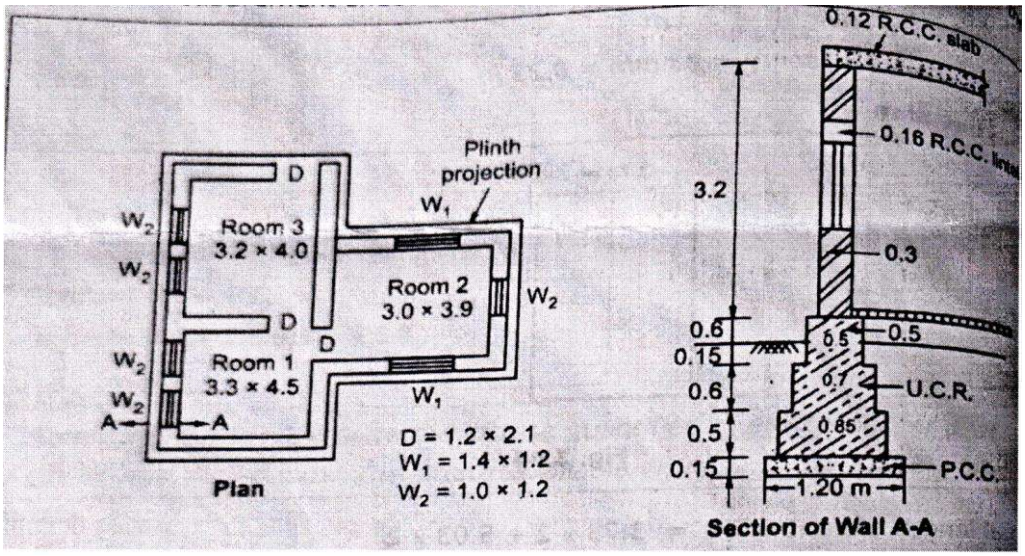
7) Revised estimate is done when:
a) increase in cost of material and labour
b) additional works to be done
c) both
d) none

Q.2 Write a short note (Any 3) **15**

a) Estimating and its type
b) Rate analysis
c) List out various types of contracts and explain any one in detail
d) Data required for preparing estimate

Q.3 Work out the estimation of any <u>six</u> items with brief description of each item and enter them in standard measurement sheet. **30**

a) Excavation in foundation
b) P.C.C (1:4:8) in foundation
c) UCR masonry in foundation and plinth in C.M. (1:6)
d) B.B. masonry in super-structure in C.M (1:6)
e) Internal plaster in C.M: 1:6
g) R.C.C. work in lintel and slab
h) Mosaics tile flooring
i) Woodwork in door and shutter



Q.4 Prepare rate analysis for Any six item from above plan. **18**
Assume suitable data required

Seat No.	

Set **P**

B. Architecture (Semester - VIII) (CBCS) Examination: March/April - 2025
Professional Practice - II (7024801)

Day & Date: Thursday, 29-05-2025 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) Write question numbers properly.
2) Assume suitable data wherever necessary.

Q.1 Choose and write the correct answer (1 mark each) **07**

1) The number of assessors appointed in an architectural competition is maximum _____.
a) One b) Three
c) Five d) Seven

2) Architectural _____ gives protection to an architect for his design work.
a) Design b) Profession
c) Copyright d) Buildings

3) FSI stands for _____.
a) Floor area ratio b) Floor space index
c) Both a & b d) Neither a nor b

4) In addition to market value, the owner gets an additional compensation of certain percentage on the value of such land for compulsory acquisition which is known as _____.
a) Solatium b) Bonus
c) Discount d) Profit

5) The Easement Act was enacted in the year _____.
a) 1882 b) 1883
c) 1884 d) 1885

6) _____ may refer to personal furniture's annexed to premises & forming part and parcel of it.
a) Frame b) Fixtures
c) Window d) None of these

7) The tenant in covenants is known as _____.
a) Lessor b) Lesse
c) Occupier d) Owner

Q.2 Write short notes on (Any 3) (5 marks each) **15**

a) Arbitral agreement
b) Types of Competitions
c) Dilapidations, Waste, Repairs
d) Principles of land acquisition

Q.3 Answer in brief (Any 4) (12 marks each) **48**

a) What is Arbitration? Explain the advantages and disadvantages of settling the disputes by this method.
b) Explain the role of Council of Architecture (COA) in Architectural Competitions.
c) Write the safety measures undertaken by the contractor for the labourers in the construction industry.
d) Mention the steps involved for the acquisition of land under the land acquisition act. Explain any 2 in detail.
e) Define easement, Dominant and servient heritage, characteristics of easement.

