

**FIRST AND SECOND SEMESTER B.ARCH. DEGREE (2004 SCHEME)
SPECIAL EXAMINATION, APRIL 2020**

AR 01 15—ENGINEERING MECHANICS

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer all questions.
Each question carries 5 marks.*

1. Describe briefly on :

- (a) FBD applied on a ladder problem (assume data).
- (b) Conditions of equilibrium of forces in
 - i. Coplanar concurrent system.
 - ii. Coplanar non-concurrent system.
- (c) Cable problem.
- (d) Like, unlike and equal forces with suitable examples.
- (e) Centroid and Centre of Gravity.
- (f) Stable and unstable equilibrium.
- (g) Compound Pendulum.
- (h) Rotational motion and its equations.

(8 × 5 = 40 marks)

Part B

*Answer all questions.
Each question carries 15 marks.*

2. (a) Three forces 200 N, 300 N and 400 N act along three sides of an equilateral triangle taken in order. Find the magnitude and line of action of the resultant force.

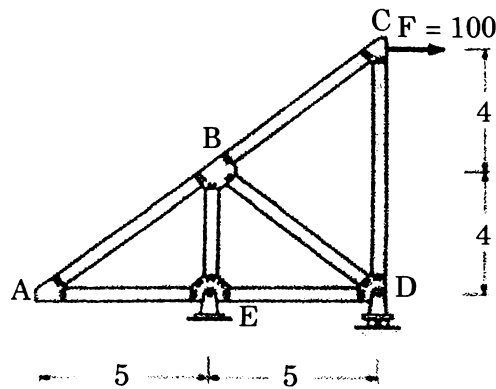
Or

- (b) A uniform ladder 5 m long weighs 50 Kg. It is placed against a vertical wall with which it makes an angle of 45° . The co-efficient of friction between wall and ladder is 0.25 and that between the floor and ladder is 0.35. The ladder in addition to its own weight has to support an additional load of 1000 N at its top end. Find :

- i. The horizontal force P to be applied at the bottom of the ladder to prevent slipping.
- ii. Consider the same if co-efficient of friction for all the surfaces are same.

Turn over

3. (a) Using any one method analyse the given system to determine the forces in each member, (all dimensions are in SI).



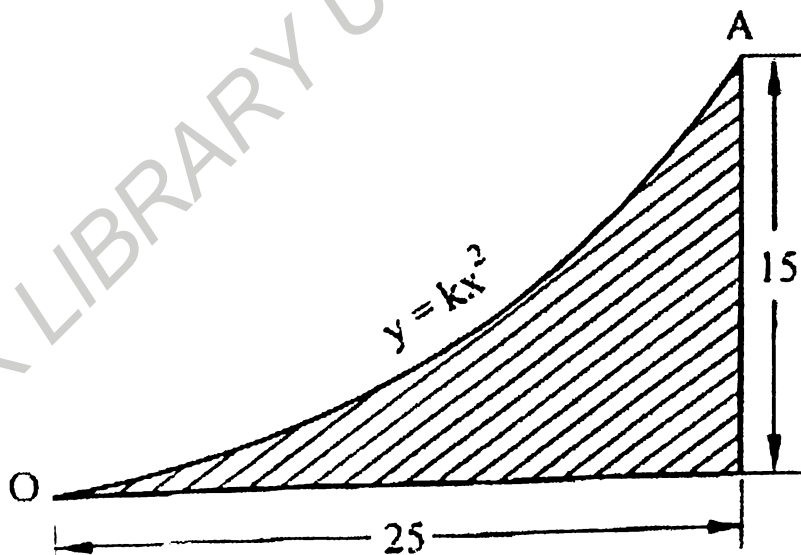
Or

- (b) A beam is simply supported at one end and roller supported at the other. The beam is 6m long and a load of 6 kN acts at a point, C 2 m from the simply supported end. From C till the other end uniformly distributed loading of 5 kN/m is given. Calculate the reactions at the supports.

4. (a) Explain in detail the steps for determining the MI for a symmetric I section and T section.

Or

- (b) Determine the centroid of the shaded area as shown in figure, (all dimensions are in cm).



5. (a) Explain the motion of vehicles in curved path with suitable diagram. If the co-efficient of friction between the road and tyre of an automobile is 0.2. Then find the speed at which the automobile can travel around a curve of radius 240 m without skidding.

Or

- (b) A body weighing 40 N drops freely from a height of 50 m and penetrates into the ground by 100 cm. Find the average resistance to penetration and the time of penetration.

(4 × 15 = 60 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

**FIRST AND SECOND SEMESTER B.ARCH. DEGREE (SPECIAL)
[2004 SCHEME] EXAMINATION, APRIL 2020**

AR 01 14—ARCHITECTURAL DRAWING AND GRAPHICS

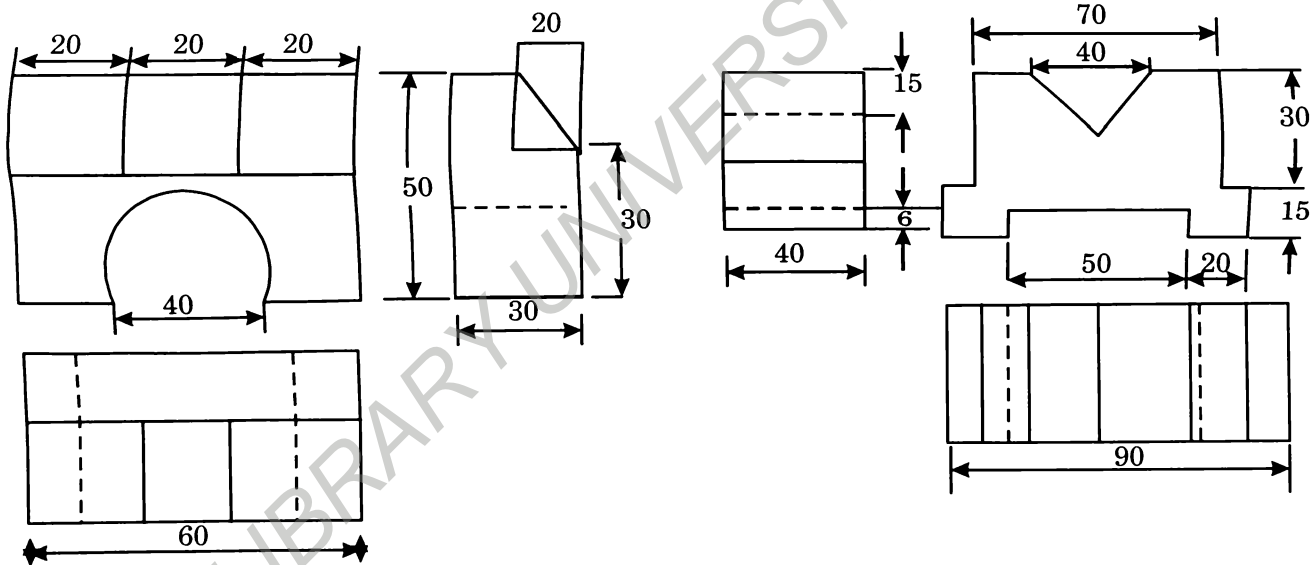
Time : Three Hours

Maximum : 100 Marks

Module I

Answer any one question.

