Seat No.	

Set P

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

Day & Date: Monday, 22-12-2025 Max. Marks: 100
Time: 10:00 AM To 02:00 PM

Instructions: 1) Draw neat sketches wherever necessary.

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

1) _____ is the part of sub-structure that transfers load of super structure to the ground strata.
a) Lintel b) Foundation
c) Coping d) Flooring

2) The space between facing and backing is filled with _____ in stone masonry wall.
a) Through stone b) Riser stone
c) Capstone d) Hearting stones

3) In retaining wall, ____ occurs when the wall horizontally slide often due to noncohesive soil.
a) overstress b) bearing failure
c) sliding failure d) overturning

4) Single brick pier spread footing is also known as _____ footing.
a) pad b) pile
c) strip d) raft

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

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

a) Draw to the scale (1:10) Plan (odd and even course), Elevation and isometric view of one-brick thick Header bond.

b) Draw to the scale (1:10) following:
i) Plan and Section of Strip footing for 23cm thick brick wall over UCR footing.
ii) Section through Black cotton soil when the soil is expansive but has little swelling pressure.

c) Draw to the scale (1:20) Section through sub structure and super structure of a load bearing wall (G+1) showing all its components.

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

a) Foundation on sloping site.
b) Failure of retaining wall.
c) Various types of stones used in random rubble masonry.
d) Spread footing in load bearing wall.
e) Importance of Through/Bond stone.

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

1) _____ gradation sand is used in plastering and masonry work.
a) Zone III b) Zone I
c) Zone IV d) Zone II

2) _____ is an Igneous rock.
a) Chalk b) Granite
c) Sandstone d) Laterite

3) _____ is termed as the maximum slope that a pile of loose particles can maintain without falling apart.
a) Angle of suspense b) Angle of pressure
c) Delta angle d) Angle of repose

4) _____ brick is well burnt, regular texture, uniform in shape.
a) First class b) Second class
c) Third class d) Fourth class

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

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

a) Any 5 types of tests conducted on bricks before their use.
b) Any 4 methods of improving bearing capacity of the soil.
c) Any 10 properties of stones.

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

a) Sources of Sand.
b) Dropping weight method to determine bearing capacity of soil with sketch.
c) Uses of stones.

SLR-JC-2

Seat No.	

Set P

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

Day & Date: Wednesday, 24-12-2025 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 framed structure primarily consists of _____.
a) Solid walls only
b) Columns and beams
c) Single material components
d) Non-structural materials

2) Which of the following is a characteristic of a load-bearing structure?
a) Use of a truss system
b) Requires less material than framed structures
c) Walls carry the structural loads
d) More flexible than framed structures

3) The primary function of load combinations in structural design is to: ____.
a) Enhance aesthetic value
b) Ensure safety under various conditions
c) Minimize construction costs
d) Simplify calculations

4) In the SI system, what is the unit of area?
a) Meter (m) b) Square meter (m^2)
c) Cubic meter (m^3) d) Newton (N)

5) The principle of transmissibility states that: ____.
a) The effect of a force is independent of its point of application, provided the line of action remains unchanged
b) Forces can only be applied at the center of mass
c) Forces must always act in pairs
d) Forces cannot be resolved into components

6) The polygon law of forces states that: ____.
- a) The resultant can be found by arranging forces in a closed polygon
- b) Forces must act in opposite directions
- c) The sum of the angles in a triangle is always 180°
- d) Forces can only be combined linearly

7) In a circular section, where is the centroid located?
- a) At the center of the circle
- b) At the circumference
- c) At any point on the diameter
- d) Depends on the density of the material

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

a) Define
- a) Principle of Transmissibility.
- b) Principle of Superposition.
- c) resolution and composition offerees.

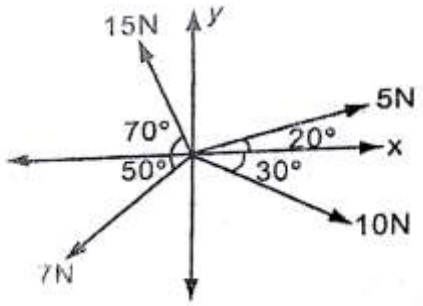
b) State and explain Dead load and Live load.

c) Write a note on different types of support.

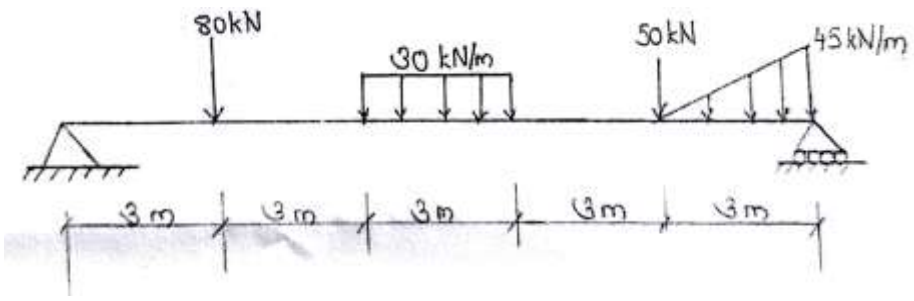
e) Write a note on system of forces.

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

a) Calculate resultant of given coplanar concurrent forces by analytically.

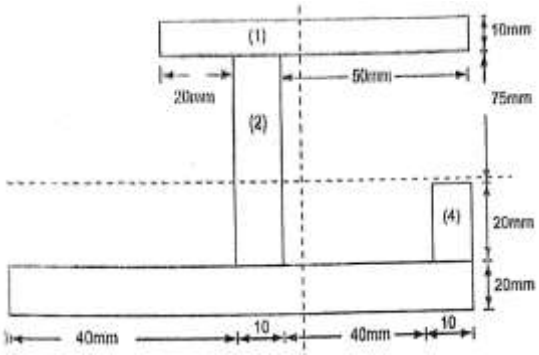


b)



c) A sphere weighting 300 N is supported by two planes. One vertical (plane A) and another (plane B) is inclined at 50°to the horizontal. Calculate reaction of the plane.

d) Determine the position of centroid



e) Differentiate between load bearing structure and framed structure.

SLR-JC-3

Seat No.	

Set | **P**

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

Day & Date: Friday, 26-12-2025 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) Which ancient site in India is renowned for its rock-cut cave temples featuring intricate sculptures and artwork in Maharashtra?
   a) Khadgiri Caves b) Badami Caves
   c) Elephanta Caves d) Udaygiri Caves

2) Fatehpur Sikri, an ancient city in India, was built during the reign of which Mughal emperor?
   a) Babur b) Akbar
   c) Jahangir d) Shahjahan

3) Which ancient civilization is associated with the city of Ur?
   a) Mesopotamian Civilization b) Indus Valley Civilization
   b) Egyptian Civilization d) Chinese Civilization

4) What does "Renaissance" mean?
   a) Revolution b) Rebirth
   c) Renewal d) Enlightenment

5) Roman Military Town - _____.
   a) Kahuun b) Timgad
   c) Baroque d) Athens

6) Credle of all civilization - _____.
   a) Egypt b) Greek
   c) Indus d) Mesopotemia

7) _____ is an ancient Sanskrit text on architecture and town planning.
   a) Ramayana b) Mahabhart
   c) Mansara d) Vedas

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

a) Constantinople city.
b) Athens City.
c) Rothenburg Germany.
d) Babylon City.

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

a) Discuss how humans evolved physically over the time?
b) A. Evaluate the elements of civilization that emerged during ancient times?
B. Discuss the principles of ancient town planning in India with respect to city of Patliputra?
c) Sketch and explain Pre historic settlements - Palaeolithic, Mesolithic and Neolithic age?
d) "How did medieval settlements shaped education and religion? Compare places like Taxila, Nalanda?
e) Discuss the impact of the Industrial Revolution on human settlements.

Seat No.	

Set **P**

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

Day & Date: Friday, 21-11-2025 Max. Marks: 100
Time: 02:00 PM To 06:00 PM

Instructions: 1) Write question number correctly.
2) Draw neat sketches wherever necessary.
3) Q.No.2 has to be compulsorily drafted on sheets provided by the university.
4) Assume suitable data wherever necessary.

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

1) _____ are the pieces of timber which span from the eaves to the ridge in a pitched roof as framework.
a) Pitch b) Rise
c) Span d) Rafters

2) _____ is the vertical member which is fixed between string and handrail to give support to the handrail.
a) Rise b) Tread
c) Baluster d) Waist slab

3) _____ is a moveable barrier secured in an opening in a building for the purpose of providing an access.
a) Window b) Door
c) Ventilator d) None of these

4) _____ are the wedge-shaped units forming the courses of an arch.
a) Voussoirs b) Bat
c) Bull-Nose d) Winder

5) _____ 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

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

a) Draw to appropriate scale a plan and section of a straight flight/doglegged staircase and label its parts. Assume a flight width of 100cm, tread-30cm riser-15cm

b) Draw plan, elevation, section of panelled door of size 1.2 mtr and 2.1 mtr height

c) Draw to appropriate scale, plans of any 5 different types of arches as per shape

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

a) Define the following components of an arch - Span, Rise, Crown, Spandril, Pier.

b) Differentiate between Flat roof and Pitched roof.

c) Define the following components of a door and window -Shutter, Transom, Mullion, Frame, style

d) Differentiate between an Arch and a lintel

e) Types of Turning stairs.

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

a) Final setting time of ordinary cement is _____ hours.

a) 2 b) 4
c) 8 d) 10

b) Fat lime is also called _____.

a) Water lime b) Pure lime
c) Impure lime d) Lean lime

c) Lime mortars are the mixture of _____.

a) Lime, cement, and water
b) Cement, sand, and water
c) Hydraulic lime, sand, water
d) Air-hardening lime, sand, and soil

d) _____ is a powdered form of over burnt broken brick or clay balls.

a) Cement b) Stone
c) Surkhi d) Lime

e) _____ are boards which are prepared from thin layers of wood or veneers.

a) Plywood b) Fibre board
c) White board d) Glass

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

a) Compare between fat lime and hydraulic lime.

b) Initial setting and final setting time.

c) Properties and uses of good Mortar.

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

a) Slaking of lime
b) Uses of cement
c) Market forms of timber.

Seat No.	

Set P

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

Day & Date: Tuesday, 25-11-2025 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) Which of the following is the correct formula for strain?
a) Change in length x original length
b) Change in length / original length
c) Original length / change in length
d) Change in area / original area

2) Lateral strain is defined as:
a) Longitudinal strain x area
b) Longitudinal strain / area
c) Change in diameter / original diameter
d) None of the above

3) Moment of Inertia of Rectangular section having width b and depth d about horizontal axis is _____.
a) $db^3/12$ b) $bd^3/12$
c) $db^3/6$ d) $bd^3/6$

4) As per IS 456:2000 Strength of concrete of M20 grade after 28 days is _____.
a) 13.5 N/mm2 b) 15 N/mm2
c) 20 N/mm2 d) 25 N/mm2

5) Which of the following materials is typically ductile?
a) Glass b) Steel
c) Wood d) Concrete

6) For a simply supported beam with a point load at the center, the shear force is maximum at: _____
a) The supports
b) The center
c) One-third distance from the support
d) Mid-span

7) Bending stress in a beam is caused by: ____
- a) Normal force
- b) Shear force
- c) Moment applied to the beam
- d) None of the above

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

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

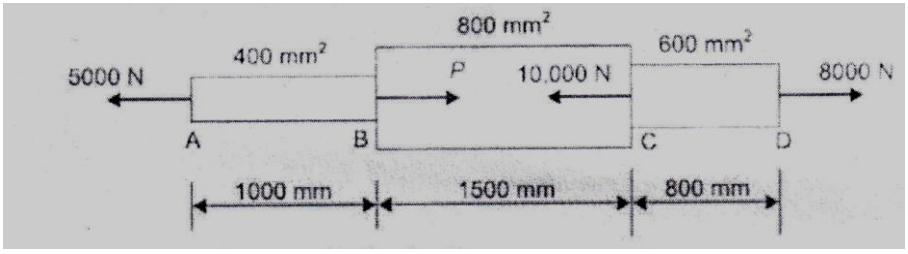
b) Explain material properties of Steel and concrete.

c) Enlist the formulas of Moment of Inertia about its centroidal axis for following cases:
1) Hollow Rectangular Section
2) Hollow Circular section

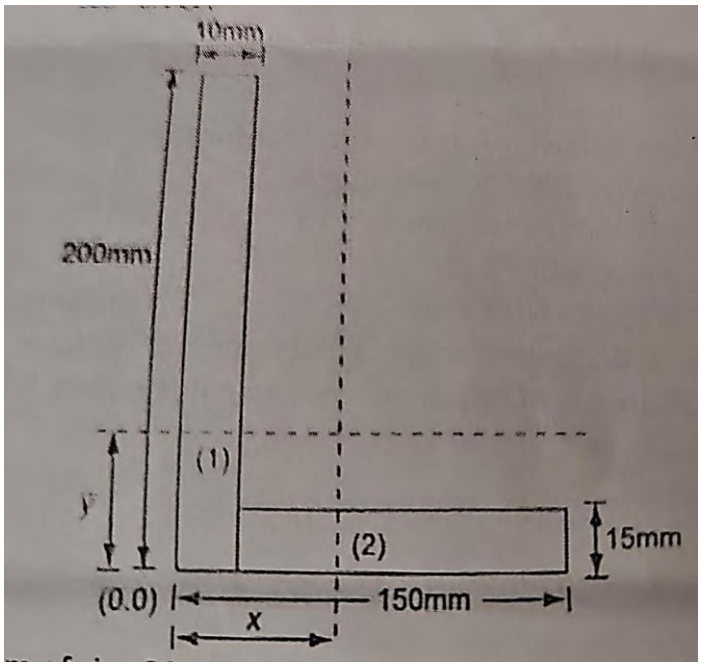
d) Write Assumption made in pure bending.

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

a) A bar is as shown in Figure subjected to axial tensile force of 8000N. Find the value of P. Calculate the total elongation if E =2.1x10^5 Mpa. Also calculate stress in AB, BC CD.

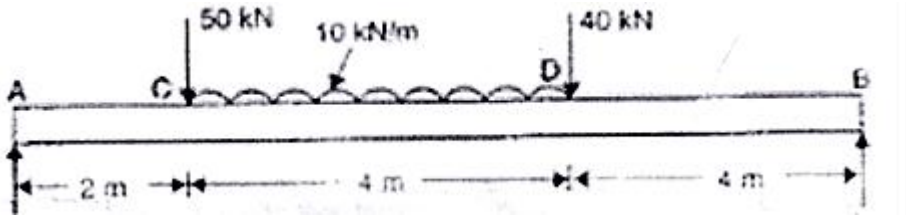


b) Find Moment of Inertia of following Figure.



c) A rectangular c/s beam of size 300 x 500 mm is subjected to 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 250mm wide and 500mm 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: October/November – 2025
History of Architecture – I (21AR2-04)

Day & Date: Thursday, 27-11-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

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

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

1) Name the Ancient civilization - the land between two river is _____.
a) Egypt b) Mesopotamia
c) Greek d) Rome

2) The wrapped dead body preserved inside the pyramids called as _____.
a) Priest b) Pharo
c) Ra d) Mummy

3) The core of a Mycenaean palace was the _____.
a) Pylon b) Lion gate
b) Megaron d) Cyclopes

4) Stone used to build pyramids was _____.
a) Marble b) Granite
c) Limestone d) Sandstone

5) Mohenjodaro city was laid out in _____ pattern.
a) Circular b) Diagonal
c) Grid d) Radial

6) Identify the following prehistoric monument?

a) Stone Henge b) Mehnir
c) Dolmen d) Cromlech

7**)** identify the following Structure?

a) Sanchi Stupa
b) Vihara
c) Stambha
d) Ratha

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

a) Palace of Tiryns
b) Temple of Juno Sospito.
c) Vihara No.1 at Ajantha.
d) Passage Grave.

