Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–1/2 EXAMINATION – WINTER 2021
Subject Code:110013   **Date:28/03/2022**
Subject Name:Engineering Graphics
Time:10:30 AM TO 01:30 PM   **Total Marks:70**
Instructions:
1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figure to the right indicates the full marks.**
4. **Lines, dimensions etc. should be as per BIS SP-46.**
5. **Retain all constructions lines.**
6. **Simple and non-programmable scientific calculators are allowed.**

Q-1 (a)
(i) Briefly explain the dimensioning system used in engineering drawing. **04**
(ii) On a map 1 cm represents 5 kms. Construct a plain scale long enough   to measure a distance between A and B-100 kms. Also indicate the distance between A and B-65 kms. **03**
(b) OAB is simple slider crank chain. OB is a crank of 30 mm length. BA is connecting rod of 90 mm length. Slider A is sliding on a straight path passing through point O. Draw the locus of the mid point of the connecting rod AB for one complete revolution of the crank OB. **07**

Q-2 (a) A circle of 50 mm diameter rolls on circumference of another circle of 150 mm diameter and outside it. Draw the locus of the point P on the circumference of the rolling circle for one complete revolution of it. Take initial position of point P at the contact point between two circle, Name the curve and draw tangent and normal to the curve at a point 115 mm from the centre of the big circle. **07**
(b) The distance between the end projectors of a straight line AB is 60 mm. Point A is 5 mm above H.P. and 30 mm in front of V.P. Point B is 40 mm above H.P. and 50 mm behind V.P. Draw the projections and find the inclination of straight line AB with H.P. and V.P. and true lenght of the line. **07**

Q-3 (a) Draw an ellipse having major axis 120 mm and minor axis 80 mm by using ellipse by rectangle method and other half by concentric circle method. **07**
(b) A line EF 75 mm long, has its end E 25 mm above the HP and 20 mm infront of VP. The end F is 65 mm above the HP and 50 mm infront of VP. Draw the projections of line EF and find its inclination with HP and VP. **07**

Q-4 (a) A regular pentagonal plate, of 50 mm side, has one of its corner on the H.P. The plane of the pentagon is inclined at 30° to the H.P. The side of the pentagon which is opposite to the corner, which is on the H.P. at 45° to the V.P. Draw the projections of the plate. **07**
(b) A hexagonal pyramid of 30 mm side of base and 45 mm length of axis, resting on one of its triangular faces on H.P. Draw the projections of the pyramid when its edge of base which is in H.P. is inclined at 60° to the V.P. **07**

Q-5 (a) A circular plate, 50 mm diameter, is resting on H.P. on one of the points of its periphery with surface of the plate perpendicular to V.P. and inclined to H.P. by 30°. Draw the two projections of the circular plate. **07**

(b) A cone diameter of base 60 mm and height 70 mm, has one of its generators in H.P. and making an angle of 45° with V.P. draw the projections of the cone when the apex is towards the observer. **07**

Q-6 (a) What is First angle and third angle orthographic projrctons? **04**

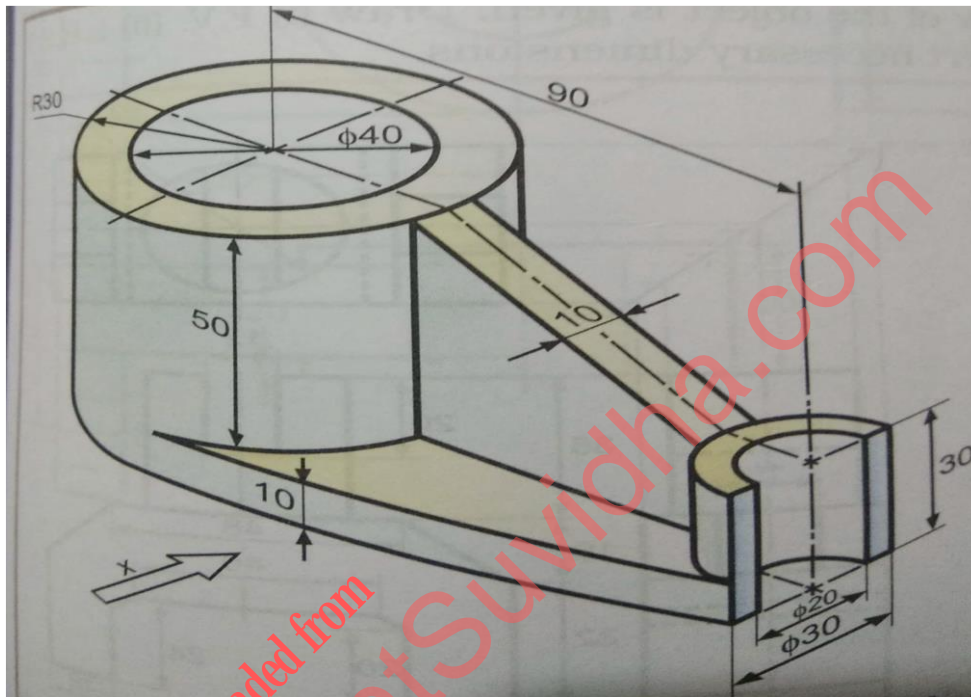**(b)** Pictorial view of the object is given below. Draw F.V. and T.V. in the 1st angle system **10**