1. Illustrate with suitable example, visualization & technical representation of plays vital role in expression of architectural drawing.
2. Write a note on Presentation, approval, working and detailed drawing.
3. Draw the plan showed in the Figures 1 and 2 in 1 : 20. All dimensions are in CM.



(1 × 25 = 25 marks)

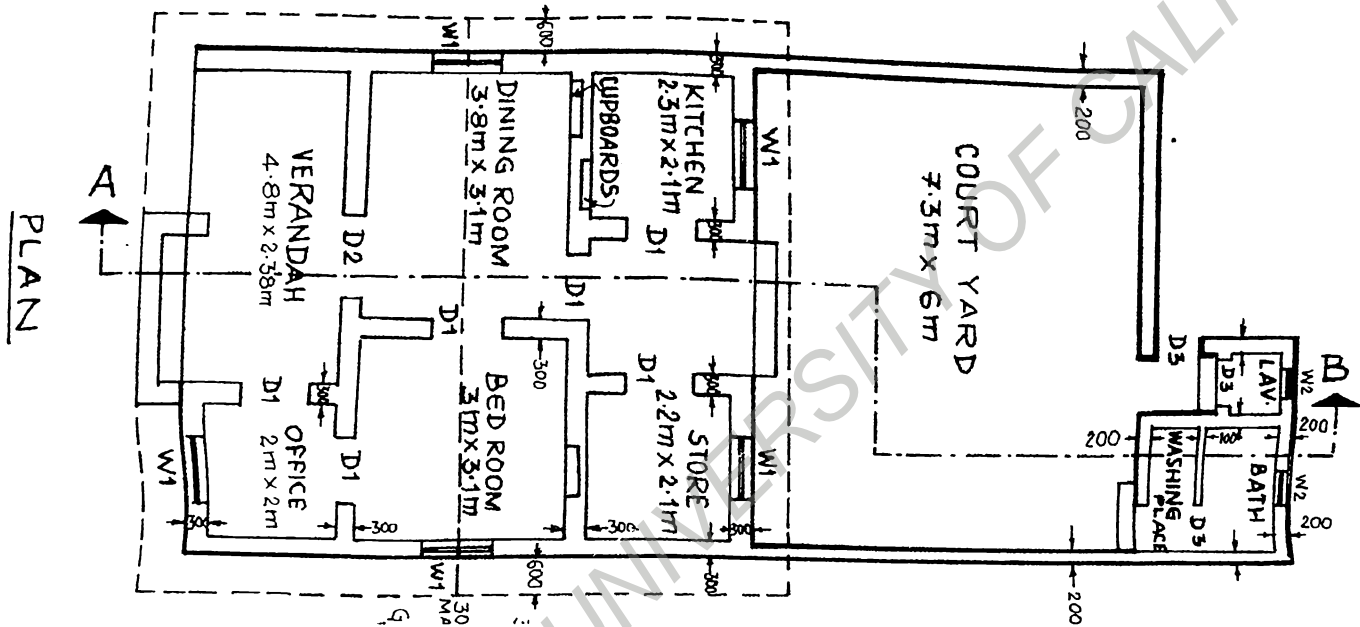
Module II

Answer any one question.

1. (a) Draw an ellipse when the distance of focus from directrix is equal to 40 mm. AND eccentricity is $\frac{3}{4}$.
(b) Draw an ellipse with the given major or minor axis lengths. Major axis 90 mm. and minor axis 60 mm. Also draw the tangent at a point on the curve.

Turn over

2. (a) Circle of radius 30 mm. rolls on the concave side of the circle of radius 55 mm. draw the path traced by a point on the rolling circle.
- (b) Construct the path traced by a point on a circular disc of radius 40 mm. rolls in a circular path of radius 90 mm inside it.
3. Draw the measured drawing shown in the picture in 1 : 20 scale. All dimensions are in "M" :



(1 × 25 = 25 marks)

Module III

Answer any **one** question.

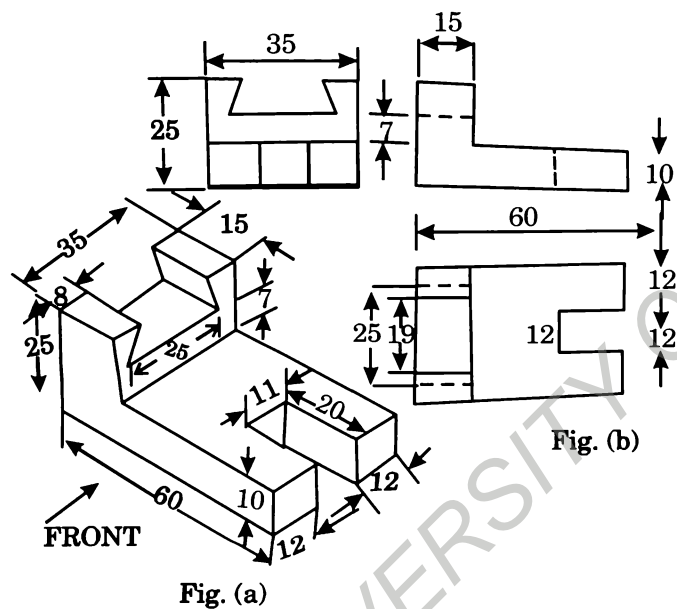
1. A triangular prism of side 30 mm, height 60 mm. rest on the HP on its base with an edge parallel to the VP. Draw the projection.
2. A cylinder of 50 mm. dia and 80 mm. height is kept 30 mm. above the ground level with one of the end faces parallel to the ground. Draw the projection when the nearest generator of the cylinder is 20 mm. in front of VP.
3. A cone of base dia 40 mm. and height 80 mm. is suspended such that its apex is pointing towards the ground and base is parallel to the ground. Draw the projection of the cone, when the apex is 25 mm. in front of the principal vertical plan and 1.5 cm. above the ground.

(1 × 25 = 25 marks)

Module IV

Answer any **one** question.