SLR-BB-38

Seat No.	

Set P

B. Architecture (Semester - VIII) (CBCS) Examination: March/April - 2025
Project management (7024802)

Day & Date: Monday, 02-June-2025 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 Multiple choice question: **07**

1) In a bar chart the vertical axis represents ____.
a) Jobs or Activities b) Activities or time
c) Time or Weeks d) Time or Unit

2) Earliest expected time is indicated by ____.
a) TE b) ET
c) TL d) Ts

3) A serious limitation of Interdependencies between various activities is generally observed in ____.
a) Bar Chart b) Milestone Chart
c) Network Analysis d) Job Layouts

4) Cost, Quality & ____ are the main components of project triangle.
a) Resources b) Scope
c) Time d) Energy

5) Total float is indicated by ____.
a) FF b) FID
c) FIN d) FT

6) PERT network is ____ oriented.
a) activity b) path
c) event d) none of the above

7) Which of the following represents the correct project cycle?
a) Planning-Initiating-Executing-Closing
b) Planning-Execution-Initiating-Closing
c) Initiating-Planning-Execution-Closing
d) Initiating-Executing-Planning-Closing

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

1) Event & Activity
2) Direct cost & Indirect cost
3) Explain Work Breakdown Structure & its types
4) Float & its types

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

1) What is project & explain in brief Project management & its process.

2) Discuss in Brief the two network methods i.e PERT & CPM

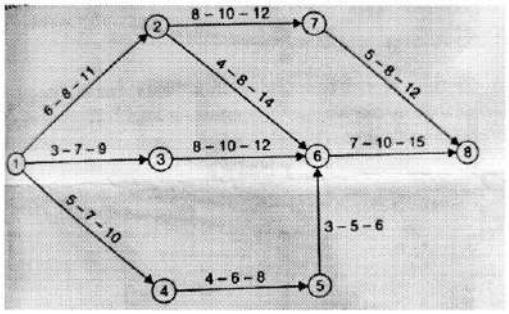
3) Explain Factories Act 1948.

4) Write a note on dummy activity.
A project plan consisting of ten events have predecessor relationship as under.

Event	Immediate predecessor	Event	Immediate predecessor
1	-	6	3,5
2	1	7	3,4
3	2	8	3,7
4	2	9	7
5	2	10	3,6,8,9

Draw the network diagram for the project.

5) The network for a certain project is given. Determine the expected time for each of the path. Which path is critical?



Seat No.	

Set **P**

B. Architecture (Semester- VI) (New) (CBCS) Examination: March/April-2025
Building by laws (7023611)

Day & Date: Sunday, 01-06-2025 Max. Marks: 50
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 Choose the correct alternatives from the options. **05**

1) _____ means the area covered by a building on all floors including cantilevered portion, mezzanine floors, if any, but excluding the areas specifically exempted from computation of Floor Space lndex (F.S.l.) under these Regulations.
a) Built up Area b) Carpet
c) Saleable d) none of the above

2) Height of the stilt is not leass than _____ m.
a) 3 b) 2.4
c) 2.1 d) none of the above

3) Recreational ground of _____% is mandatory for land subdivision of 0.2Hectare
a) 10 b) 15
c) 13 d) 5

4) For the building height above _____ m fire stair is mandatory.
a) 16 b) 21
c) 12 d) 24

5) _____ means a sloping or horizontal structured overhang usually provided over openings on external walls to provide protection from sun and rain and for purpose of architectural appearance.
a) Poarch b) Chajja
c) Loft d) none of the above

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

1) Balconies and terraces
2) Height of Building
3) Carpet area
4) Mezzanine floor

Q.3 a) Explain what is special building? **07**
b) Explain INDUSTRIAL ZONE and uses permissible in industries zone. **08**

Q.4 **a)** Explain site plan and its containts in brief. **15**

a) Explain with example importance of Volumetric Analysis.