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

a) i) Sketch and Explain Egyptian Tomb Architecture?
ii) Sketch and explain Architectural features of Pyramid of Cheops?

b) Draw neat, labelled sketch of Chaitya Hall at Karie? Explain the different parts of the Chaitya Hall.

c) Sketch and explain the prehistoric huts and houses?

d) Sketch and Explain The temple of Khons at Karnak?

e) i) Sketch and Describe vedic Village and Cow Gate?
ii) Sketch and describe Settlements at Catal Huyuk?

Seat No.	

Set P

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

Day & Date: Saturday, 29-11-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

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

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

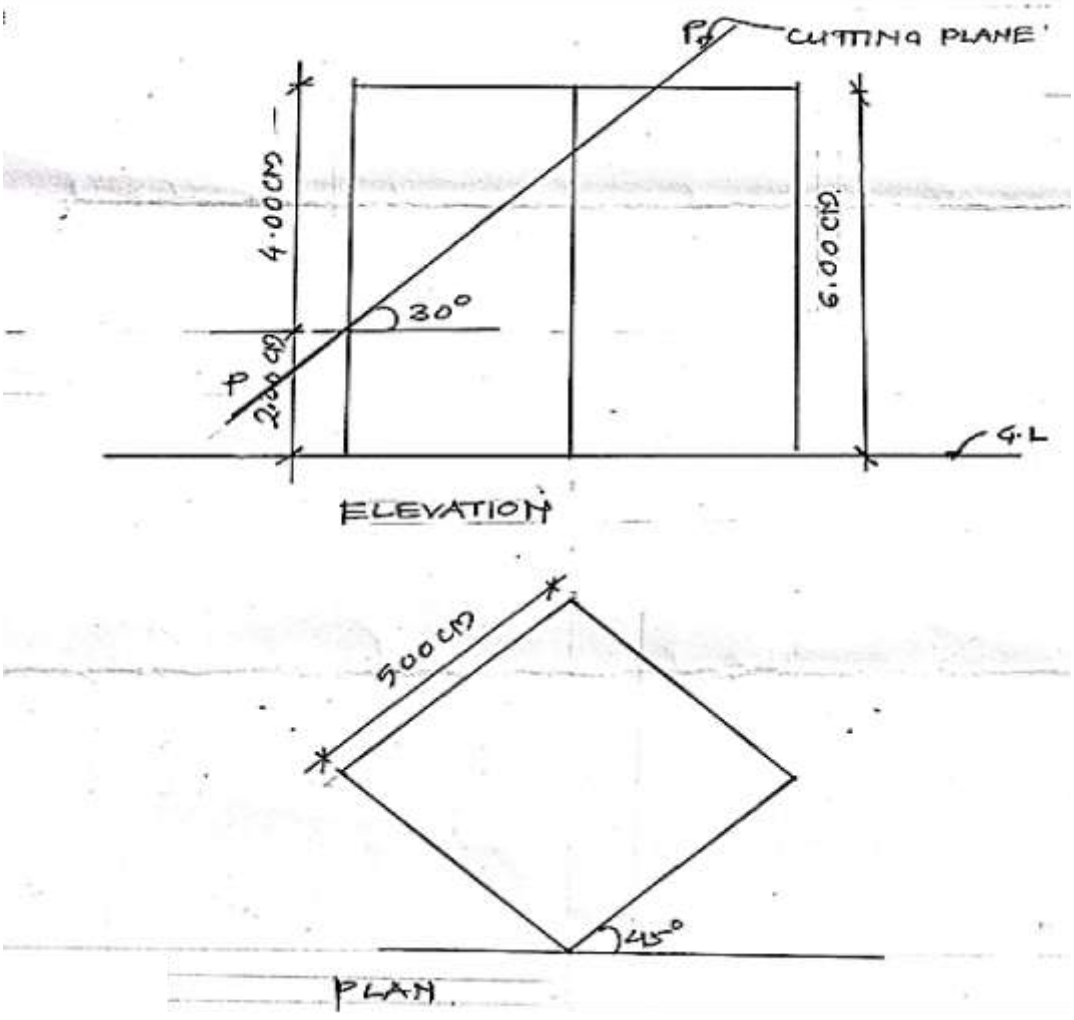


Fig. A

Q.2 Draw true cut portion or development of surface of cut object from Q. No. 1 of Fig. A. **10**

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

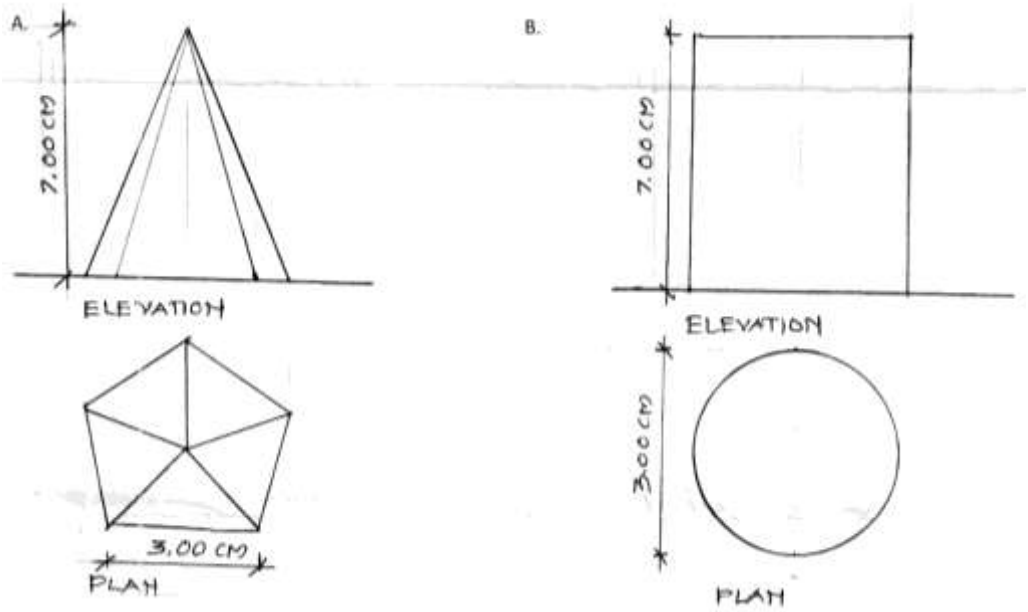


Fig. B

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

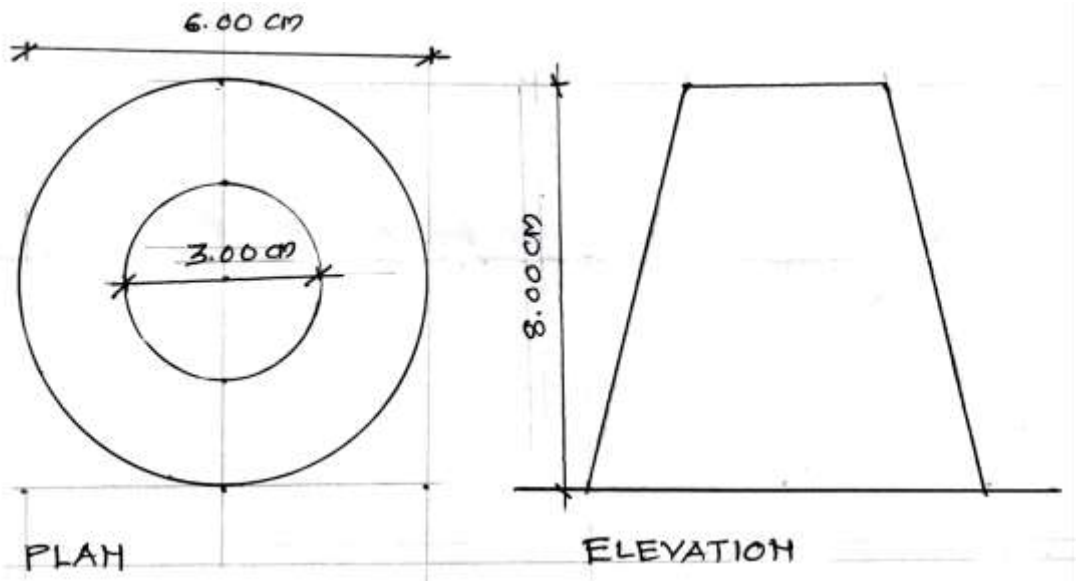


Fig. C

Q.5 Mention the no of. surfaces of the following objects as shown in Fig. D. **05**

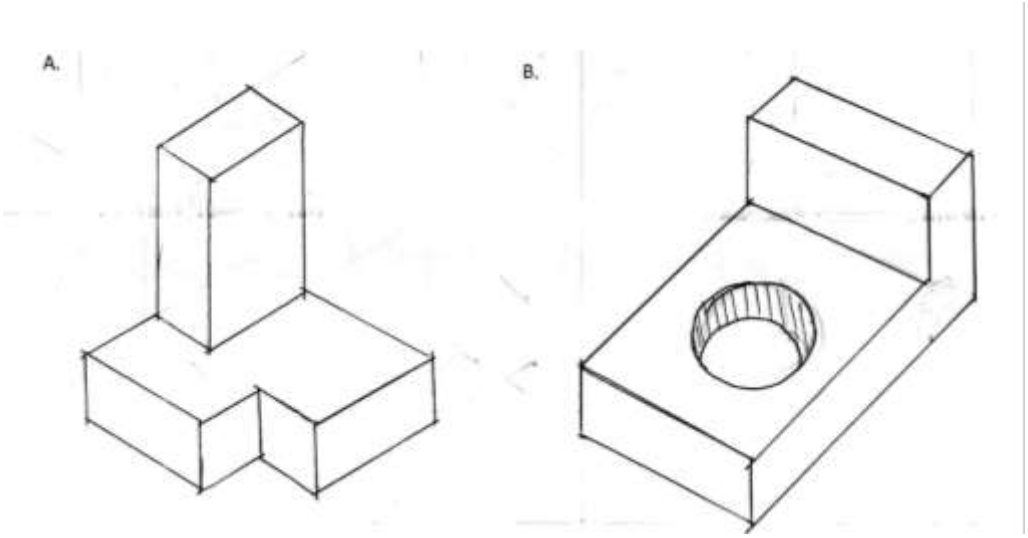


Fig. D

SLR-JC-8

Seat No.	

Set P

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

Day & Date: Tuesday, 18-11-2025 Max. Marks: 100
Time: 10:00 AM To 02:00 PM

Instructions: 1) Write question number correctly.
2) Assume suitable data wherever necessary.
3) Figures to the right indicate full marks.

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

1) In a king-post truss _____ prevent the purling from tilting.
a) Pole plates b) Purlins
c) Cleats d) Rafters

2) To prevent from rain, external walls can be plastered with _____.
a) cement mortar b) plaster of paris
c) concrete d) all of these

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

4) Baluster in a stair is the ____ member supporting.
a) Horizontal, handrail b) Vertical, landing
c) Vertical, handrail d) Horizontal, landing

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

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

a) Draw to scale plan, elevation of king post truss for span of 5.80 mtr. Draw details of joints at ends and ridge, (scale 1:20)

b) With neat sketch, show the construction details of timber flooring, (scale 1:20)

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

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

a) Describe Bedding concrete and flooring method for waterproofing of flat roof.
b) RCC staircase
c) Causes of dampness.
d) Mud flooring and moorum flooring
e) Define skirting, dadoing, with a neat sectional sketch.

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

1) Which of the below is an example of semi rigid DPC material?
a) Plastic sheeting b) Cement concrete
c) Asphalt d) Stone

2) Which of the following is the crudest form of iron?
a) Dead mild steel b) Wrought iron
c) Cast iron d) Pig iron

3) which of the following is not a variety of pig iron.
a) Bessemer pig b) Pink pig
c) Grey pig d) White pig

4) The _____ is the cheapest flooring material and can be only adopted for ground floor.
a) Rubber b) Plastic
c) Stone d) Moorum

5) Bitumen is a by-product of _____.
a) Wood b) Petroleumq
c) Kerosene d) Coal

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

a) What is cast iron? Describe it's any four types, properties and uses.
b) Give a list of materials which are commonly used as floorings and give a brief description of concrete flooring and brick flooring.
c) What is asphalt? Give its classification and Describe forms/types of asphalt.

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

a) Describe properties of wrought iron.
b) write short note on thermo-mechanically treated bars (TMT bars)
c) Describe forms/types of bitumen.

Seat No.	

Set **P**

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

Day & Date: Thursday, 20-11-2025 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) Draw neat sketches wherever necessary.

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

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

2) 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

3) Volute is a term associated with _____ pump.
a) Centrifugal b) Rotary
c) Jet d) Reciprocating

4) The action that happens when hot water rises naturally and circulates without the help of pump or external force is known as_____ action.
a) anti-siphonic b) Thermosiphon
c) forced d) Gravity

5) Wash basin uses _____ trap.
a) oil and grease b) rat trap
c) bottle trap d) needle trap

6) _____ is used in premise for sewage treatment in absence of municipal sewer line.
a) Garbage pit b) waste water tank
c) Septic tank d) Sand filters

7) 100mm vertical pipe which conveys waste from water closets is called as _____.
a) Soil Pipe b) Waste water pipe
c) Rain water pipe d) gas pipe

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

a) Gravity system of water distribution for towns/cities with sketch.
b) Instant water heater (without sketch)
c) Bottle trap with sketch.
e) Centrifugal pump with sketch.

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

a) Explain layout of water distribution system for town/cities.
b) Explain with sketch in plan and sectional elevation “Tapping of domestic water from municipal water mains” (Ferrule Connection).
c) What is Thermosiphon action and explain Direct and Indirect system of hot water supply with neat sketches.
d) Design a septic tank for 10 number of users. Draw plan and section.
e) Explain 4 types of vertical drainage system with sketches.

SLR-JC-10

Seat No.	