1. Draw the sciography of the object showed in figure. Assume the sunlight fall on the object at an angle of 45 degree.



2. Figure 1 and 2 shows the top, front and side view of the object. Draw its isometric projections. All dimensions are in CM :

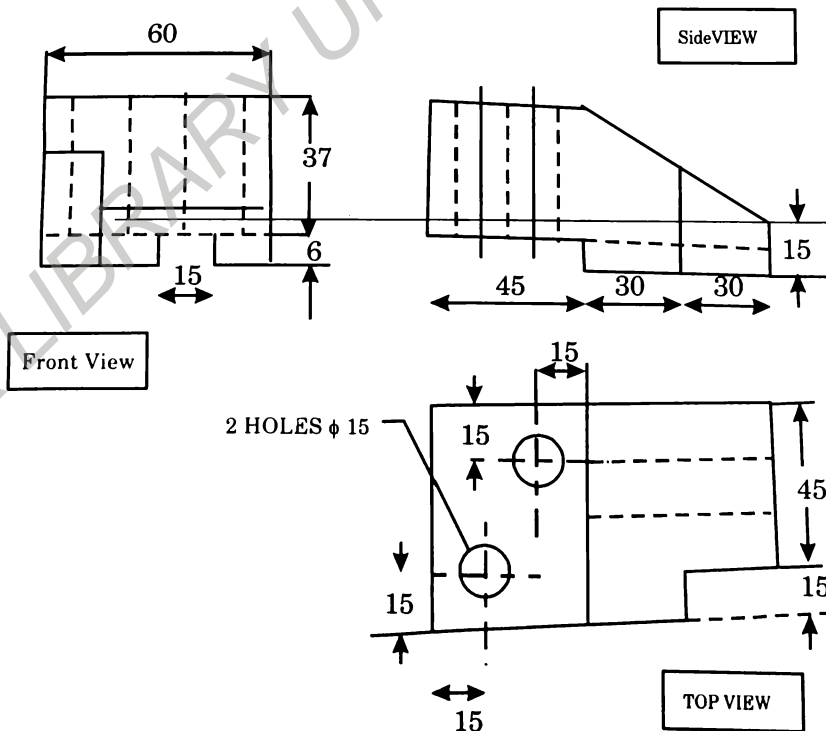


Figure 1

Turn over

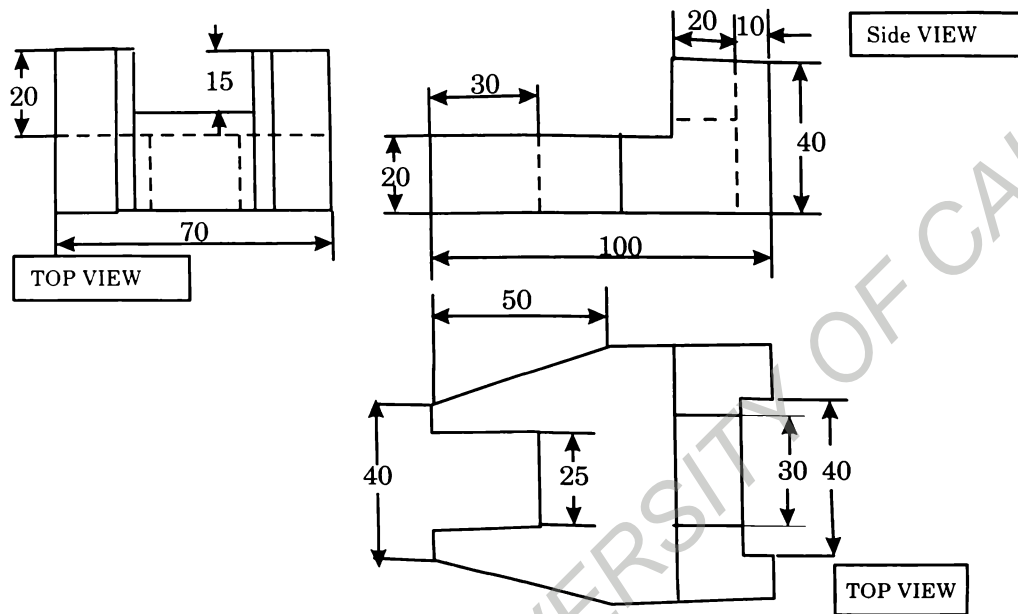


Figure 2

3. A pentagonal pyramid of 25 mm. base side and axis height 40 mm. is standing on its base on the ground plane with a base side parallel to and 30 mm. behind PP. The central plane is 30 mm to the left of the apex and the station point is 45 mm. in front of PP. and 20 mm. above the ground plane. Draw the perspective view of the pyramid.

(1 × 25 = 25 marks)

**FIRST AND SECOND SEMESTER B.ARCH. DEGREE (2004 SCHEME)
SPECIAL EXAMINATION, APRIL 2020**

AR 01 13—HISTORY OF ARCHITECTURE-I

Time : Three Hours

Maximum : 100 Marks

Illustrate with neat and relevant sketches.

1. (a) Explain the features of churches which were constructed in the traditional style of Kerala.
Or
(b) Using any one example, explain the characteristics of a typical traditional palace of Kerala.
2. (a) The buildings of ancient Greek cities directly reflect the cultural influences of that age. Substantiate this statement.
Or
(b) Using three typical building typologies of the Chinese civilisation, explain how they show the prevailing sociocultural customs.
3. (a) Explain the architectural features of a typical Khajuraho temple.
Or
(b) Describe the features of the Chaitya hall at Karli.
4. (a) What are the salient features of Natarajar temple at Chidambaram?
Or
(b) Describe the Shore temple at Mahabalipuram.

(4 × 25 = 100 marks)

**FIRST AND SECOND SEMESTER B.ARH. DEGREE
[2004 SCHEME] SPECIAL EXAMINATION, APRIL 2020**

AR 01 11—MATHEMATICS

Time : Three Hours

Maximum : 100 Marks

Answer one full question (A) or (B) from each module.

Module I

- A. I. (a) Find the n th derivative of $x^2 \log 3x$. (4 marks)
- (b) If $y = \sin^{-1}x$ prove that $(1-x^2)y_{n+2} - (2n+1)xy_{n+1} - n^2y_n = 0$. (6 marks)
- II. (a) Evaluate $\int_0^{\pi/2} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}} dx$. (5 marks)
- (b) Find the area of the segment cut-off from the parabola $x^2 = 8y$ by the line $x - 2y + 8 = 0$. (5 marks)

Or

- B. I. Find the equation of the circle of curvature of $y = x^2$ at $(1, 1)$. (10 marks)
- II. (a) Evaluate $\int \frac{3x+1}{(x+3)(x-1)^2} dx$. (5 marks)
- (b) Evaluate $\int e^x \frac{1-\sin x}{1-\cos x} dx$. (5 marks)

Module II

- A. I. Find the vertex, focus, directrix, axis and latus rectum of the parabola $y^2 = 5x + 4y + 1$. (10 marks)
- II. Find the equations of the tangents to the ellipse $9x^2 + 16y^2 = 144$ from the point $(2, 3)$. (10 marks)

Or

- B. I. The asymptotes of a hyperbola are parallel to $2x + 3y = 0$ and $3x - 2y = 0$. Its centre is at $(1, 2)$ and passes through $(5, 3)$. Find its equation. (10 marks)
- II. Show that the locus of the point of intersection of two perpendicular tangents to a parabola is its directrix. (10 marks)

Turn over

Module III

A. I. Find the median and mean deviation about the median for the following data :—

Age (years)	:	1–5	6–10	11–15	16–20	21–25	26–30	31–35	36–40	41–45
No. of persons	:	7	10	16	32	24	18	10	5	1

(10 marks)

II. Find the coefficient of correlation from the following data :—

x	:	12	20	15	22	18	24	20	12	15	22
y	:	30	35	28	36	29	39	30	25	30	38

(10 marks)

Or

B. I. Calculate the rank correlation coefficient for the following data :—

Marks in Statistics	:	45	56	39	54	45	40	56	60	30	35
Marks in Law	:	40	56	40	44	36	36	40	44	20	36

(10 marks)

II. Calculate the standard deviation of the following series :—

Marks	:	0—10	10—20	20—30	30—40	40—50	50—60	60—70
No. of students	:	2	4	5	9	10	5	15

(10 marks)

Module IV

A. I. Find k for which the following is pdf. Also find mean and variance. Find $P(1 \leq X \leq 3)$:

x	0	1	2	3
$f(x)$	$\frac{k}{2}$	$\frac{k}{3}$	$\frac{k+1}{3}$	$\frac{2k-1}{6}$

(10 marks)

II. If X is normally distributed with mean 8 and S.D. and find (i) $P(5 \leq X \leq 10)$; (ii) $P(10 \leq X \leq 15)$; (iii) $P(X \geq 15)$; and (iv) $P(X \leq 5)$.

