University Institute of Engineering & Technology

(Recognised Under Section 2(f) and 12B of UGC)

Kurukshetra University, Kurukshetra

Roll No. - [redacted]

THEORY EXAMINATION – JUNE 2022	
B. TECH – ME & ECE	SEMESTER – II

TIME – 3 Hrs.

M.M. - 75

PAPER - ES-109

SUBJECT- Engineering Graphics & Design

Note: All questions in Part-A and Part-B are compulsory. Attempt any four questions from Part-C.

PART-A (15 Marks)

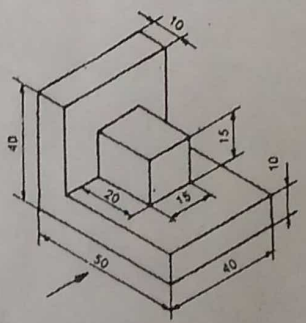
Q. No. – 1 Answer the following questions. **15x1=15**

(i)	Define scale.
(ii)	Name the types of vernier scales.
(iii)	Write the formula to calculate the length of scale.
(iv)	Define a cycloid.
(v)	Name the two principal planes of projection.
(vi)	Define vertical trace of a line.
(vii)	Discuss when will the top view of a straight line show the true length o f line.
(viii)	List the sizes of scales.
(ix)	Define apparent shape of section.
(x)	What is the purpose of hatching line in drawing?
(xi)	Write any two applications of development of surfaces.
(xii)	List the types of solids that can be accurately developed.
(xiii)	Define isometric projection.
(xiv)	The angle between the isometric axis is _____.
(xv)	The selection of number of views required for an object depends on its _____.

PART-B (20 Marks)

	UNIT-I	
2	A circle of 50mm diameter rolls along a straight line without slipping. Draw the curve traced out on the circumference for one complete revolution. Name the curve. Draw the tangent and normal on it 40 mm from the base line.	5
	UNIT-II	
3	A point P is 15 mm below HP and 25 mm in front of VP. Another point Q is 25 mm above HP and 15 mm behind VP. The distance between the end projector is 60 mm.Draw its projection and join the line joining their planes and elevations.	5
	UNIT-III	
4	Draw the development of the lateral surface of a cone having a base diameter 40 mm and axis length 70 mm.	5
	UNIT-IV	
5	Explain the difference between first-angle and third angle projection method.	5

PART-C (40 Marks)

	UNIT-I	
6	Draw the hypocycloid of a circle, given the directing circle is 100 mm and the rolling circleis 50 mmm in diameter.	10
7	The distance between two points on a map is shown by a line 15 cm long. But the points are Actually 750 km apar. Construct a vernier scale to read up to a single kilometre and mark on the scale the length of 653 km and 847 km.	10
	UNIT-II	
8	A line AB 70 mm long, has its end 35 mm above HP and 30 mm in front of VP. The top view and front view has a length of 45 mm and 60 mm respectively. Draw its projections and also find the angle of inclination with HP and VP.	10
9	Draw projection of a right circular cone of diameter of base 50 mm and altitude 60 mm when it lies on its curved surface on the HP with the planes of the axis making 450 with XY line and vertex pointing towards VP.	10
	UNIT-III	
10	A square pyramid ofbase side 30 mm and axis length 60 mm is resting on HP on its base with one side of the base inclined t 30^0 to VP. It is cut by a plane inclined at 45^0 to HP and perpendicular to VP and passes through the axis at a distance 25 mm from the ape. Draw its front view, sectional top view and true shape of the section.	10
11	A cylinder of base diameter 50 mm and axis length 60 mm is resting on HP on its base, cut by a Plane inclined at 550 to HP and perpendicular to VP. The cutting plane is passing through a point On the axis at a distance 30 mm from the top end. Draw the development of lateral surface of the remaining portion of the cylinder.	10
	UNIT-IV	
12	Draw the front view, top view and right-side view of object shown in figure. 	10
13	A Sphere with a 60 mm diameter is resting centrally on the Top of the Square Block with a 70 mm side 20 mm thickness. Draw an isometric view of the arrangement.	10