Set P

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

Day & Date: Saturday, 22-11-2025 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

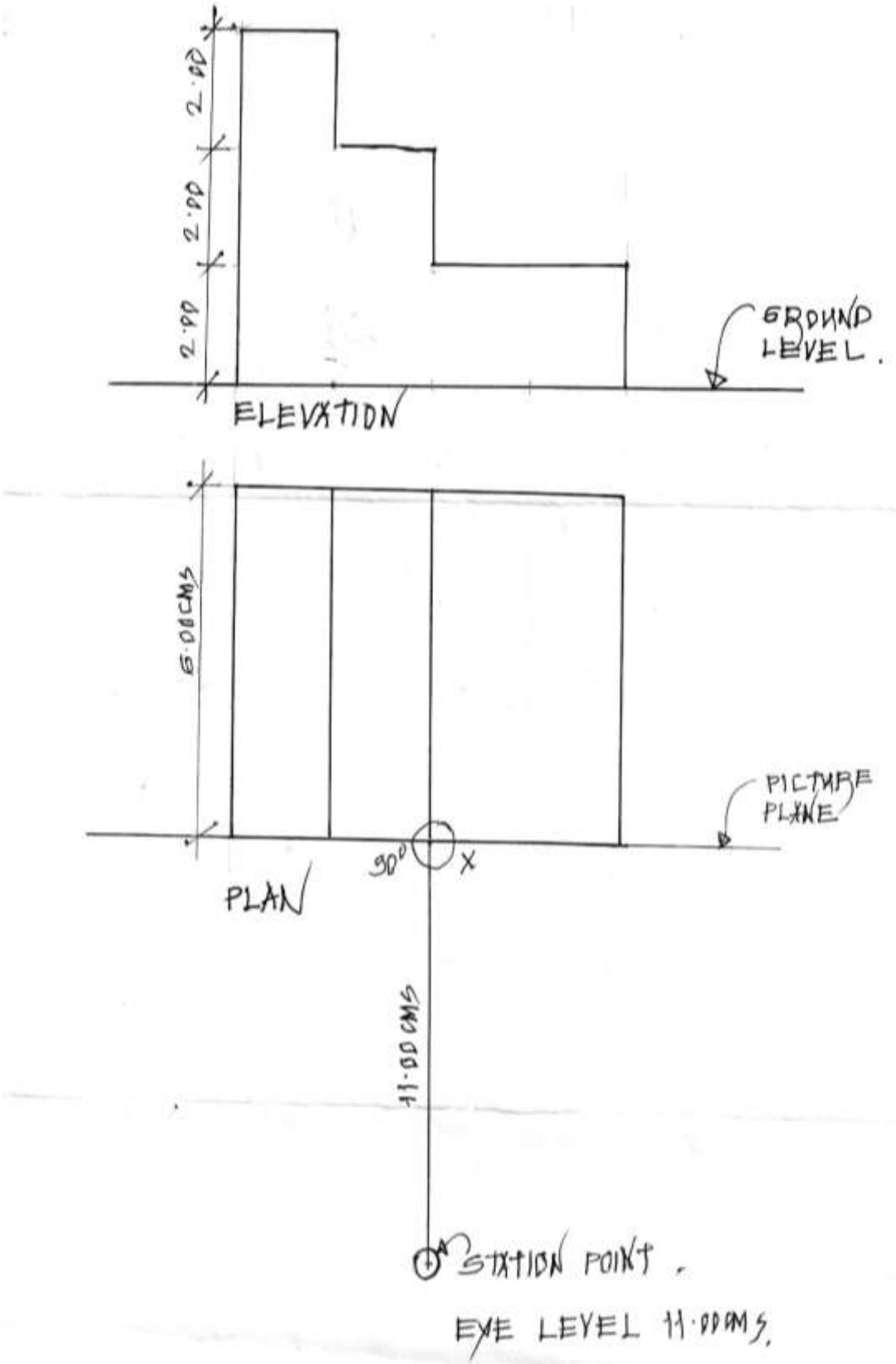
Instructions: 1) Retain all construction lines.
2) All questions are compulsory.
3) Figures to the right indicate full marks.
4) Make suitable assumptions wherever required.
5) Five marks are reserved for neatness and good drafting quality.

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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2.00
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GROUND LEVEL.
ELEVATION
6.00CMS
PICTURE PLANE
90°
X
PLAN
11.00 CMS
STATION POINT.
EYE LEVEL 11.00CMS.

Fig. B

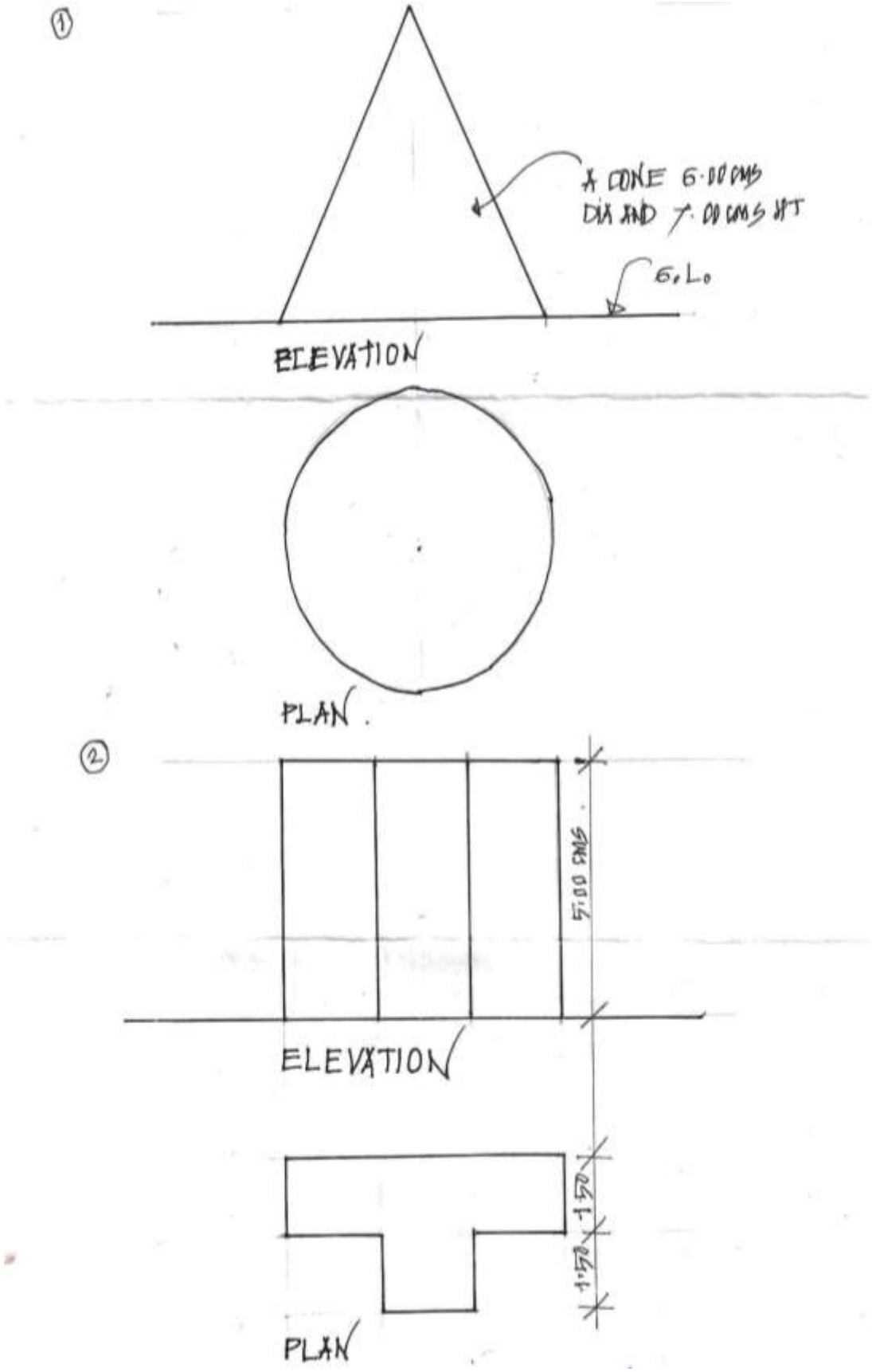
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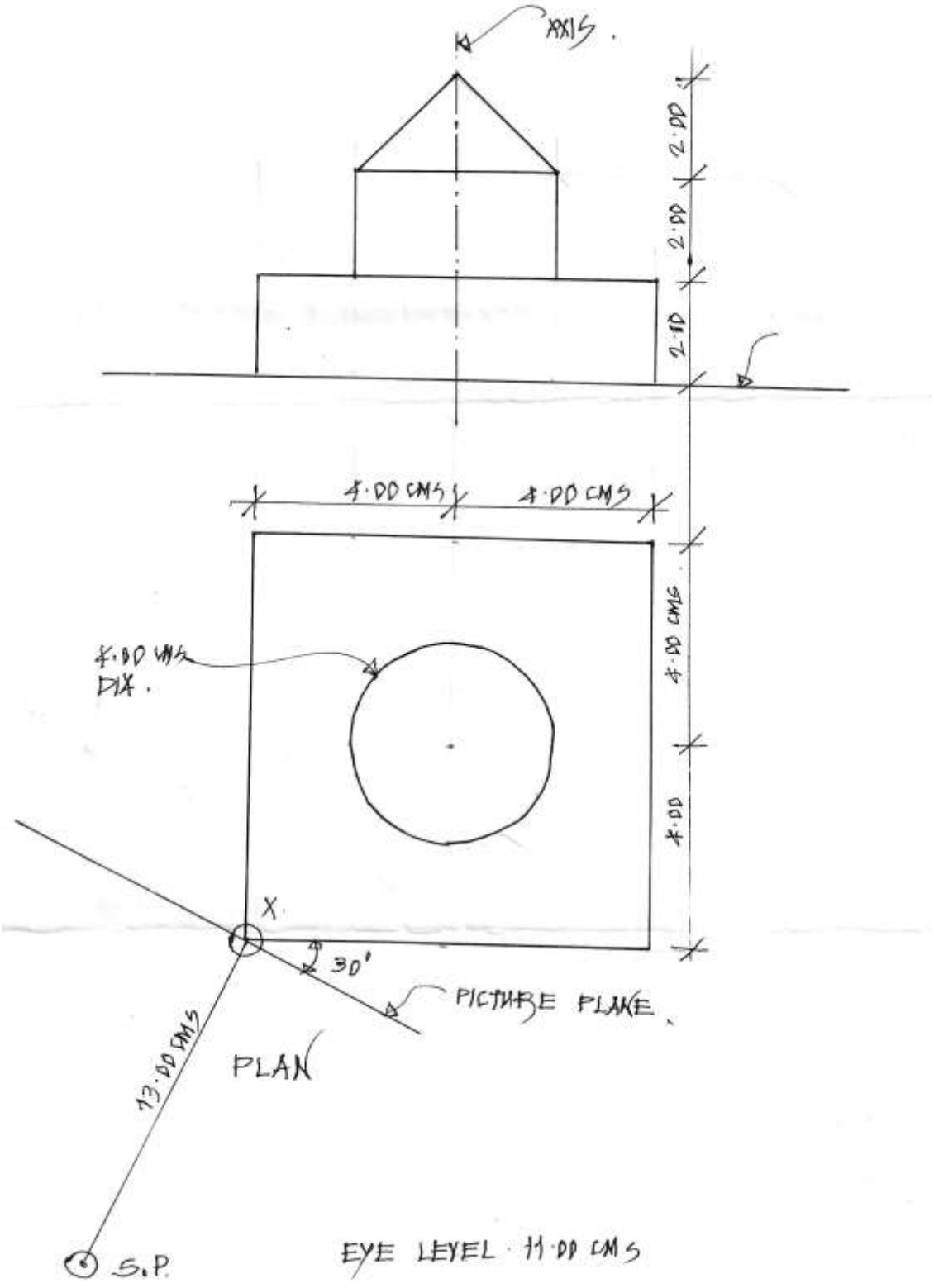
Fig. C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Seat No.	

Set **P**

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

Day & Date: Monday, 24-11-2025 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**

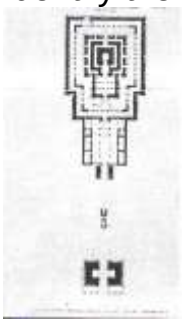
1) What type of building is the Parthenon?
a) Circus b) An Amphitheater
c) Temple d) Public Baths

2) The famous monolith Ratha's at Mahabalipuram carved out from _____ stone.
a) Marble b) Sand stone
c) Granite d) Lime

3) temple built in Hemadpanti Style - _____.
a) Shore temple, Mahabalipuram
b) Vitthala Temple, Hampi
c) Virupaksh Temple, Kanchipuram
d) Mankeshwara temple, Nashik

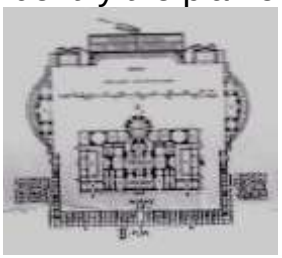
4) The 16th century Vittala Temple, is one of the most ornate monument in Hampi is most famous for _____.
a) Urushringas b) Stone Chariot
c) MakarTorana d) Adhisthana and Jagati

5) Identify the plan of following structure?



a) Kahandariya Mahadeo temple, Khajuraho
b) Dashvatara Temple, Deogarh
c) Shore Temple, Mahabalipuram
d) Vaikuntha Perumal temple, Kanchipuram

6) Identify the plan of following structure?



a) Basilica of saint peter Rome
b) Palace of Sargon Khorshabad
c) Tharmae of Caracalla
d) Colosseum

7) Choumuk temple at Ranakpur dedicated to the first Jain Tirthankara_____

a) Parshvanatha b) Adinatha
c) Sambhava d) Mahaveer

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

a) Wheel of sun temple Konark.
b) Lad khan Temple Aihole.
c) Gopuram.
d) Shikhara of Khandariya Mahadeo temple, Khajuraho.

Q.3 Answer the Following In Detail. (Any Four) 48

a) 1) What is Rock Cut Architecture?
2) Sketch and explain Arjuna Ratha and Draupadi Ratha?
b) Explain characteristic features of Dravidian temple architecture with respect to Brihdeshwara temple Thanjavur?
c) Sketch and explain evolution of temple architecture under Gupta dynasty?
d) 1) Sketch and explain Roman Colosseum?
2) Sketch and explain Basilica of Trajan Rome?
e) 1) Sketch Greek Doric, Ionic and Corinthian Capital?
2) Sketch and explain structural system used to build the Dome of Hagiya Sophia Church?

SLR-JC-12

Seat No.	

Set P

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

Day & Date: Wednesday, 26-11-2025 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) For a continuous beam, the bending moment between supports can be determined by: _____.
a) Moment distribution method b) Linear interpolation
c) Euler's beam theory d) None of the above

2) A column is primarily designed to carry: _____.
a) Tensile loads b) Compressive loads
c) Shear loads d) Bending loads

3) Rankine's formula combines the effects of: _____.
a) Bending and shear b) Axial load and lateral forces
c) Short and long columns d) Tension and compression

4) Ina biaxial stress system, normal stress acts: _____.
a) Along only one axis
b) Along two mutually perpendicular axes
c) Along the tangential plane
d) At 45° to the plane

5) In Mohr's Circle, the horizontal axis represents: _____.
a) Shear stress b) Normal stress
c) Strain d) Bending stress

6) What is deflection in a beam?
a) The change in angle of the beam axis
b) The vertical displacement of the beam from its original position
c) The horizontal displacement of the beam
d) The load applied to the beam

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) Various end condition and effective length.
b) Write a note on design steps of method of joints of truss.
c) Write a note on continuous beam.
e) Write a design steps to draw Mohr's circle from Normal, shear stresses.