(10 marks)

Or

B. I. If a random variable has a Poisson distribution such that $P(1) = P(2)$, find (i) mean and variance of the distribution ; (ii) $P(0)$; (iii) $P(X \geq 1)$; (iv) $P(X \leq 1)$.

(10 marks)

II. If the mean of a binomial distribution is 3 and the variance is $3/2$, find the probability of obtaining at least 4 success.

(10 marks)

Module V

- A. I. A resourceful home decorator manufactures two types of lamps say A and B. Both lamp go through two technicians first a cutter and second finisher. Lamp A requires 2 hours of the cutter's time and 1 hour of the finishes time. Lamp B requires 1 hour of the cutter's time and 2 hour of the finisher's time. The cutter has 104 hours and finisher 76 hours of available time each month. Profit of one lamp A is Rs. 6 and on one B lamp is Rs. 11. Formulate a Mathematical model.

(10 marks)

- II. Solve graphically :

$$\text{Maximize } Z = 4x_1 + 10x_2$$

$$\text{subject to } 12x_1 + 6x_2 \leq 30$$

$$4x_1 + 10x_2 \leq 20$$

$$2x_1 + 3x_2 \leq 9$$

$$x_1, x_2 \geq 0.$$

(10 marks)

Or

- B. Solve using Simplex method :

$$\text{Maximize } Z = 3x_1 + 5x_2$$

$$\text{Subject to } x_1 + x_2 \leq 2$$

$$2x_1 + 5x_2 \leq 10$$

$$8x_1 + 3x_2 \leq 12$$

$$x_1, x_2 \geq 0.$$

(20 marks)

[5 × 20 = 100 marks]

FIRST AND SECOND SEMESTER B.Arch. DEGREE (SPECIAL)
[2012 SCHEME] EXAMINATION, APRIL 2020

AR 12 16—ENGINEERING MECHANICS

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 5 marks.

1. Describe briefly on :

- (a) Conditions for equilibrium of coplanar concurrent and non-concurrent force systems.
- (b) Principle of transmissibility.
- (c) Angle of friction and Angle of repose. Relation connecting them.
- (d) Virtual work and virtual displacement.
- (e) Trusses and its solution techniques.
- (f) Funicular Polygon.
- (g) Conservation of energy.
- (h) Curvilinear motion and super-elevation.

(8 × 5 = 40 marks)

Part B

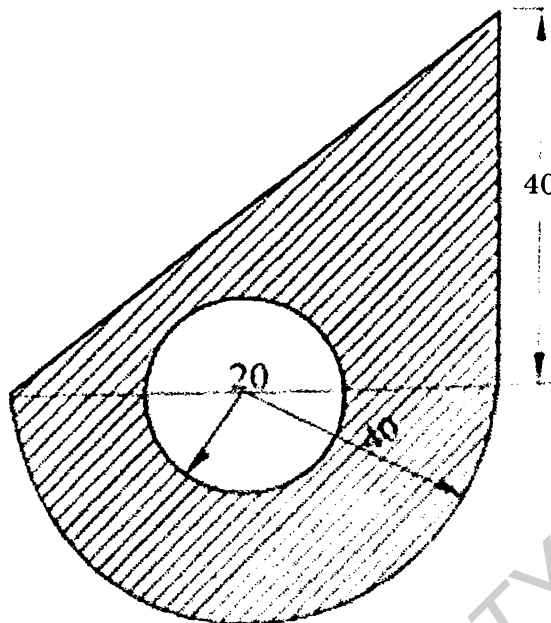
Answer all questions.
Each question carries 15 marks.

2. (a) Four forces equal to P, 2P, 3P and 4P are acting along four sides of a square ABCD taken in order. Find the characteristics of the resultant.

Or

(b) Locate the centroid of the shaded area as shown in figure on Page 2 (all dimensions are in mm).

Turn over



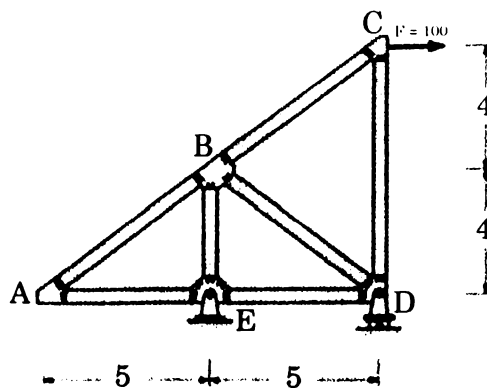
3. (a) A uniform ladder 5 m long weighs 50 Kg. It is placed against a vertical wall with which it makes an angle of 45° . The co-efficient of friction between wall and ladder is 0.25 and that between the floor and ladder is 0.35. The ladder in addition to its own weight has to support an additional load of 1000N at its top end. Find

- (i) The horizontal force P to be applied at the bottom of the ladder to prevent slipping.
- (ii) Consider the same if co-efficient of friction for all the surfaces are same.

Or

- (b) A beam is simply supported at one end and roller supported at the other. The beam is 6 m long and a load of 6KN acts at a point, C 2 m from the simply supported end. From C till the other end uniformly distributed loading of 5KN/m is given. Calculate the reactions at the supports.

4. (a) Using any *one* method analyse the given system to determine the forces in each member.



Or

- (b) Explain a beam problem in detail. Define all the types of supports and loading with suitable diagrams.
5. (a) A car enters a curved road in the form of a quarter of a circle, of radius 100 m at 18 Kmph and leaves at 36 Kmph. If the car is travelling at a constant tangential acceleration, find the magnitude and direction of acceleration when the car (i) Enters ; and (ii) Leaves the curved portion of the road.

Or

- (b) Explain angular momentum and angular impulse. Derive mathematical relation for the same.