Fig. for Q-6 (b)

Q-7 (a) What is Isometric scale and Isometric view? **04**

(b) Draw an isometric view of an object from the below given orthographic views. **10**
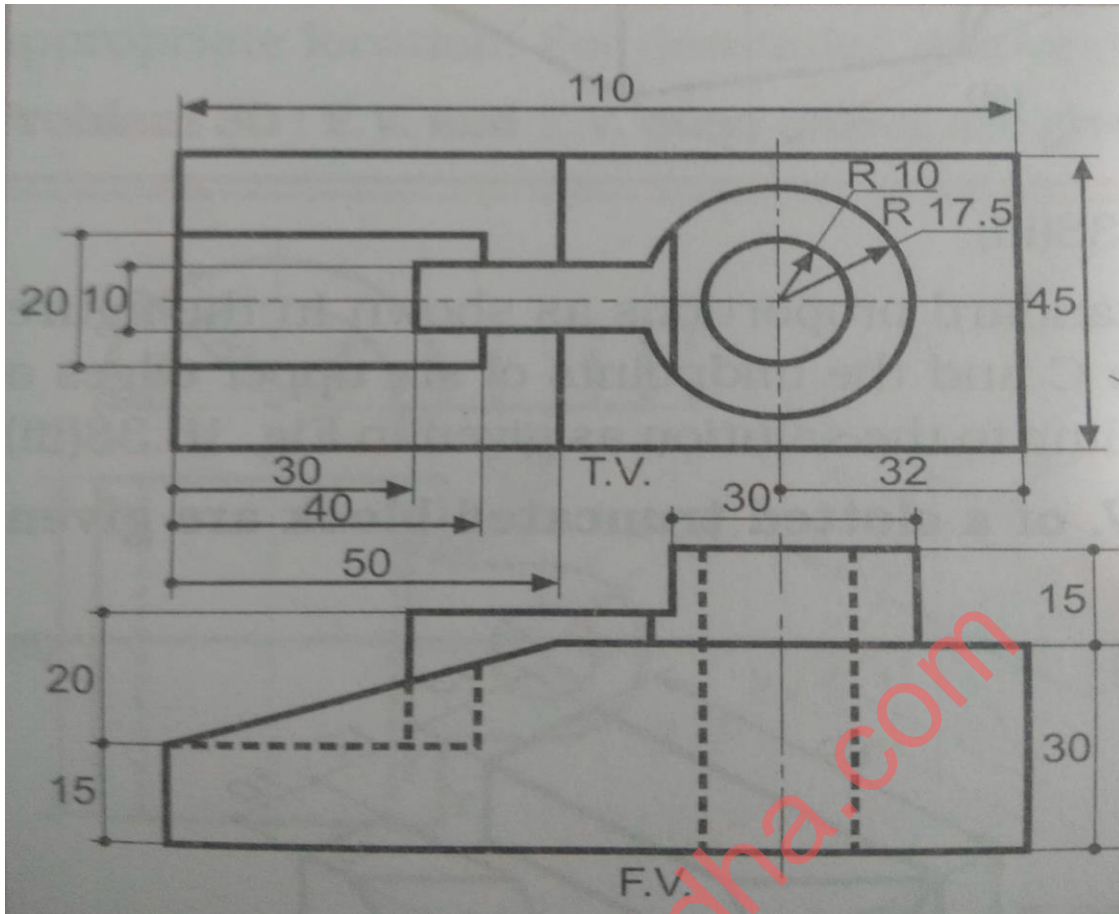
Fig. for Q-7 (b)