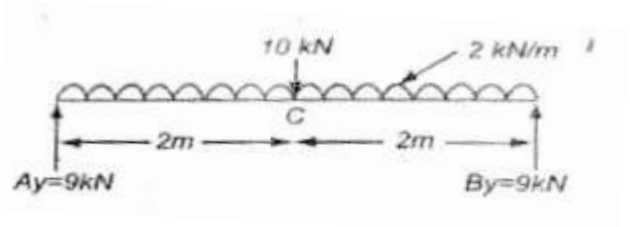
Q.3 Solve the following. (Any Four) **48**

a) Calculate crushing load by Rankine's formulae for a solid circular column of 275 mm diameter, actual length of column is 6m with one and fixed and another hinge. Fc= 600N/mm2 a=l/1600

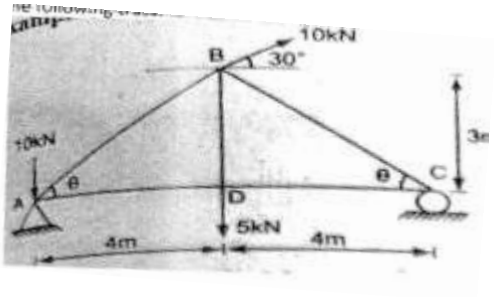
b) A rectangular column is 220mm wide and 150 mm thick which carries a load of 200kN at an eccentricity of 75mm in the plane bisecting the width. Calculate the stresses at corner and additional load such that no tensile stress is produced.

c) Draw SFD and BMD for 5 m long fixed beam having UDL of 3kN/m and subjected with lOkN point load at 2m from left hand support.

d) Calculate the maximum slope and deflection for the following beam with cross section 230mm x 500mm. E= 0.15x 10^5 N/mm^2



e) Analyze the following truss.



Seat No.	

Set **P**

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

Day & Date: Friday, 28-11-2025 Max. Marks: 70
Time: 10:00 AM To 01:00 PM

Instructions: 1) Write question numbers properly.
2) Assume suitable data wherever necessary.
3) Calculator to be allowed in the examination hall.

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

1) On _____ areas along 23.5N latitude experience longest day on earth.
a) 21st June b) 21st March
c) 23rd September d) 22nd December

2) Humidity is measured with _____.
a) Anemometer b) Hygrometer
c) Solarimeter d) Thermometer

3) The earth takes around _____ to complete one rotation around its own axis.
a) 24.00hrs b) 8.00hrs
c) 10.00hrs d) 12.00hrs

4) The direction of the wind is measured by _____.
a) Wind Vane b) Wind Data
c) Wind Graph d) Whirlwind

5) _____ explains amount of radiation received at a particular point on earth's surface.
a) Cosine law b) Tangential law
c) Secant law d) All of these

6) Thermal balance exists when $Met - Evp \pm Cnd \pm Cnv \pm Rad =$ _____.
a) Zero b) Less Than Zero
c) More Than Zero d) None of These

7) The Earth's axis is tilted _____ degrees from the plane of its orbit around the sun.
a) 23.5 b) 45
c) 90 d) 60

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

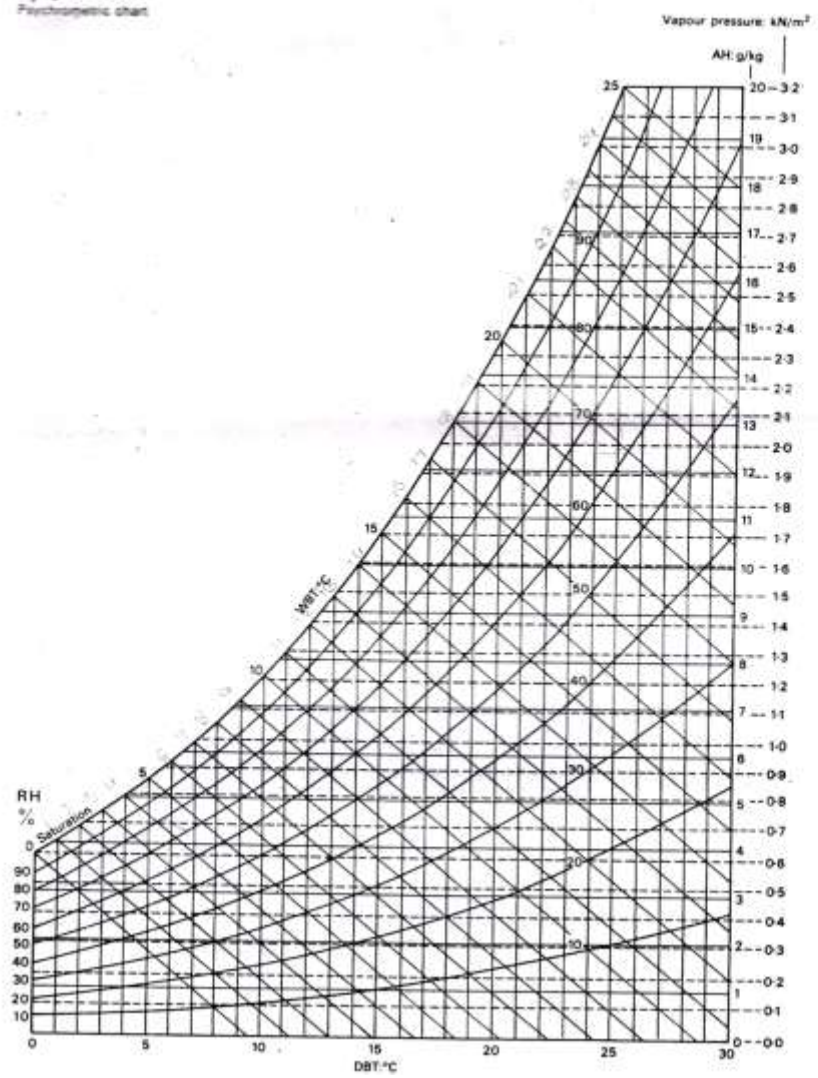
a) Tilt of the earth's axis.
b) Temperature.
c) Bio-climatic chart.
d) Conduction, Convection and Evaporation.

Q.3 Answer in Brief with detailed sketches wherever necessary. (Any Four) **48**

a) Define Climate and Weather. Distinguish between climate and weather and mention the various elements that effect climate.
b) Write in brief the Characteristics of Composite climate with an example in Indian tropical continent region.
c) Explain the subjective variables influencing the sensation of thermal comfort.
d) i) Find AH, VP RH when, WBT - 5*C, DBT-11*C.
ii) Find AH, WBT, VP when RH- 30%, DBT - 16*C.
e) A 5 x 5 m and 2.5m high office is located on an intermediate floor of a large building. therefore, it has only one exposed wall facing South, all other walls adjoint rooms kept at the same temperature Ti=20*C the ventilation rate is three air changes per hour, three 100 bulbs are in continuous use to light the rear part of the room, which is used by four clerical workers. (assume 140 Watts). The exposed 5x2.5 m wall consists of a single glazed window 1.5 x 5 m =7.5 m2 U=4.48W/m2 deg C And a clinker concrete spandrel wall, 200 mm, rendered and plastered, 1x 5 m =5m2, U= 1.35 W/m2 deg C

Calculate the amount of heat to be removed by installing cooling equipment.

16 Fig 12
Psychrometric chart



1.2.10 Solar radiation: measureme

1.2.11 Solar radiation: data

1.2.12 Wind: measureme

1.2.13 Wind: data

Seat No.	

Set **P**

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

Day & Date: Tuesday, 18-11-2025 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 800:2007 is allowed.
6) Steel Table is allowed.

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

1) A tie is a _____.
a) Flexible member b) Compression member
c) Torsion member d) Tension member

2) The wind load on a steel roof truss for an industrial building will depend upon _____.
a) Location of the structure b) Shape of the structure
c) Size of the structure d) All of the above

3) A high strength bolt may be used for _____.
a) a slip resistant connection b) bearing type connection
c) a shear connection only d) both (a) and (b)

4) The life period of steel commercial building is _____.
a) 10 years b) 100 years
c) 20 years d) 50 years

5) Which of the following is a serviceability criteria?
a) Stability against overturning b) Fatigue
c) Sway stability d) Fire resistance

6) Pick up the correct statement from the following: _____.
a) Dead loads include self-weight of the structure and super imposed loads permanently attached to it
b) Dead loads change their positions and vary in magnitude
c) Dead loads are known in the beginning of the design
d) None of the above

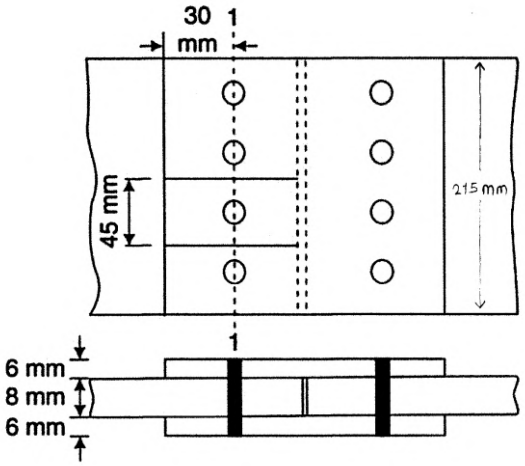
7) Failure of a column depends upon _____.
a) Weight of column b) Height of column
c) Slenderness ratio d) Cross sectional area of column

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

a) Write a note on advantages and disadvantages of steel structures.
b) Write a note on design steps of compression members.
c) Write a note on elements of truss members.
d) Explain in detail all Rolled steel Section.

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

a) 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



b) Determine the design tensile strength of the plate 130mm X 12mm with the holes for 16mm diameter boltsas shown in fig.-2 (all dimensions are in mm). Steel used is of 410 grade quality.

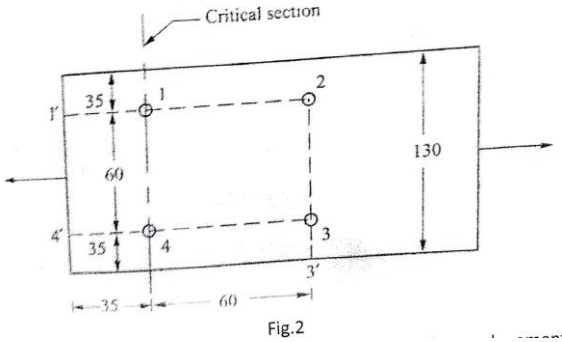


Fig.2

c) Design a simply supported beam of effective length 5 m carrying a factored moment 180 KNm and factored shear force 220kN. Take grade of steel as 410 Mpa.
d) Design a single angle strut connected to a gusset plate to carry 150i<N factored load. length of strut between center-to-center connection is 3m.
e) Write a note on loads acting on a truss in detail.

Seat No.	

Set **P**

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

Day & Date: Thursday, 20-11-2025 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 alternative. **07**

1) Bauhaus school is located in _____.
a) Venice b) Dessau
c) France d) Dresden

2) A triangular segment of a spherical surface, filling in the upper corners of a room, in order to form, at the top, a circular support for a dome is called as _____.
a) Pendentives b) Arches
c) Lintel d) Squinches

3) Gol Gumbad is the tomb of _____.
a) Iltutmish b) Qutub-ud-din-Aibak
c) Adil Shah d) None of the above

4) Rashatrapati Bhawan is designed by architect _____
a) Hadrian b) Donato Bramante
c) Herbert Baker d) Edwin Lutyens

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

6) Identify the following historic structure.

a) Tomb of Sikander Lodhi b) Diwan-i-aam
c) Panch mahal d) Diwan-i-khas

7) Which material became widely used in construction during the Industrial Revolution?

a) Bamboo b) Mud
c) Steel d) Timber

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

a) Bauhaus school of architecture.
b) Ibrahim Rauza.
c) Shalimar Garden, Kashmir.
d) Humayun's tomb.

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

a) Explain Colonial Architecture with example of Victoria Terminus, Mumbai.
b) Describe in detail the structure of Qutb complex.
c) Discuss characteristics of Gothic Architecture with example of Notre Dame, Paris.
d) What are the essential parts of an Indian mosque? Mention the significance of each part with neat sketches. Explain covered type of mosque.
e) Explain characteristics of Indo-Saracenic architecture in India with example of Rashtrapati bhavan.

SLR-JC-16

Seat No.	

Set P

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

Day & Date: Saturday, 22-11-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

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

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

1) Vitruvius is known for his multi volume -work entitled _____.
a) Four Elements of Architecture.
b) Seven Lamps of Architecture.
c) De Architecture.
d) Pattern language.

2) _____ architecture is famous for its stately symmetry, classical elements, and grand appearance
a) Palladian b) Deconstructivism
c) Renaissance d) Antiquity

3) Viollet Le Duc was the architect behind the restoration of _____ in the nineteenth century.
a) Notre dame, Paris b) St Peter's, Rome
c) Hagia Sophia, Istanbul d) Westminster abbey, London

4) The Seven Lamps of Architecture (1849), treatise on architecture is by _____.
a) Leon Battista Alberti b) Viollet Le Duc
c) John Ruskin d) Charles Jencks

5) Robert Venturi published his treatise _____ in Architecture in 1966.
a) Complexity and Contradiction
b) Seven Lamps of Architecture
c) De Architectura
d) Pattern Language

6) Foot prints E.A R.T.H stands for Environment Architecture Research Technology Housing.
a) Environment Architecture Research Technology Housing
b) Economical Architecture Research Technology Housing
c) Environment Agriculture Research Technology Housing
d) Environmental Advanced Research Technology Housing.

7) Japanese architect Kenzo Tange contributed to the _____ architectural movement.

a) Metabolism
b) Deconstructivism
c) Renaissance.
d) Antiquity

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

a) The 3 Rules of Architecture by Vitruvius.
b) Seven lamps of architecture.
c) Metabolist movement.
d) Six points on architectural resistance by Kenneth Frampton.

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

a) Explain the fundamental principle of Vaastu shastra as described in MAYAMATAM
b) Explain the concept of primitive hut in detail as proposed by Marc Antonie Laugier
c) Describe Viollet Le Duc contributions to the planning and construction of Notre Dame, Paris?
d) Explain the features adopted by the Deconstructivism architecture movement?
e) "Laurie Baker is known as the Gandhi of Indian Architecture" Justify this tittle with reference to Baker's work

Seat No.	

Set P

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

Day & Date: Monday, 24-11-2025 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 from the options given below in the bracket. **07**

1) In a refrigeration cycle, ___ component converts freon gas to high temperature and high pressure.
a) compressor b) expansive valve
c) condenser d) Evaporator

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

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

4) _____ lift is used to vertically transport patients in hospital.
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) Tungsten filament is used in ____ lamp.
a) LED b) neon
c) Incandescent d) fluorescent

7) _____ventilation is easily affected by outdoor climate and occupant behavior.
a) Artificial b) Natural
c) Hybrid d) Mechanical

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

a) Principles of Air conditioning.
b) Mechanical ventilation and its benefits.
c) Pipe earth electrode and Plate earth electrode.
d) Sodium discharge lamp.

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

a) Give any 8 points of comparison between Cleat wiring, Casing Capping wiring, Batten wiring and Conduit wiring.

b) i) What are the factors to be considered in the design of a lighting scheme?

ii) Draw diagram of a luminaire showing its components and explain any 6 components

c) Draw a neat diagram of Three phase electric supply and explain in detail.

d) Explain with sketch Summer and Winter Air conditioning.

e) Explain systems of Mechanical ventilation.

Seat No.	