(4 × 15 = 60 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

**FIRST AND SECOND SEMESTER B.ARCH. DEGREE (2012 SCHEME)
SPECIAL EXAMINATION, APRIL 2020****AR 12 13—HISTORY OF ARCHITECTURE—I**

Time : Three Hours

Maximum : 100 Marks

*Illustrate your answers with neat sketches wherever required.***Part A***Answer all questions.*

1. Write short notes on :
 - (a) Features of Ziggurat of Ur (give sketches).
 - (b) Evolution of tombs of ancient Egypt.
 - (c) Construction techniques used in Harappan civilization.
 - (d) Architectural features of Stupas.
 - (e) Elements of typical Dravidian temple (sketch).
 - (f) Explain features of Dharmaraja Ratha at Mahabalipuram.
 - (g) Evolution of Gopuram during Pandyan dynasty.
 - (h) Sketch typical Nagara-style temple with labeling.

(8 × 5 = 40 marks)

Part B*Answer all questions.*

2. (a) Explain forced influenced evolution of architectural characters in Ancient Greece (give examples).

Or

(b) Explain key features of Pantheon and Roman Forum.
3. (a) What kind of building materials and Construction techniques were used during Vedic period ?

Or

(b) Explain about cultural factors that influenced in shaping viharas of Ajanta and Ellora.
4. (a) Explain key featur of Gupta and Chalukyan Architecture with examples.

Or

(b) Explain factors that influenced architectural elements during Chola period with an example.
5. (a) Explain the difference between Pandyan architecture and Orissan architecture with examples.

Or

(b) Explain the key building elements that were used in temple complexes during Nayaks period.

(4 × 15 = 60 marks)

C 84155

Name.....

Reg. No.....

**COMBINED I & II SEMESTER B.ARCH. DEGREE (2017 SCHEME) SPECIAL
EXAMINATION, APRIL 2020**

AR 17 17—VISUAL ARTS AND PRESENTATION

Time : Three Hours

Maximum : 100 Marks

*Support you answers with neat sketches, wherever appropriate.
Drawing sheets will be provided.*

Part A

Answer all questions.

1. Write short notes on :

- (a) Highlight the important characteristics of cubism art.
- (b) Describe the prominent features of Greek art.
- (c) What are the main types of drawing media. Which artists were best at sketching?
- (d) Define light and shade & highlight the importance of sociography in architecture.
- (e) Elements of painting.
- (f) Rendering techniques and its importance
- (g) Difference between freestanding sculpture and reliefs.
- (h) Molding and casting techniques using plaster.

(8 × 5 = 40 marks)

Part B

Answer all questions.

2. (a) Elaborate on the abstract art techniques and its types with neat sketches.

Or

(b) Make an interesting three dimensional stable composition using 3 bottles, 2 balls and 1 lampshade. Show the effects of light and shadow on the composition.

3. (a) Elucidate in detail about colour theory. Also explain about colour wheel.

Or

(b) Design a mural for an Art museum facade. Size of your drawing should be 25 × 20 cm on paper and render it with suitable colours.

(2 × 30 = 60 marks)

**COMBINED FIRST AND SECOND SEMESTER B.ARCH. (SPECIAL) DEGREE
[2017 SCHEME] EXAMINATION, APRIL 2020**

AR 1716—ARCHITECTURAL DRAWING AND GRAPHICS

Time : Three Hours

Maximum : 100 Marks

*Missing data if any, may suitably be assumed Retain construction lines, dimension the figures
appropriately*

Part A (25 Marks)

- I. (a) (i) Write any *five* general rules for dimensioning. Show by sketches the difference between (1) Continuous or chain dimensioning ; and (2) Progressive or parallel dimensioning. What are the advantages of one above the other ?

(12½ marks)

- (ii) Construct a diagonal scale of 3 : 200 i.e., 1 : 66 showing decimeters and centimeters and to measure up to 6 metres.

(12½ marks)

Or

- (b) (i) Construct an ellipse when the distance of the focus from the directrix is equal to 50 mm. and eccentricity is

(12½ marks)

- (ii) A point P is 30 mm. and 50 mm. respectively from two straight lines which are at right angles to each other. Draw a rectangular hyperbola from P within 10mm distance from each line.

(12½ marks)

Part B (25 Marks)

- II. (a) (i) The distance between the centres of two circles of 65 mm. and 90 mm. diameters is 120 mm. Draw an internal and an external common tangent to the two circles.

(12½ marks)

Turn over

- (ii) Draw a helix of pitch equal to 50 mm upon a cylinder of 75 mm diameter and develop the surface of the cylinder. Assume the starting point to be on the vertical center line in the top view.

(12½ marks)

Or

- (b) (i) The pictorial view of different types of objects are shown in the figure, Sketch, looking from arrow, elevation, plan and end-view using first angle projection method.

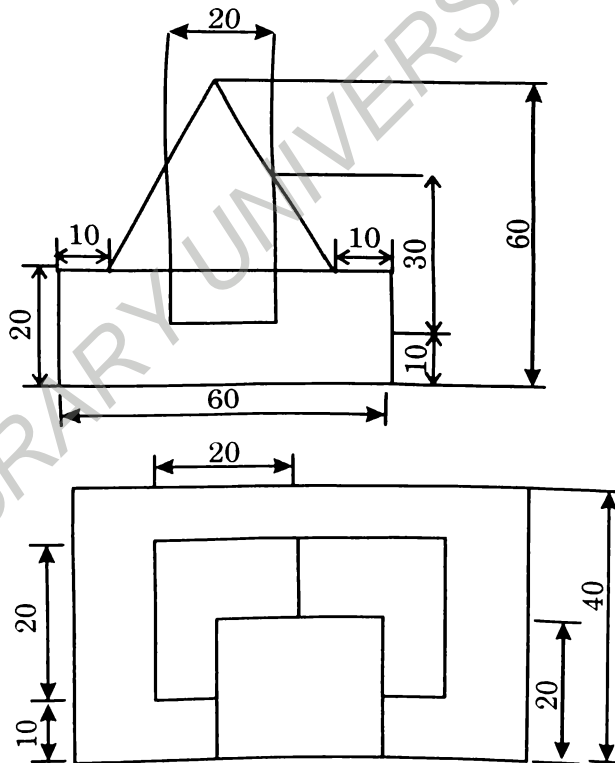
(12½ marks)

- (ii) A thin circular plate of 70 mm. diameter is resting on its circumference such that its plane is inclined 60° to the H. P. and 30° to the V. P. Draw the projections of the plane.

(12½ marks)

Part C (25 Marks)

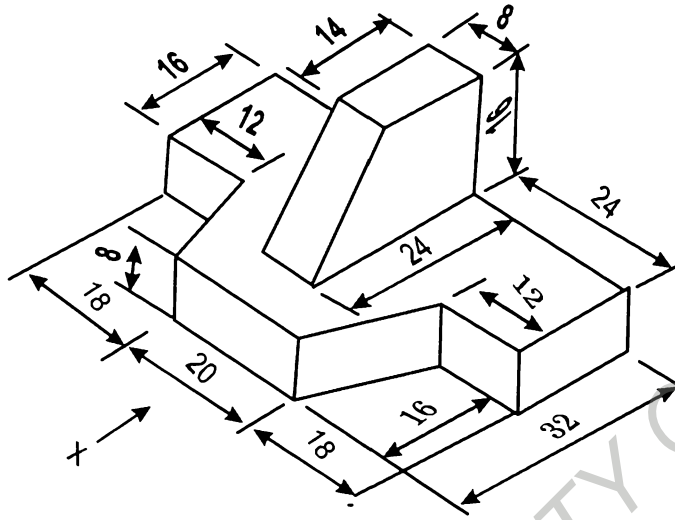
- III. (a) Draw the isometric view of the casting shown in Fig.



Or

(25 marks)

- (b) Draw the top, front and sides of the block shown below, used third angle projection method.



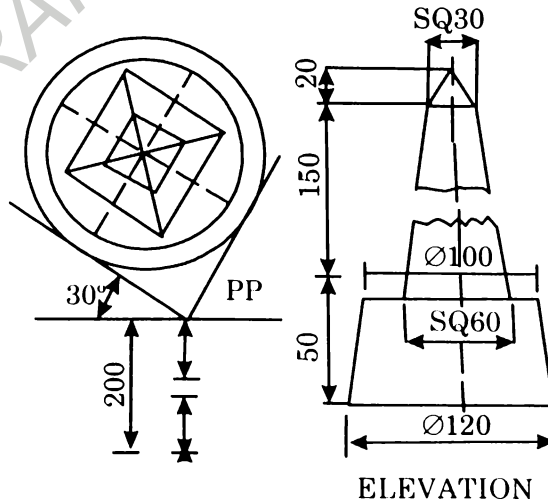
(25 marks)

Part D (25 Marks)

- IV. (a) (i) A rectangular pyramid, base 30 mm. \times 20 mm. and axis 35 mm long, is placed on the ground plane on its base, with the longer edge of the base parallel to and 30 mm. behind the picture plane. The central plane is 30 mm to the left of the apex and the station point is 50 mm in front of the picture plane and 25 mm above the ground plane. Draw the perspective view of the pyramid.

(12½ marks)

- (ii) Draw the perspective view of the model of a memorial shown in fig. The station point is 200 mm in front of the picture plane and 160 mm. above the ground plane.



ELEVATION

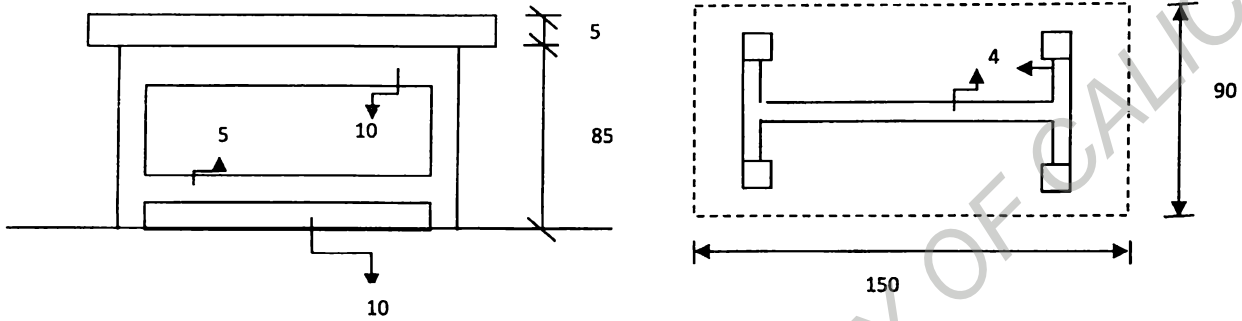
(12½ marks)

Or

Turn over

(b) Draw sciography for the following. Assume any other details required.

(i) When the shorter side of the table is touching the wall.



(12½ marks)

(ii) Draw the sciography of a sphere of diameter 4 cm held at 9 cm from ground. Light falls at an angle of 45° from its left.

(12½ marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

**COMBINED I & II SEMESTER B.ARCH. DEGREE (2017 SCHEME) SPECIAL
EXAMINATION, APRIL 2020**

AR 17 15—HISTORY OF ARCHITECTURE–I

Time : Three Hours

Maximum : 100 Marks

Illustrate with neat sketches wherever required.

Part A

Answer all questions.

I. Write short note on :

- | | |
|---|--------------------------------|
| (a) Describe the Ancient Roman forums. | (b) Pyramid complex at Giza. |
| (c) Sanchi stupa. | (d) The great Bath. |
| (e) The Rock cut architecture at Mahabalipuram. | (f) Lad Khan Temple. |
| (g) Sun Temple at Konark. | (h) Srirangam Temple, Madurai. |

(8 × 5 = 40 marks)

Part B

Answer all questions.

1. Describe the Temple at Karnak with appropriate and labeled sketches.

Or

Explain the features of Roman civilization with the help of sketches.

2. Explain the characteristics of a Vedic Village.

Or

Explain the character of cities of the Indus Valley Civilisations.

3. Explain the Shore temple at Mahabalipuram with sketches.

Or

Explain the Characteristic features of Hoysaleswara temple at Halebeedu.

4. Explain the typical features of the Indo Aryan temples.

Or

Explain the Sun temple at Modhera.

(4 × 15 = 60 marks)

**COMBINED FIRST AND SECOND SEMESTER B.ARCH. DEGREE
(SPECIAL) [2017 SCHEME] EXAMINATION, APRIL 2020**

AR 17 14—THEORY OF STRUCTURES—I

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer **eight** questions.
Each question carries 5 marks.*

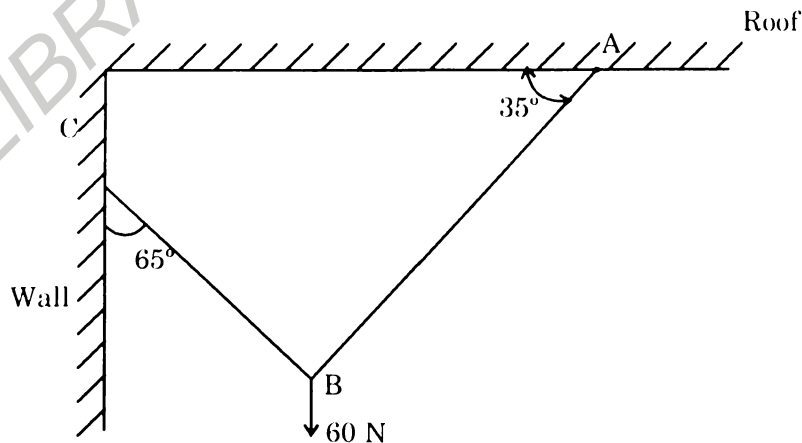
- I. (a) Define coplanar forces and non-coplanar forces.
- (b) State Varignon's theorem.
- (c) Differentiate between co-efficient of friction and angle of repose.
- (d) State the importance of law's of friction.
- (e) Give the procedure for solving method of joint in a truss.
- (f) Calculate the reaction of UVL for a simply supported beam over the entire span.
- (g) Calculate the reaction of UDL for a simply supported beam over the entire span.
- (h) Give the classification of supports.