Set P

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

Day & Date: Wednesday, 26-11-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

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

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

1) The most effective cross ventilation occurs when the inlets are placed in the _____ area.
a) Low pressure area b) High pressure area
c) Leeward side d) None of the above

2) Unless the ratio of building height to street width is _____ it is difficult to achieve mid-way shade.
a) 4:1 b) 3:1
c) 5:1 d) 2:5:1

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

4) Horizontal shadow angle 6 Characterizes a _____.
a) Egg crate device b) Horizontal shading device
c) Vertical shading device d) None of the above

5) Permeable buildings can combine open plans and sections for _____ ventilation.
a) Cross ventilation
b) Stack ventilation
c) both cross and stack ventilation
d) all of the above

6) _____ are high windows with sill heights greater than seven feet above the floor and are excellent strategies for task illumination on horizontal and vertical surfaces.
a) Sawtooths b) Atria
c) Clerestories windows d) None of the above

7) _____ courtyards are tall and narrow and can be used as cold air sinks.

a) Breezy courtyards
b) Calm courtyards
c) Breezy and calm courtyards
d) Shady courtyards

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

a) Evaporative cooling.
b) Cross ventilation.
c) Orientation of building for daylighting.
d) Isolated gain.

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

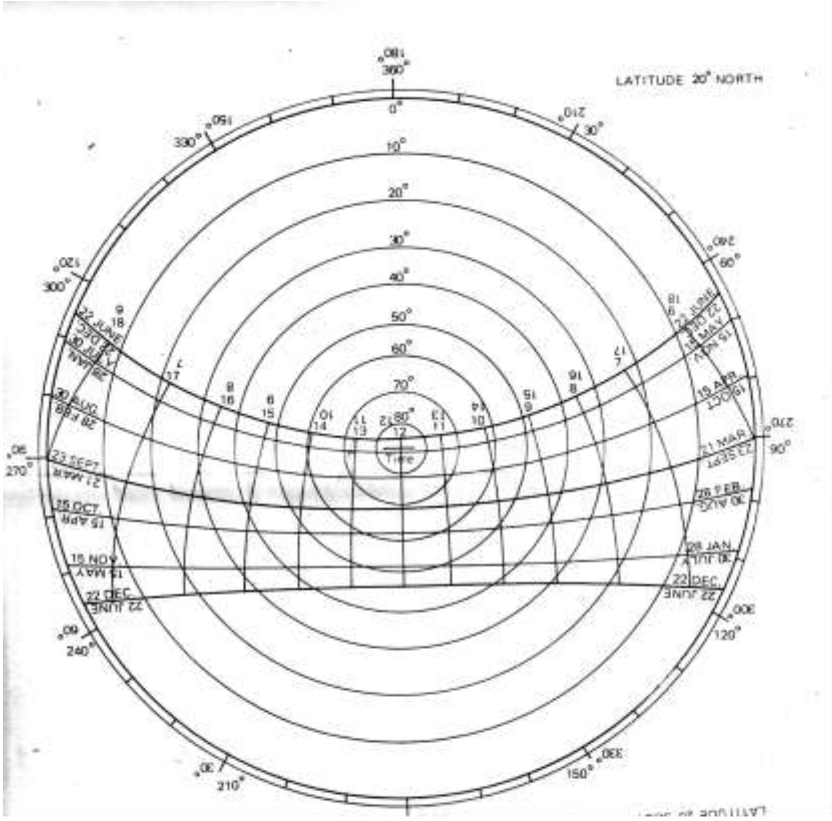
a) Explain the strategies with sketches.
i) Buffer zones.
ii) Shady courtyards.
iii) Mutual shading.
In detail with sketches.

b) i) Write short note on Day light in Warm and Humid climate and design criteria for the same.
ii) Explain the Daylight Factor.

c) i) Explain with strategy - External surface color.
ii) Explain with sketches & example interwoven buildings and planting.

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

e) i) Indirect gain-through walls and roofs.
ii) Find solar Altitude & Azimuth Angle for given chart 20° North at FIG -01
- 12 pm on 23st September.
- 9 am on 22nd December.


LATITUDE 20° NORTH
22 JUNE
22 DEC
21 MAR
23 SEPT
15 APR
15 OCT
28 FEB
30 AUG
28 JAN
15 NOV
15 MAY

Seat No.	

Set **P**

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

Day & Date: Friday, 28-11-2025 Max. Marks: 100
Time: 02:00 PM To 06:00 PM

Instructions: 1) Write question number correctly.
2) Draw neat sketches wherever necessary.
3) Q. No. 2 has to be compulsorily 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**

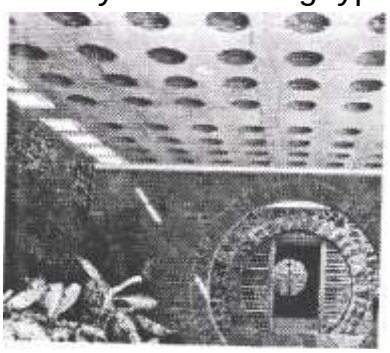
1) If two individual footings are close as per design, then they should be casted as or converted as _____.
a) Combined b) Isolated
c) Eccentric d) Strap

2) RCC slab is designed as a one-way slab if the ratio of spans is more than _____.
a) 4 b) 2
c) 1 d) 3

3) The beam which is consists of a flange and a rib in the form of T, generally made up of RCC is known as _____.
a) L beam b) T beam
c) Rectangular beam d) None of the above

4) Where are the doubly reinforced beams required?
a) Where depth of the beam is restricted
b) Where width of the beam is restricted
c) Where concrete amount is restricted
d) Where high strength is required

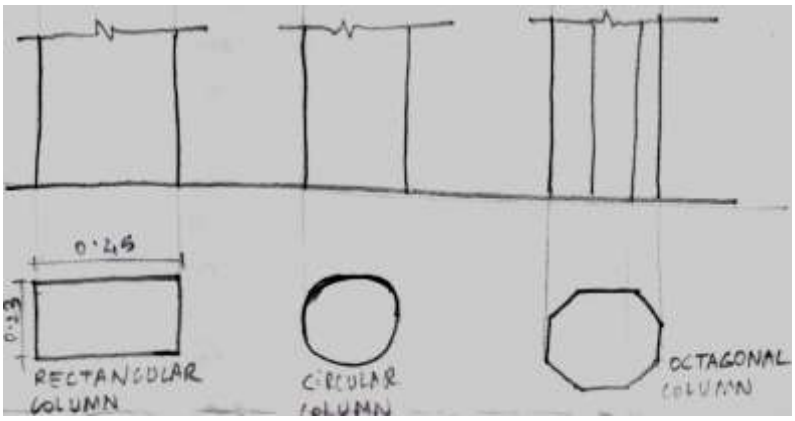
5) Identify the following type of slab? _____



a) Vaulted roof b) Filler Slab
c) Coffer Slab d) Pre-cast Slab

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

a) Draw the reinforcement detail in the following columns? Draw plan and sectional elevation?



b) Design and Draw to a suitable scale M. S Grill for the window, opening size is 1.80m × 1.50m in the residential building, show its fixing details?

c) A store room of 5.00m × 7.00m, height of 4.20m in size has an opening of 3.00 × 3.50 m, wall thickness of 0.23 m. provides a rolling shutter for the same? Draw rolling shutter details to a suitable scale, draw plan, elevation and section?

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

a) RCC Column - Short Column, Long Column
b) Metal Window
c) Raft Foundation
d) Flat Slab
e) RCC Shallow foundations

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

a) Curing of concrete is primarily done to _____
i) Increase the rate of hydration
ii) Prevent excessive shrinkage cracks
iii) Enhance workability
iv) Reduce the setting time

b) Which of the following is not a type of ceramic material?
i) Tiles ii) Glass
iii) Terracotta iv) Stoneware

c) What is the primary purpose of mixing concrete in the correct proportions?
i) To increase the cost-effectiveness of the construction project
ii) To ensure the desired strength and durability of the concrete
iii) To speed up the curing process
iv) To enhance the colour of the finished product

d) What is the primary purpose of plastering?
- i) To provide insulation
- ii) To provide a protective and aesthetically pleasing finish to walls and ceilings
- iii) To increase the load-bearing capacity of walls
- iv) To reduce the overall cost of construction

e) Expansion joints in concrete are primarily designed to _____
- i) Prevent cracks due to shrinkage
- ii) Facilitate the curing process
- iii) Increase the strength of the concrete
- iv) Reduce the workability of the concrete

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

a) Distinguish between Cement Plaster and Lime Plaster.

b) Explain the process of placing concrete in construction projects. Ans state precautions to be taken during placing of concrete?

c) Define chemical admixtures and their role in enhancing the properties of concrete.

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

a) Slump test

b) Grades of concrete

c) Uses of Terracotta

Seat No.	

Set **P**

B. Architecture (Semester - IV) (CBCS) Examination: October/November - 2025
Architectural Graphics – IV (7022402)

Day & Date: Tuesday, 18-11-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

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

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**

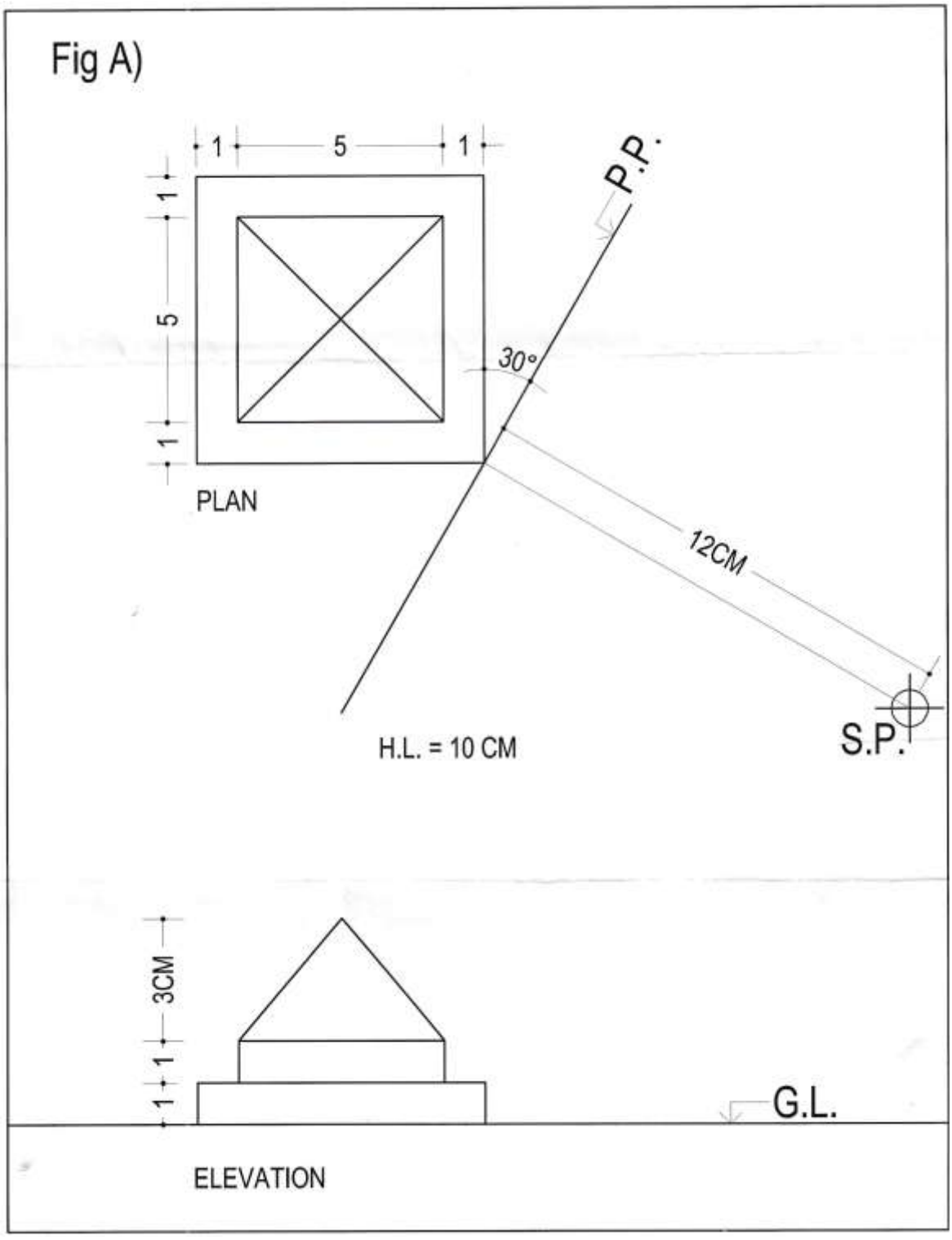
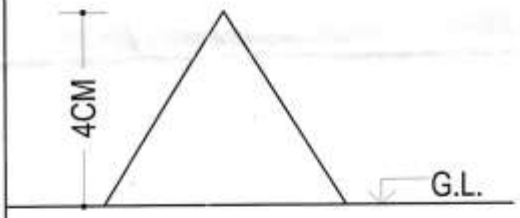


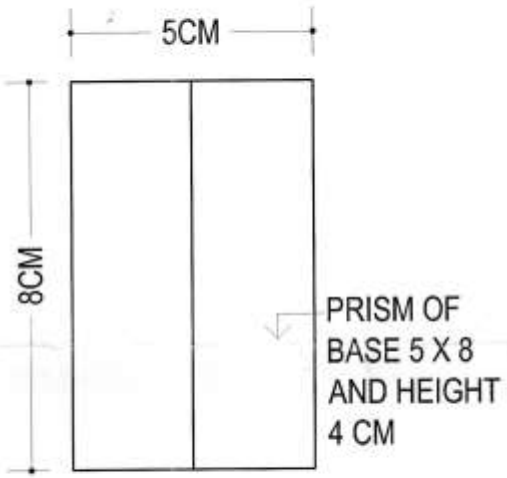
Fig A)
1
5
1
1
5
1
PLAN
P.P.
30°
12CM
S.P.
H.L. = 10 CM
3CM
1
1
G.L.
ELEVATION

Fig B)

1)

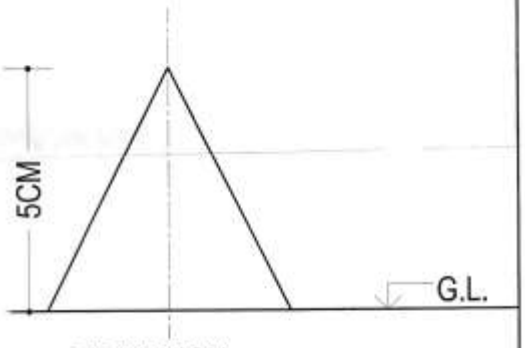


ELEVATION



PLAN

2)



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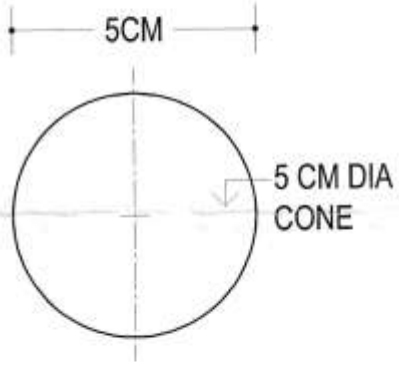
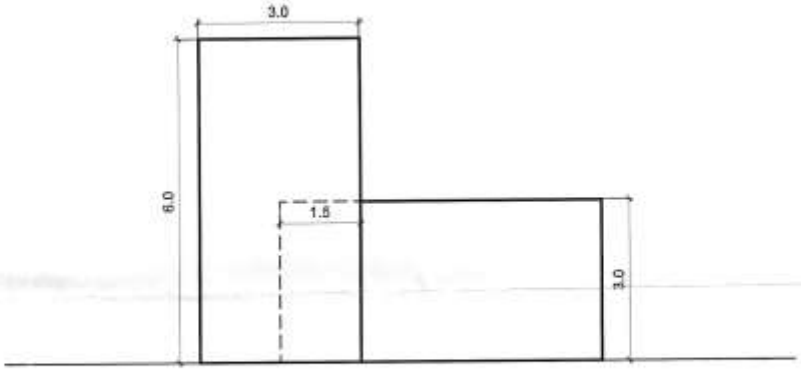
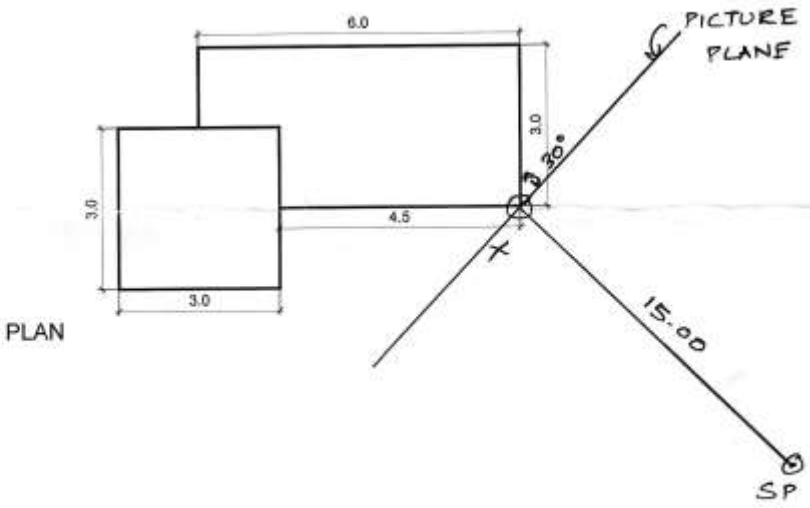


PLAN

FIGURE C



ELEVATION



PLAN

EYE LEVEL - 12.00

SLR-JC-21

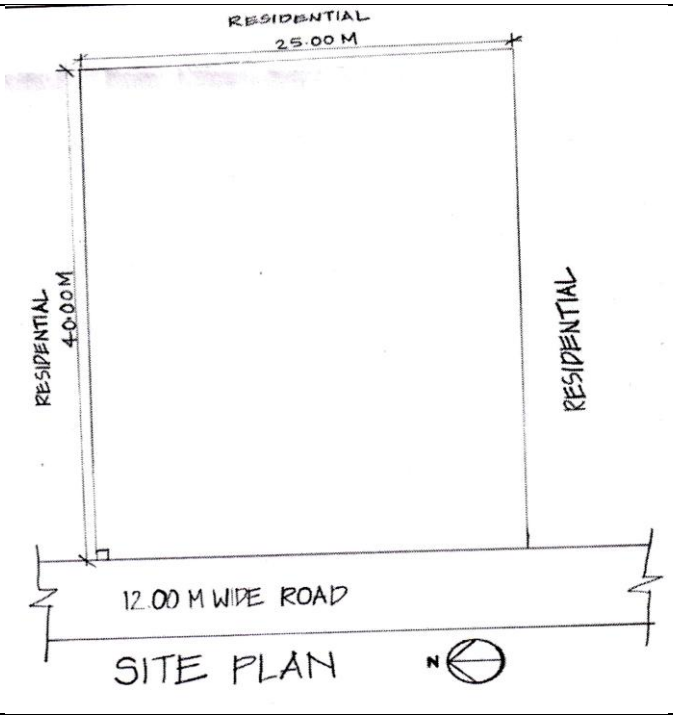
Seat No.	

Set P

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

Day & Date: Saturday, 08-11-2025 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: **Kindergarten School**	Marks
1	DESIGN BRIEF	A well-known school chain is planning to Kindergarten school at one of the prime residential area in Solapur. Kindergarten is a school or class, often the first year of formal education, for young children, typically those aged four to six.	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	ONE LKG CLASS ROOM	60	SQM
		ONE UKG CLASS ROOM	60	SQM
		ONE INDOOR ACTIVITY AREA	70	SQM
		ONE OUT DOOR ACTIVITY AREA	AS PER DESIGN	
		STAFF ROOM	25	SQM
		TOILET	AS PER DESIGN	
		PARKING	AS PER DESIGN	
		STORE ROOM	15	SQM
		SMALL OFFICE	15	SQM
		DRAWING		**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
	Note: Site Plan - 1:100 Scale			
	All Floor Plans, Elevation and Section 1:50 Scale			

Seat No.	

Set **P**

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

Day & Date: Wednesday, 12-11-2025 Max. Marks: 70
Time: 10:00 AM To 01:00 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 Fill in the blanks from the options given below. **07**

1) The acceptable limit for the safety and serviceability requirements before failure occurs is called _____.
a) Breaking point b) Failure point
c) Limit state d) Ductility

2) For steel of grade Fe500, the value of Xumax/d is _____.
a) 0.48 b) 0.46
c) 0.53 d) 0.43

3) The stress strain curve of concrete as per IS-456 is _____.
a) Perfect straight line up to failure
b) Straight line up to 0.002 strain value and then parabolic up to failure
c) Parabolic up to 0.002 strain value and then uniform up to failure
d) Linear up to 0.002 strain value and then uniform up to failure

4) In case of two way slab the ratio of the long span to the short span is _____.
a) More then 2 b) Zero
c) Five d) Less than 2

5) The width of stairs in a residential building should be at least _____.
a) 600 mm b) 750 mm
c) 850 mm d) 900 mm

6) A rectangular slab 4m X 6m supported on four edges should be designed as _____.
a) One way slab spanning along longer edge
b) Two-way slab
c) One way slab spanning along shorter edge
d) None of above

7) Eccentrically loaded columns must be designed for combined axial and _____.

a) Shear force b) Bending moments
c) Torsion d) Creep

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

a) What Is Limit State Method?
b) Under reinforced section with neat sketch
c) Classification of slab.
d) Isolated footing.

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

a) Design a simply supported reinforced concrete slab for a room of clear dimension of 3.81 m * 10.02 m. The slab is supported all around wall of width 300 mm. The slab must carry live load 3 KN/m^2 and floor finish and partition load of 1.5KN/m^2. Use M30 concrete and Fe 500 steel.

b) Design a continuous reinforced concrete slab for room of 10.02 m wide and 19.05 m long. The slab is supported on RCC beam of width 300 mm at 3.81 intervals. The slab must carry live load 3 KN/m^2 and floor finish and partition load of 1.5KN/m^2. Use M30 concrete and Fe 500 steel

c) Design a reinforced concrete beam of size 300 mm X 700 mm is subjected to a bending moment of 150 KN/ m^2. Take effective cover as 40 mm. Use M20 concrete and Fe 415 steel.

d) Design RCC isolated footing for 400mmX400mm column size which carries load of 1200kN on the column, take Soil bearing capacity of soil (SBC) is 200kN/m^2. Assume M20 grade concrete and Fe 415 grade steel.

e) A square column of side 425 mm is reinforced with 8 bars of 20mm dia. Of grade Fe 500.If the grade of concrete is M25, calculate the safe load carry.

SLR-JC-23

Seat No.	

Set P

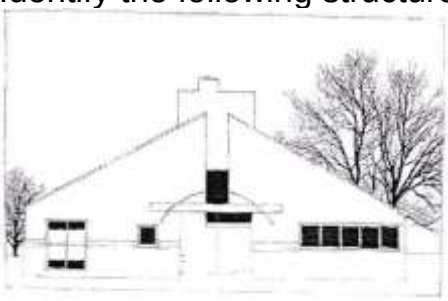
B. Architecture (Semester - V) (New) (CBCS) Examination: October/November – 2025
History of Architecture – IV (21AR5-04)

Day & Date: Wednesday, 19-11-2025 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.
4) Write question number correctly.

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

1) Identify the following structure _____



a) IBA Housing
b) Vanna Venturi House
c) Glass House
d) Coffman's House

2) _____ is the first Lady to be awarded the Pritzker prize.
a) Lono da Bardi
b) Marion Griffin
c) Zaha Hadid
d) Jeanne Gang

3) At & T Building, New York City is also known as _____.
a) Batman Building
b) Sony Building
c) La Pedrera
d) None of the above

4) Bhopal development Authority headquarters building designed by Architect _____.
a) Raj Rewal
b) Achyut Kanvinde
c) Anant Raje
d) B.V.Doshi

5) Following Building is an example of "high tech architecture" designed by Architect _____.

a) Renzo Piano
b) Norman Foster
c) Alvar Alto
d) Philip Johnson

6) "Less is More" Quoted by _____.

a) Philip Johnson
b) Zaha Hadid
c) Mies Van Der Rohe
d) Norman Foster

7) Identify the following structure designed by Le Corbusier _____.

a) Hall of nations
b) Secretariat Building
c) Bhopal development Authority Headquarters
d) Mill owners association building

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

a) Guggenheim Museum, Bilbao.
b) 5 principles of le Corbusier.
c) Sangath Design Studio.
d) Philosophy of Architect Laurie Baker.

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

a) Define Art Nouveau movement? sketch and explain Casa Mila?
b) Define Deconstructivism movement? sketch and explain IBA Housing designed by Zaha Hadid?
c) Define Organic Architecture? Sketch and explain Falling Water?
d) Explain design philosophy of architect Achyut Kanvinde? Sketch and explain Nehru science center Mumbai.
e) Explain international style of architecture with respect to Vilipuri Library designed by Architect Alvar Alto?

SLR-JC-24

Seat No.	

Set P

B. Architecture (Semester - V) (New) (CBCS) Examination: October/November - 2025
Building services – III (21AR5-07)

Day & Date: Friday, 21-11-2025 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) Make suitable assumptions wherever necessary and mention in your answer book

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

1) Sound is simply a series of _____ variations in an elastic medium.
a) Voice b) Size
c) Pressure d) None of the above

2) Travelling medium of structure borne sound can be ____.
a) Air b) Water
c) Concrete d) None of the above

3) Firefighting lift is used to transport _____ in case of emergencies.
a) Fire fighters and their equipment
b) All persons in a building
c) VIP person
d) None of the above

4) Sound speed at sea level is _____ m/s which is very slow compared to light.
a) 344 b) 740
c) 140 d) None of the above

5) The time taken by sound to diminish is called _____.
a) Reverberation time b) Dead time
c) Flutter d) None of the above

6) Greater amplitude means _____ compression and greater the Rare fraction.
a) Lower b) Neutral
c) Greater d) None of the above

7) The _____ is the number of square feet of floor area required per occupant.
a) Exit capacity b) Discharge
c) Occupant load d) None of the above

Q.2 Write short answers. (Any Four) **48**

a) Explain what should be done when noise is structure borne.
b) Explain in detail noise and its effects.
c) Write a descriptive note on causes and effects of fire.
d) Enlist fire-resisting properties of common building materials.
e) An auditorium is rectangular in shape. The dimensions of the auditorium are: length = 30 m, breadth = 20 m and height = 8 m. The areas of different surfaces are as follows:

Plaster	700 m2	Wooden floor	300 m2
Concrete floor	900 m2	Curtains	100 m2

The Capacity of the auditorium is of 1000 seats. Work out the following:

(a) Number of absorbing units and time of reverberation when there is (i) no audience, (ii) an audience of 400 persons, (iii) an audience of 700 persons, and (iv) full audience.
(b) Number of extra absorbing units required so as to get a reverberation time of 1.2 seconds when the strength of audience is 400 persons,
(c) Coefficient of absorbing material, if the area available for Fixing the absorbing material is 840 m2

Surface	Absorption Co-efficient / m2/no.
Plaster	0.02
Concrete	0.03
Wooden flooring	0.09
Curtains	0.40
Seats	0.02

Absorption power in m2 of an adult is 0.46.

Q.3 Write Short Notes (Any Three) **15**

a) Advantages of Smoke detectors. lfd;f.
b) Elevators in buildings.
c) Fire hydrants.
d) Effect of geometry and shapes of rooms in acoustics.
e) Materials used to fight fire.

Seat No.	

Set **P**

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

Day & Date: Thursday, 13-11-2025 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.
5) IS 456:2000 and IS 3370 allowed.

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

1) The primary purpose of a retaining wall is to:
a) Retain soil and resist lateral earth pressure
b) Carry the superimposed load from buildings
c) Provide drainage to the foundation soil
d) Restrict water flow

2) A cantilever retaining wall is commonly used for:
a) Shorter heights and smaller loading conditions
b) Very tall structures
c) Areas requiring significant seismic resistance
d) Projects needing large concrete volumes

3) The primary function of a water tank is to:
a) Store water for use
b) Provide a foundation for buildings
c) Support structural loads
d) Control water flow

4) A circular water tank is typically designed using which stress criterion?
a) Only compressive stress
b) Hoop stress and radial stress
c) Shear stress alone
d) Only bending stress

5) The design of pile foundations must consider:
a) The load-bearing capacity of the pile and the soil
b) Only the weight of the structure
c) The pile material only
d) Environmental factors

6) Raft foundations are commonly used for:
   a) High-rise buildings
   b) Buildings with large footprint and weak soil
   c) Coastal regions
   d) Areas with severe earthquakes

7) Combined footings are generally designed for:
   a) Two or more columns placed close together
   b) Only high-rise buildings
   c) Single-column support
   d) Large concrete slabs

Q.2 Answer the following questions. (Any Three) **15**

a) Differentiate between cantilever and counterfort retaining wall.
b) Explain the design criteria for water tanks according to IS 3370.
c) Write a note on pile foundation.
d) What are the main steps in designing a combined footing to ensure structural integrity?

Q.3 Answer the following questions. (Any Three) **48**

a) What are the differences between pile foundations and raft foundations.
b) Determine the plan dimensions of a combined footing for two axially loaded columns with following data if
   i) width is not restricted
   ii) width is restricted to 2.5m

Columns	C1	C2
Type	Interior	Interior
Size	400mm × 400mm	400mm × 400mm
P	1000kN	1200kN
Spacing	3 m c/c from C1 to C2	
SBC	150kN/m^2	

c) Design a retaining wall to retain the earth 5 m 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 = 18kN /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.

d) Design a circular water tank with flexible base and open at top for a capacity of 800000 liters resting onground. The materials are M30 grade concrete and HYSD reinforcement of grade Fe415.

Seat No.	

Set **P**

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

Day & Date: Saturday, 15-11-2025 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.

Q.1 Choose the correct options: **07**

1) Letchworth and Welwyn are the examples of _____.
a) Garden City b) Industrial town
c) satellite town d) natural growth

2) _____ stands for Housing and Urban Development Corporation.
a) CIDCO b) MAHADA
c) NHP d) HUDCO

3) If the road intersects different levels or grades, at junction, then _____ is provided.
a) grade separator b) pedestrian crossing
c) multiple junction d) kerbs

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 $45°$ airplane rule.
a) 1:1 b) 01:02
c) 01:13 d) 01:04

6) Which of the following books Ebenezer Howard published in 1898?
a) To-morrow: A Peaceful Path to Real Reform
b) Garden Cities
c) Model Garden Cities of To-morrow
d) Garden Suburb of London

7) The capital city of _____ was planned by two Indian planners H.K. Mewada and Prakash M. Apte.
a) New Delhi b) Punjab
c) Jaipur d) Gandhi Nagar

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

a) Multiple nuclei Model.
b) Light plane.
c) Radial street pattern.
d) Concentric zone model.

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

a) What is necessity of urban planning and what the various forms of urban planning.
b) Write a note of principles of neighbourhood planning and Describe neighbourhood theory with an example.
c) Write a note on importance of zoning and explain zoning regulations. and Explain concept of Height zoning and its advantages.
d) Write in brief on models of urban growth and explain concentric zone theory with the help of neat sketch.
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: October/November - 2025
Building services – IV (21AR6-07)

Day & Date: Monday, 17-11-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

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

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

1) The process of decomposition of biodegradable solid waste by earthworms is called _____.
a) Land fills b) Shredding
c) Vermi-composting d) Composting

2) The disposal of sewage from the septic tank is done by which of the following?
a) Clarifier b) Soak pit
c) Aerated lagoon d) Lamp hole

3) The biochemical treatment of sewage effluents is essentially a process of _____.
a) Oxidation b) Dehydration
c) Reduction d) Optimal dissolved oxygen

4) The maximum quantity of dissolved oxygen present in wastewater is called _____.
a) Maximum dissolved oxygen b) Saturated dissolved oxygen
c) Peak dissolved oxygen d) Optimal dissolved oxygen

5) The pathogens can be killed by _____.
a) Nitrification b) Chlorination
c) Oxidation d) Alkalinization

6) In which sludge treatment process, the organic solids are converted into more stable form?
a) Dewatering b) Thickening
c) Digestion d) Conditioning

7) Which of the following is a biological method of disposal of municipal solid waste?

a) Land fills
b) Shredding
c) Pulverization
d) Composting

Q.2 Solve the following. (Any Four) **48**

a) Objectives of sewage disposal also add natural methods of sewage disposal.
b) Write a note on methods of garbage collection and methods of solid waste management for a city.
c) Explain with a neat sketch the working of a privy also enlists its different types.
d) Differentiate between septic tank and Imhoff tank. Also add the sketches of both.
e) Enlist the disposal problems for refuse disposal system in solid waste management.
f) Differentiate between dry disposal and wet disposal method of refuse system.

Q.3 Write Short Notes. (Any Three) **15**

a) Types of pools.
b) Methods for dry disposal.
c) Imhoff tank.
d) Basic principles of wastewater treatment plant.
e) Public toilets.

Seat No.	

Set P

B. Architecture (Semester - VI) (New) (CBCS) Examination: October/November – 2025
Estimating Specifications and Costing – I (21AR6-06)

Day & Date: Wednesday, 19-11-2025 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 alternative from the following options. **08**

1) The main responsibility of an estimator is: _____
a) To prepare the cost estimates for the project
b) To supervise the construction process
c) To design the structure
d) To procure materials for construction

2) Quantity of sand required for 20Cum of brickwork in CM (1:6) is ____.
a) 1.7 Cum b) 5.4 Cum
c) 3.7 Cum d) 5.7 Cum

3) The method of estimating based on the total floor area of the building is: _____.
a) Plinth area method b) Cubic method
c) Unit rate method d) Preliminary method

4) The deduction for openings in pointing work is: _____.
a) Subtracted from the total area
b) Added to the total area
c) Not applicable
d) Included as a separate measurement

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

a) Describe the roles and responsibilities of an estimator in a construction project.

b) The cost of construction of a college building is 5 crores for a capacity of 800 students and area of construction is about 4000 m^2. Prepare approximate estimate of a newly proposed college building for 3500 students with the area 12500 m^2. Use plinth area method.

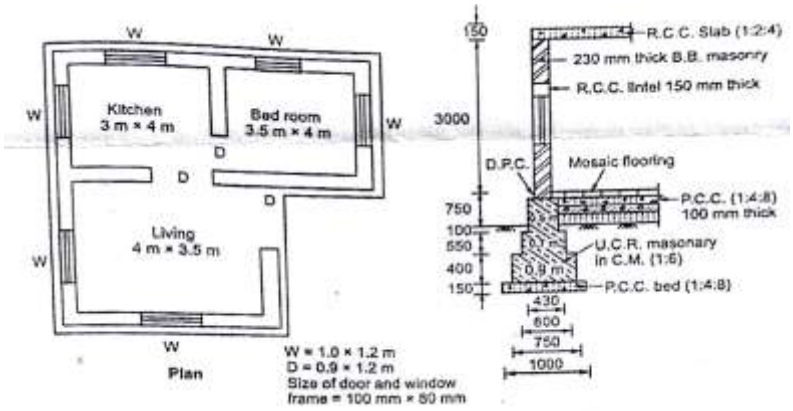
c) Explain the District Schedule of Rates (DSR) and its significance in construction cost estimation.

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.M. masonry in superstructure in CM (1:6)
e) Internal plastering.
f) External plastering.

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

a) Excavation in soft murum in foundation, Rs 800/- 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.M. masonry in superstructure in CM (1:6), Rs. 4700/-per cum.
e) Internal plastering, Rs 900/- per sqm.
f) External plastering Rs 900/- per sqm.



Seat No.	

Set P

B. Architecture (Semester - VI) (CBCS) Examination: October/November – 2025
Building by Laws (7023611)

Day & Date: Friday, 21-11-2025 Max. Marks: 50
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Make suitable assumption wherever necessary and mention in your Answer book.

Q.1 Fill in the blanks: **05**

1) _____ means a local road on a continuous alignment that normally runs adjacent and parallel to main roads like National or State Highways and provides access to properties bordering it.
a) Village Road b) Service Road
c) Pathway d) none of the above

2) _____ means a clear approach to a plot or a building.
a) Gate b) Access
c) Vision d) none of the above

3) _____ means an opening to the outside other than the door which provides all or part of the required natural light, ventilation or both, to the interior space.
a) Door b) Roof
c) Window d) none of the above

4) Minimum width of habitable room is _____ m.
a) 2.4 b) 1.8
c) 2.1 d) none of the above

5) Minimum height of basement celling is _____ m above surrounding ground level.
a) 0.9 b) 1.5
b) 1.2 d) none of the above

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

a) Land-locked Plot.
b) Change of Occupancy/ Use.
c) Amalgamation Plan.
d) Provision for Staircase.

Q.3 a) Explain Road / Streets and hierarchy of road pattern **07**
b) What is Deemed Permission and how it can be obtained? **08**

Q.4 Explain necessity of Development Control Rules. **15**

OR

Explain Building Plan and its contains in brief.

SLR-JC-30

Seat No.		Set	P

B. Architecture (Semester - VII) (CBCS) Examination: October/November - 2025
Architectural Design - VII (21AR7-01)

Day & Date: Monday, 10-11-2025, Max. Marks: 150
Tuesday, 11-11-2025
Time: 10:00 AM To 04:00 PM

Instructions: 1) The candidates are required to submit the concept & rough scheme for final presentation at the exam centre.
2) Assume suitable data wherever necessary.
3) Draft site plan on 1:200 scale.
4) Draft floor plans, sections & elevations on 1:100 scale.

Project Title: COMMUNITY AND EXHIBITION CENTRE AT SOLAPUR

Design Program:
Jule Solapur is the twin- city of Solapur which has developed by leaps and bounds in the last 20 years. The Development Plan of the area has many reservations for public amenities. Considering the development of area and growing population, the city needs to maintain its identity and history through architectural expression.

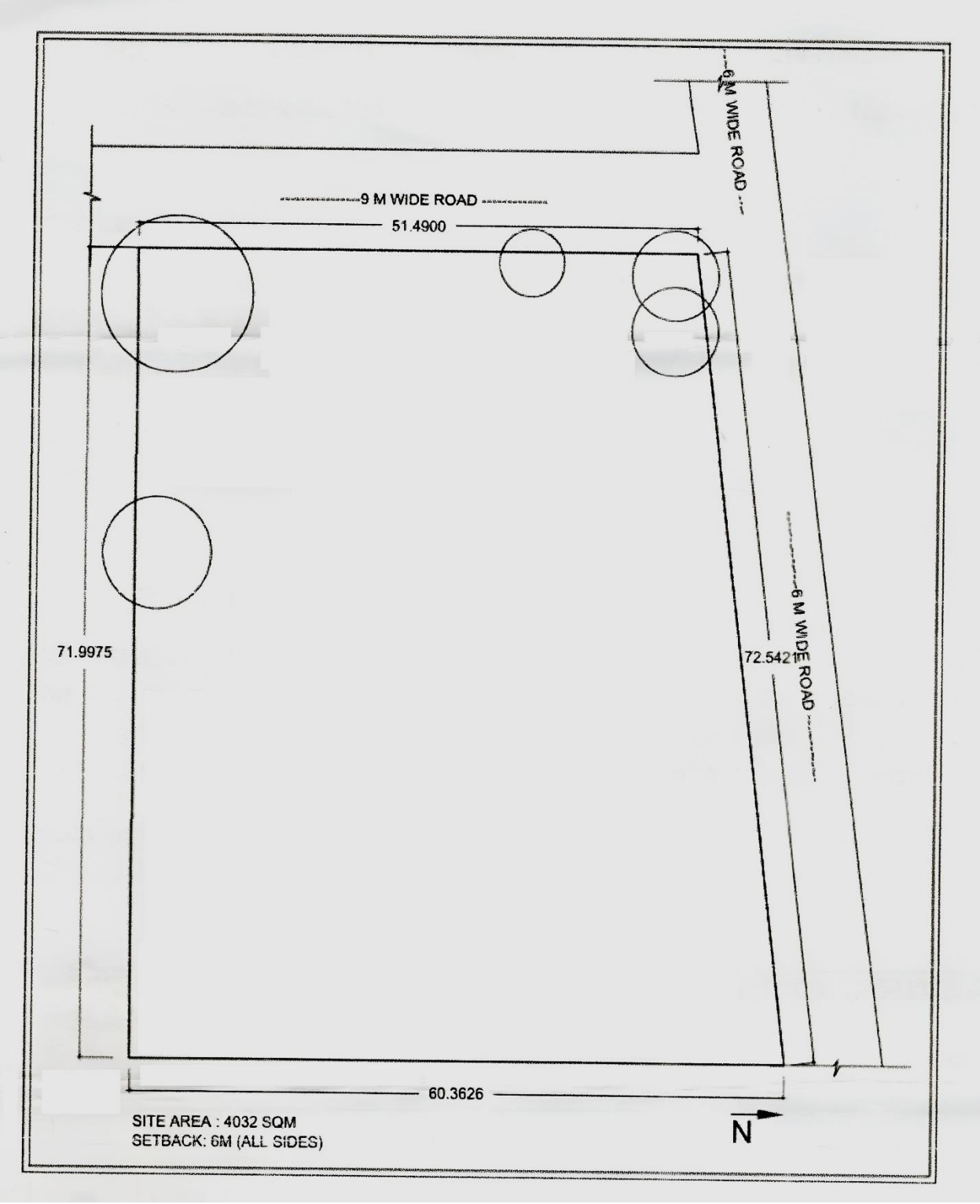
Municipal corporation proposes a community and exhibition centre at the Jule Solapur locality.

DESIGN REQUIREMENT FOR COMMUNITY & EXHIBITION CENTRE AT SOLAPUR				
Sr. No.	Legend	Requirements	No. of users	Area (sq.m)
1.	Admin			
	Reception + waiting area		2+10	45
	Office cabin	Attached Toilet		35
	Store			20
	Toilet (Staff)	Male, Female	As per Standard	15
2.	**COMMUNITY HALL**			
	Multipurpose hall		100	350
	Dressing room	2 nos with Attached toilet		20 (10 each)
	Store			20

	Toilet block	Male, Female	As per standards	25
	Services	HVAC, Electric		20
3.	**EXHIBITION AREA**	1 nos.	50-55 visitors at peak	175
	Ticket counter + security		2	20
	Toilet block	Male, Female		
4.	Open amphitheater			90
5.	Parking			
	2 wheelers	40 vis + 15 staff	30	
	4 wheelers	20 vis		
	Bus		2	
	Security cabin	1 nos.	1	15
	TOTAL BUILT-UP			**850**
	TOTAL PLOT AREA			**4333.73**

DRAWING REQUIREMENT		
1	Concept	30 Marks
2	Site Plan	30 Marks
3	All Floor Plans (including terrace/roof plan)	30 Marks
4	One Elevation	20 Marks
5	One Section	20 Marks
6	Sketches, Details if any to explain	10 Marks
7	Neatness, Drafting etc.	10 Marks

SITE PLAN


6M WIDE ROAD
9 M WIDE ROAD
51.4900
71.9975
72.5421
6 M WIDE ROAD
60.3626
SITE AREA : 4032 SQM
SETBACK: 6M (ALL SIDES)
N

Seat No.	

Set P

B. Architecture (Semester - VII) (CBCS) Examination: October/November - 2025
Theory of Structure – VII (21AR7-03)

Day & Date: Thursday, 13-11-2025 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 456:2000 is allowed.
6) IS 10262:2019 is allowed.

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

1) IS 10262 provides mix design procedures for which types of concrete?
a) Ordinary and high-strength concrete only
b) Ordinary, medium, high, and very high-strength concrete
c) Lightweight and heavyweight concrete only
d) Self-compacting and high-performance concrete only

2) The slump test result indicates: _____.
a) Concrete strength b) Workability of concrete
c) Concrete density d) Water-cement ratio

3) What is a key advantage of prestressing concrete?
a) Increased workability
b) Reduced weight of the concrete
c) Enhanced load-carrying capacity and reduced deflection
d) Higher shrinkage

4) In flat slabs, the "column strip" refers to: _____.
a) The central portion of the slab
b) The portion of the slab directly above the column
c) The edge portion of the slab
d) The middle strip of the slab between supports

5) IS 1893:2016 provides guidelines for the design of structures to resist: _____.
a) Wind forces b) Earthquake forces
c) Dead loads d) Live loads

6) Shear walls are typically used in buildings to resist: _____.
a) Vertical loads b) Lateral loads
c) Torsional loads d) Thermal loads

7) Long-span arches are primarily subjected to: _____.

a) Bending moments b) Shear forces
c) Axial compression d) Torsional forces

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

a) Write a note on types of cement.
b) Write a note on Special Loads as per IS 875 part5.
c) State all the load combination for analyzing tall building as per Indian standard.
d) Write a note on prestressing system.

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

a) Discuss the advantages, design principles, and applications of folded plate structures.
b) Perform the concrete mix design

STIPULATIONS FOR PROPORTIONING

a) Grade designation : M25
b) Type of cement (Part 1) : PPC conforming to IS 1489
c) Maximum nominal size of aggregate : 20 mm
d) Minimum cement content and maximum water-cement ratio to be adopted : medium (for RCC)
e) Workability : 75 mm (slump)
f) Method of concrete placing : Chute (Non pumpable)
g) Degree of site control : Good
h) Type of aggregate aggregate : Crushed angular
i) Maximum cement : As per IS 456
j) Chemical admixture type : Admixture -

TEST DATA FOR MATERIALS

i) Cement used (Part 1) : PPC conforming to IS 1489
j) Specific gravity of cement : 2.88
k) Chemical admixture : Admixture -
l) Specific gravity of
   1) Coarse aggregate [at saturated surface dry : 2.74 (SSD) Condition]
   2) Fine aggregate [at saturated surface dry : 2.65 (SSD) Condition]
   3) Chemical admixture : 1.145
m) Water absorption
   1) Coarse aggregate : 0.5 percent
   2) Fine aggregate : 1.0 percent

n) Moisture content of aggregate [As per IS 2386 (Part 3)]
   1) Coarse aggregate : 1.5%
   2) Fine aggregate : 4%

o) Sieve analysis:
   1) Coarse aggregate : Zone I
   2) Fine aggregate : Zone I

c) Design the interior panel of a flat slab of size 5 × 5m supported by columns of a circular column of diameter 600mm. Provide suitable drop and column head. Take live load as 6kN/m2. Use M25 and Fe415 steel.

d) A beam of cross- section 400mm × 800mm is simply supported over a span of 20 m. It is suitable to transfer prestress force of 2000kN 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 =210kN/mm2, Ec=35kN/mm2. Relaxation of steel is 5%, Creep coefficient =1.6, shrinkage strain in concrete = 2×10^{-4}, slip in anchorage = 3 mm, frictional coefficient 15×10^{-4}.

SLR-JC-33

Seat No.	

Set P

B. Architecture (Semester - VII) (CBCS) Examination: October/November - 2025
Professional Practice – I (21AR7-07)

Day & Date: Saturday, 15-11-2025 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. **07**

1) _____ tender is an offer to execute the work based on rates of different item of work.
a) Cost rate b) Item rate
c) Lump-sum d) None of the above

2) _____ is nothing but an offer made by one party to another for execution of specified work.
a) contract b) tender
c) arbitration d) none of the above

3) The _____ is the National body of Architects in the country.
a) COA b) IIA
c) Both a & b d) neither a nor b

4) EMD stands for _____.
a) Earliest money deposit b) Early money deposit
c) Earnest month deposit d) Earnest money deposit

5) Indian contract Act was enacted in the Year _____.
a) 1875 b) 1872
c) 1863 d) 1870

6) Application of registration of architects is done by _____.
a) vice president b) registrar
c) president d) chairman

7) An _____ carries responsibility on account of confidence placed in his judgement and integrity.
a) engineer b) architect
c) contractor d) arbitrators

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

a) Explain the procedure of invitation of tender.
b) Retention amount.
c) Security deposit.
d) Role of COA.

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

a) Define contract, explain Lump-sum contract & Item rate contract.
b) Mention different types of tender and explain any two in detail.
c) Explain in brief architect's office & its management.
d) Explain in brief role of COA & IIA.
e) Explain the duties & liabilities of architect.

Seat No.	

Set **P**

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

Day & Date: Monday, 17-11-2025 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. **08**

1) How do specifications impact project bidding?
a) They are irrelevant to bidders
b) Detailed specifications
c) They complicate the bidding process
d) None of the above

2) What is the primary purpose of a tender?
a) To increase project costs
b) To invite bids for project execution
c) To delay project completion
d) To reduce competition

3) Weight of the 20 mm diameter bar is _____.
a) 1.58 b) 3.85
c) 2.46 d) 0.61

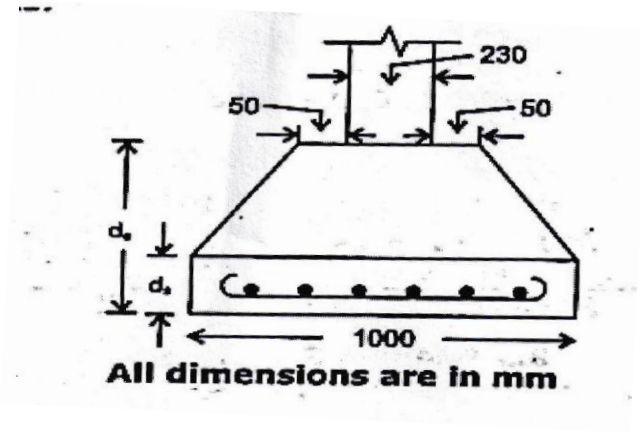
4) In the analysis of rates, which factor influences labor costs the most?
a) Skill level of workers b) 0.5% to 1%
c) Availability of materials d) 2% to 5%

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

a) Workout the quantity of RCC slab size 5500mm 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
230 x300	1000x1200	350/150	10 mm @120 c/c both way

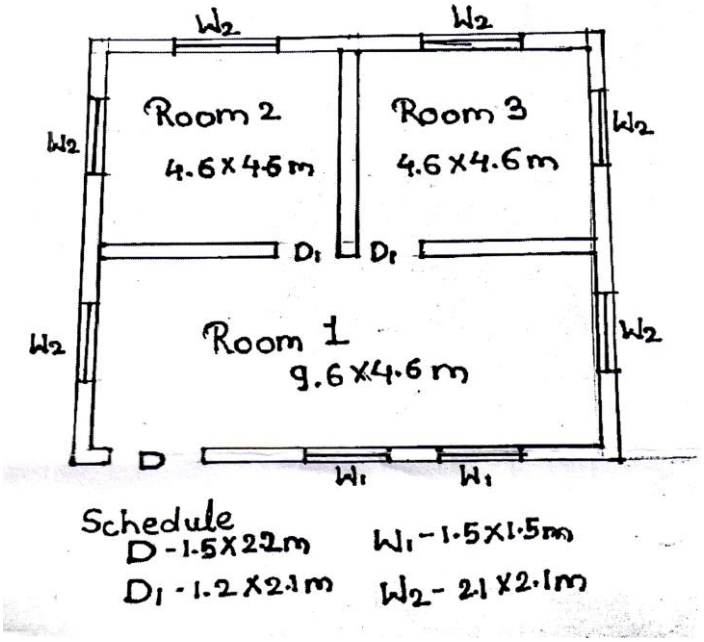


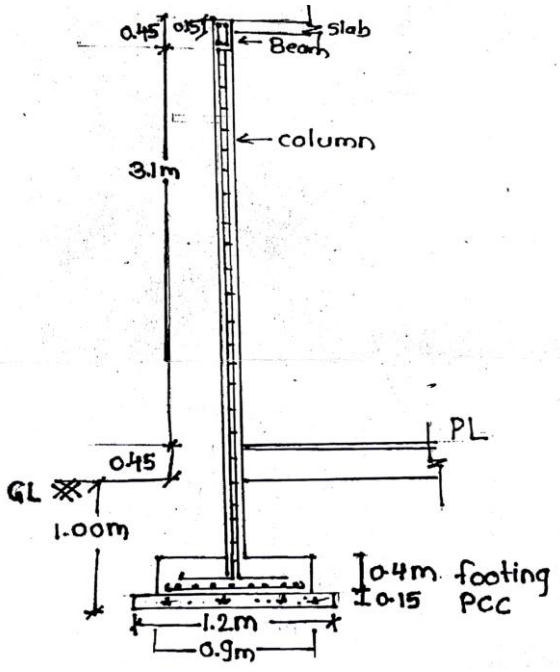
Q.3 Solve the following: (Any Three) **15**

a) Write specification of plaster.
b) Enlist the type of equipment used in construction.
c) What are the factors affecting the changes in market value?
d) Write a note on advertisement of tender.

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

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




0.45
0.15
Slab
Beam
column
3.1m
PL
0.45
GL
1.00m
0.4m footing
0.15 PCC
1.2m
0.9m

SLR-JC-35

Seat No.	

Set P

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

Day & Date: Wednesday, 12-11-2025 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

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

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

1) _____ means the quotient obtained by dividing the area covered by P line and the net area of the plot.
a) Floor area ratio b) Floor space
c) Built up area d) plinth area

2) The land on which the liability of beneficial of enjoyment of the easement is imposed is called _____ heritage.
a) servient b) dominant
c) liability d) None of the Above

3) _____ is the final decision taken by the arbitrator in written format.
a) Arbitral tribunal b) arbitration council
c) Arbitral award d) None of the above

4) The land acquisition act was enacted in _____
a) 1985 b) 1987
c) 1984 d) 1982

5) In limited competition, approx. _____ architects are invited to participate.
a) 5 - 8 b) 0 - 3
c) 1 - 2 d) none of the above

6) The number of assessors appointed in an architectural competition is maximum _____.
a) 9 b) 7
c) 2 d) 5

7) The land acquired under land acquisition act should be _____ from all encumbrance.
a) Limited b) Free
c) None of the above d) all of the above

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

a) Principals Land Acquisition Act.
b) Continuous & discontinuous easement.
c) Necessity of building byelaws.
d) Characteristics of an arbitrator.

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

a) Explain the factors considered regarding the safety of the labors under factory act.
b) Explain the term easement & its characteristics & types of easements.
c) What is arbitration in detail & explain its advantages & disadvantages.
d) Explain the objectives & procedure of conducting an architectural competition.
e) Explain land Acquisition & Principals of land acquisition act & stages involved in process of acquisition.

Seat No.	

Set **P**

B. Architecture (Semester - VIII) (CBCS) Examination: October/November – 2025
Project management (7024802)

Day & Date: Friday, 14-11-2025 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) Tax slabs under GST are _____
a) 6%, 12%, 18%, 24% b) 5%, 12%, 18%, 28%
c) 4%, 8%, 10%, 18% d) 9%, 18%, 24%, 36%

2) In a PERT network, Standard deviation (σ) is calculated by _____ formula.
a) $t_{p-}\ t_o/6$ b) $(t_{p-}t_o/6)^2$
c) $t_{p-}\ t_o/2$ d) $(t_{p-}t_o/2)^2$

3) In 1870, which of the following was the first large scale project management undertaking?
a) Transmountain Oil Pipeline, Canada
b) Transcontinental Railroad, United States
c) Beechdale Bridge, Pennsylvania
d) Troy Savings Bank Music Hall, United States

4) Income tax is categorized as _____ tax.
a) Indirect b) Direct
c) Optional d) Fixed

5) The _____ time estimate is the best guess of the maximum time that would be required to complete the activity if everything went wrong and abnormal situations prevailed.
a) Optimistic b) Pessimistic
c) Most likely d) Expected

6) Those activities which can be performed simultaneously and independently to each other are known as ____.
a) Parallel activities b) Serial activities
c) Successor activities d) Predecessor activities

7) In PERT, time durations are
a) Probabilistic b) Deterministic
c) Fixed d) Changing

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

a) Differentiate between CPM and PERT.

b) Explain triple constraints in Project Management.

c) Write about the requirement of fixing minimum wages and objectives of minimum wages act 1948

d) Write a note on activity and give its examples.

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

a) i) What are different construction site layout considerations.

ii) Write in brief about the background of project management.

b) i) Explain any 6 aspects of Project Management

ii) Draw a phase based work breakdown structure for a 1BHK interior project considering no civil changes have to be made

c) i) Draw a Bar/ Gant chart for the following points and find the project duration

A project consists of 8 activities A, B, C, D, E, F, G and H with the duration of 10, 12, 6, 6, 16, 8, 16 and 12 weeks respectively

- Activities A and B can commence simultaneously and both the activities are independent,
- Activity C is succeeding activity B but is independent of A.
- Activity D is independent of C. It can start earlier to commencement of C, but after A and B have commenced.
- Activity E is succeeding Activity D
- Activity C and F can commence simultaneously, both these activities can start only after Activity B is completed.
- Activity G can start only if Activities A and D are completed.
- Activity H can commence after activities D and G are completed.
- End of Activity H is completion of project.

ii) Explain powers of Inspector under Building and other Construction workers (BOCW) Act 1996.

d) Find Mean duration, Standard deviation and Variance for the following data. Also find Critical path with the help of network diagram.

Activity	Predecessor	to	tm	tp
A	-	2	4	9
B	A	5	8	14
C	B	4	10	13
D	B	4	7	10
E	C	11	14	20
F	D	9	13	16
G	E,F	2	4	6

e) Following Table gives the data about duration and costs

i) Find out total direct cost.

ii) Carry out stage by stage compression of network

iii) Find optimum duration and minimum cost for

Consider Indirect Cost= 40 Rs/ week.

Activity	Normal Duration (Weeks)	Normal Cost (Rs)	Crash time by (Weeks)	Crash cost (Rs)
A(1-2)	5	200	2	260
B(1-3)	6	220	3	310
C (2-4)	4	310	2	390
D (2-6)	7	250	4	400
E (3-5)	5	350	3	390
F (4-5)	4	150	2	230
G (4-6)	6	300	3	420
H (5-6)	7	200	4	290

Seat No.	

Set **P**

B. Architecture (Semester - IX) (CBCS) Examination: October/November - 2025
Professional Practice- II (21AR9-04)

Day & Date: Tuesday, 25-11-2025 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 Choose and write the correct answer: **07**

1) Two stage competition is also known as ____.
a) Ideas b) Project
c) Both a & b d) None of the above

2) ____ is the person to whom the dispute and differences are referred for necessary adjudication.
a) Engineer b) Architect
c) Contractor d) Arbitrators

3) The land on which the liability of beneficial enjoyment of the easement is imposed is called ____ Heritage.
a) Dominant b) Servient
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) ____ are conditions in agreement which spell out rights and liabilities in a tenant agreement.
a) Covenants b) Rules
c) Regulations d) None of these

6) ____ is an easement, which requires the act of man for its enjoyment.
a) Continuous b) Discontinuous
c) Artificial d) Natural

7) The easement act was enacted in the year ____.
a) 1882 b) 1883
c) 1884 d) 1885

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

a) Open and Limited Competitions.
b) Arbitral tribunal.
c) Principles of Land Acquisition Act.
d) Define Dilapidations, Waste, Repair and Fixtures.

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

a) Explain the role of Council of Architecture (COA) In Architectural Competitions.
b) What is Arbitration? Explain the advantages and disadvantages of settling the disputes by this method
c) Define easement, Dominant and servient heritage, characteristics of easement.
d) List the eight major steps involved in the procedure for the acquisition of land as per Land Acquisition Act. Explain any three of these steps in detail.
e) Explain the objectives and provisions of the Maharashtra rent control act 1999.

SLR-JC-38

Seat No.	

Set P

B. Architecture (Semester - IX) (CBCS) Examination: October/November – 2025
Project management (21AR9-03)

Day & Date: Thursday, 27-11-2025 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. **07**

1) Functional Organization system of working was given by _____
a) F.W Taylor b) Henry Gantt
c) M.R. Walker d) J.E Kelley

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

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

4) Total float is indicated by _____.
a) FF b) FID
c) FIN d) FT

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

6) Crashing is _____.
a) Abandoning the project
b) Completing the project with all possible haste
c) Reduction of duration for a few of the activities
d) Reducing the cost of the project with all needful modification

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**

a) Event & Activity.
b) Role of Project Management.
c) Explain Work Breakdown Structure & its types.
d) Float & its types.

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

a) Explain what is project & different aspects of Project Management.
b) Discuss in Brief the two network methods i.e PERT & CPM.
c) Explain Factories Act. 1948.
d) Explain Bar Chart & its demerits. Prepare the Bar Chart of the Project.

Activity No.	Duration
1	1
2	2
3	4
4	3
5	1
6	2
7	4

Activity 2 & activity 3 can be done concurrently, & both must follow activity. 1. Activity 2 must precede activity 4. Activity 5 cannot begin until both activities 2 & 3 are completed. Activity 6 can be started only after activities 4 & 5 are complete. Activity 7 is the last activity which can be started only after completion of activity 5.

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