(8 × 5 = 40 marks)

Part B

*Answer **all** question.
Each question carries 15 marks.*

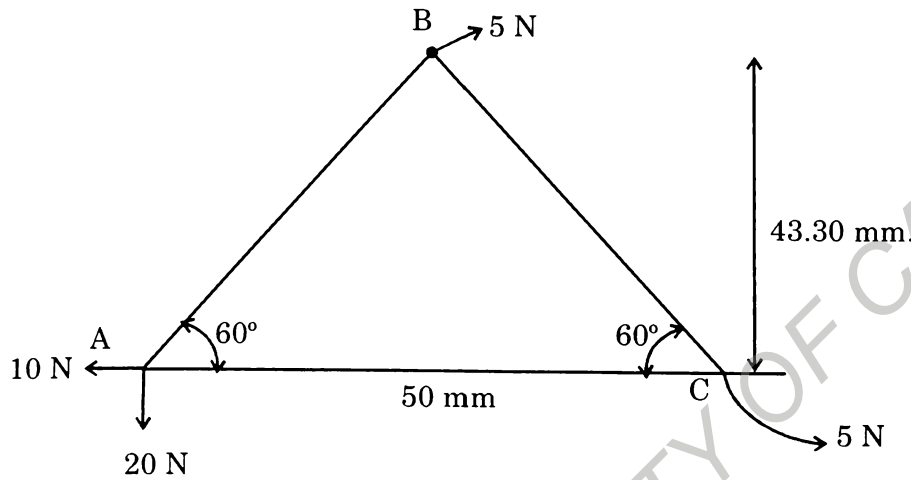
- II. (a) Two wires AB and BC, supports a load of 60 N. The wire is fixed to roof at point A and to the wall at point C. Angle AB with roof is 35° and angle CB with the wall is 65° . Calculate tension in AB and BC.



Or

Turn over

- (b) Find the magnitude, direction and position of the resultant forces for the given force system :

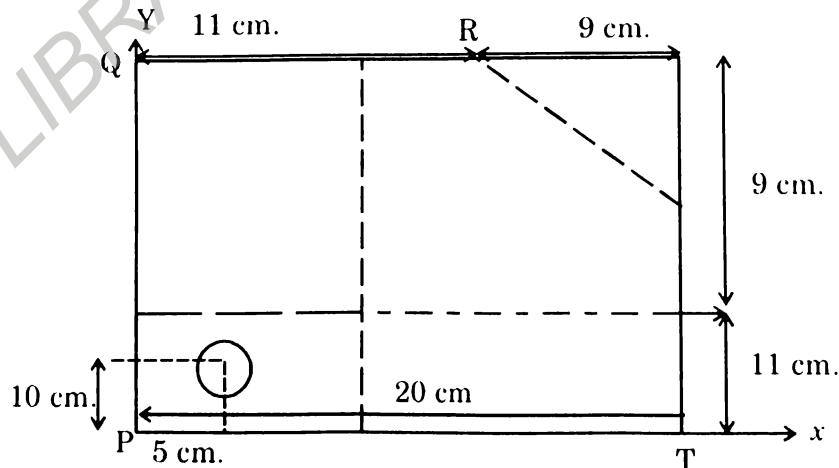


Or

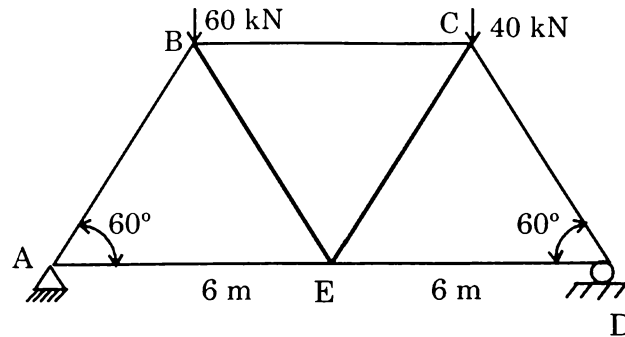
- III. (a) A block of 100 N is placed on a plane inclined at 30°. Force P is applied to just move the block upward which is applied horizontally. Calculate p if $\mu = 0.18$.

Or

- (b) A figure shows a plate PQRST. Determine diameter of the drilled hole, with its centre at 5 cm. from x and y axis and $\bar{x} = \bar{y} = 10$ cm. from origin :



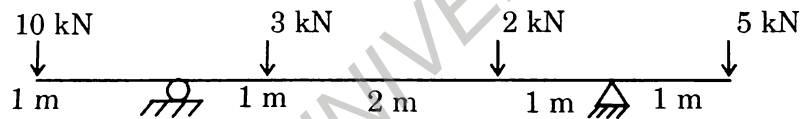
IV. (a) Analyse the truss by method of joints :



Or

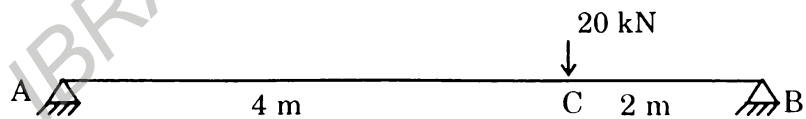
(b) Discuss the following types of truss, perfect truss, deficient truss and redundant truss.

V. (a) Calculate the shear force and bending moment diagram of simply supported beam with two overhangs :



Or

(b) Analyse the shear force and bending moment diagram of a simply supported beam with eccentric point load :



(4 × 15 = 60 marks)

**COMBINED I & II SEMESTER B.ARCH. DEGREE (2017 SCHEME) SPECIAL
EXAMINATION, APRIL 2020**

AR 17 13—BUILDING MATERIALS AND CONSTRUCTION–I

Time : Three Hours

Maximum : 100 Marks

Support your answers with neat sketches, wherever appropriate.

Drawing sheets will be provided.

Part A

Answer all questions.

I. Explain the following briefly :

- | | |
|--------------------------------|--------------------------|
| (a) Frog in brick masonry. | (b) Dry rubble masonry. |
| (c) Ultimate bearing capacity. | (d) Trapezoidal footing. |
| (e) Cladding. | (f) Composite Masonry. |
| (g) Mud mortar. | (h) Cob. |

(8 × 5 = 40 marks)

Part B

Answer all questions.

II. (a) What are the factors that causes deterioration of stone? Discuss the methods of preservation of stone work.

Or

(b) Discuss the common defects in timber.

III. (a) What are the different types of shallow foundations ? Discuss with the help of a sketches spread footing for walls

Or

(b) Explain in detail the plate load test for determining the safe bearing capacity of soil.

IV. (a) Discuss the different types of junctions in brick masonry. Sketch the T-junction (1½ and 1) brick.

Or

(b) Draw a semicircular arch for a 3 m span opening and mark all the parts.

V. (a) Discuss on preparation and techniques of mud plastering and mud mortar.

Or

(b) Discuss on different methods of construction using mud for walls.

(4 × 15 = 60 marks)

COMBINED I & II SEMESTER B.ARCH. DEGREE (2017 SCHEME) SPECIAL EXAMINATION, APRIL 2020

AR 17 12—THEORY OF DESIGN-I

Time : Three Hours

Maximum : 100 Marks

*Illustrate your answer with neat sketches.***Part A***Answer all questions.*

1. Write short notes on the following :
 - (a) Role of elements of design with examples.
 - (b) Relationship between built form and open spaces.
 - (c) Spatial organisations.
 - (d) What is scale and proportion?
 - (e) What is emphasis explain with a sketch?
 - (f) What should be the relationship between building entrance and the circulation core?
 - (g) What do you mean by adjoining spaces? Give example.
 - (h) Role of case studies in the design process.

(8 × 5 = 40 marks)

Part B*Answer all questions.*

2. (a) Illustrate the characteristics of a geometric form and its derivatives with respect to the evolution of architectural form and space.

Or

 - (b) Elucidate articulation of surfaces and how does it affect the form. Explain types of articulation with neat sketches.
3. (a) Explain in detail the properties and the importance of the following elements of architecture :
 - (i) Point.
 - (ii) Line.

Or

- (b) Define proportion and explain in detail the various theories of proportion.

Turn over

4. (a) Explain briefly the services that are essential to any building design which need to be considered while designing the form.

Or

- (b) Discuss in detail about the various functional aspects of a building that come under the purview of an architect with example.

5. (a) Make a brief check list that you will make before doing a case study.

Or

- (b) Explain the various aspects of design through the example of Falling water by F.L.Wright.

(4 × 15 = 60 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

**COMBINED I AND II SEMESTER B.ARCH. DEGREE (2012 SCHEME)
EXAMINATION, APRIL 2021**

B.Arch.

AR 12-17—VISUAL ARTS AND PRESENTATION

Time : Three Hours

Maximum : 100 Marks

Illustrate your answers with neat and relevant sketches.

Part A

Answer all questions.

I. Write short notes on :

- (a) Calligraphy.
- (b) Landscape paintings.
- (c) Instruments used in ink drawing.
- (d) Shading techniques in pencil.
- (e) Gestalt theory.
- (f) Visual effects of colour.
- (g) Free standing sculpture.
- (h) Basic canons of Indian art.

(8 × 5 = 40 marks)

Part B

II. (a) What is the Impressionist style in art ? Draw a forest scene using any medium highlighting this style.

Or

(b) Make a composition of various cuboids highlighting the theme textures.

(30 marks)

III. (a) Draw and explain colour wheel. The colour wheel should show primary, secondary and tertiary colours.

Or

(b) Design a composition using geometric shapes and a split complementary colour scheme for 2D wall installation for a hotel lobby.

(30 marks)

**COMBINED I AND II SEMESTER B.ARCH. DEGREE (2012 SCHEME)
EXAMINATION, APRIL 2021**

B.Arch.

AR 12-15—THEORY OF DESIGN-I

Time : Three Hours

Maximum : 100 Marks

Illustrate your answers with neat and relevant sketches.

Part A

Answer all questions.

1. Write short notes on :

- (a) Openings in space defining elements.
- (b) Surface articulation.
- (c) Fluidity.
- (d) Emphasis.
- (e) Approach in circulation.
- (f) Building entrance design.
- (g) Design process.
- (h) Circulation in FL Wright's Guggenheim Museum.

(8 × 5 = 40 marks)

Part B

Answer all questions.

1. (a) Describe the ways in which transformation of forms can occur.

Or

(b) Explain the common type of spatial organisations.

2. (a) What are the different kinds of symmetry and what effects these have in architectural design ?

Or

(b) Explain how Axis has been used in architecture to focus, dominate, etc. through examples including historical ones.

Turn over

3. (a) What is the function of circulation spaces? What are its various forms of circulation spaces?

Or

(b) Explain the importance of understanding path-space relationship.

4. (a) Using examples, explain additive and subtractive as formative ideas.

Or

(b) Explain massing and circulation in Le Corbusier's Chapel of Notre Dame du Haut.

(4 × 15 = 60 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

**COMBINED I AND II SEMESTER B.ARCH. DEGREE (2012 SCHEME)
EXAMINATION, APRIL 2021**

B.ARCH.

AR 12-14—ARCHITECTURAL DRAWING AND GRAPHICS

Time : Three Hours

Maximum : 100 Marks

Module 1 [1 × 25 = 25 marks]

1. (a) Sketch any *ten* conventional representation of building materials in section and its purpose. (20 marks)
- (b) Write a note on advantages of free hand sketching. (5 marks)

Or

2. (a) Explain through sketches general procedures for sketching the orthographic views. (15 marks)
- (b) Sketch any *five* drawing instruments and state its purpose. (10 marks)

Module 2 [1 × 25 = 25 marks]

1. (a) Write a note on the following :
 - (i) Plain scale.
 - (ii) Diagonal scale.(10 marks)
- (b) Draw the plan, section and elevation of Library rack as part of your measure exercises. (15 marks)

Or

2. Draw the plan, section and elevation of hostel room as part of your measure drawing exercises. (25 marks)

Turn over

Module 3 [1 × 25 = 25 marks]

1. Draw the projections of a line AB 50 MM long kept in the following positions.
 - (a) Parallel to both the HP and VP : 15 mm. above the HP and 20mm in front of the VP.
 - (b) Perpendicular to the VP and 20 mm. above the HP. The end P, nearer to the VP is 15 mm. in front of it.

Or

2. A line PQ is parallel to the VP. The end P is 20 mm above the HP and 25 mm. in front of the VP. The end Q is 65 mm above the HP. The distance between the end projectors is 65 mm. Find the true length and inclination of the line with the HP.

Module 4 [1 × 25 = 25 marks]

1. (a) List the principles of perspective projections. (10 marks)
- (b) Explain the different components used while preparing the perspective projections. (15 marks)

Or

2. Draw the one point perspective of Neighbourhood Street and explain the procedure in step by step. (25 marks)

**COMBINED FIRST AND SECOND SEMESTER B.ARCH. DEGREE
(2012 SCHEME) EXAMINATION, APRIL 2021**

B.Arch.

AR 12-12—BUILDING CONSTRUCTION MATERIALS AND STRUCTURAL SYSTEM—I

Time : Three Hours

Maximum : 100 Marks

Illustrate your answers with neat and relevant sketches

Part A

Answer all questions.

Each question carries 5 marks.

1. Write short notes on :

- (a) Use of sand in construction.
- (b) Decay in timber.
- (c) Friction piles.
- (d) Strip footing.
- (e) Damp proofing.
- (f) Flemish bond.
- (g) Door handles.
- (h) Fixing details of tower bolts.

(8 × 5 = 40 marks)

Part B

Answer all questions.

Each question carries 15 marks.

1. (a) What are the various types of stones used in building construction ?

Or

(b) Explain the energy and environmental aspects of the use of brick as a building material.

Turn over

2. (a) What causes settlement of foundations ? What are the precautions that can be taken against settlement ?

Or

(b) What are the methods of improving bearing capacity of soil ?

3. (a) What are the different types of mortar ? What are their uses ?

Or

(b) Compare rubble and ashlar masonry construction. Where are these types of masonry used ?

4. (a) Explain the construction of batten door and panelled wooden door.

Or

(b) Sketch five joints in wooden joinery.

(4 × 15 = 60 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT