ROLL NUMBER					

SET	A

INDIAN SCHOOL MUSCAT
COMMON PREBOARD EXAMINATION 2023
ENGINEERING GRAPHICS(046)

CLASS : XII
DATE: 06.02.2023

TIME ALLOTED : 3 HRS.

MAXIMUM MARKS: 70

GENERAL INSTRUCTIONS:

(i)Attempt all the questions.

(ii) Use both sides of the drawing sheet, if necessary.

(iii) All dimensions are in millimetres.

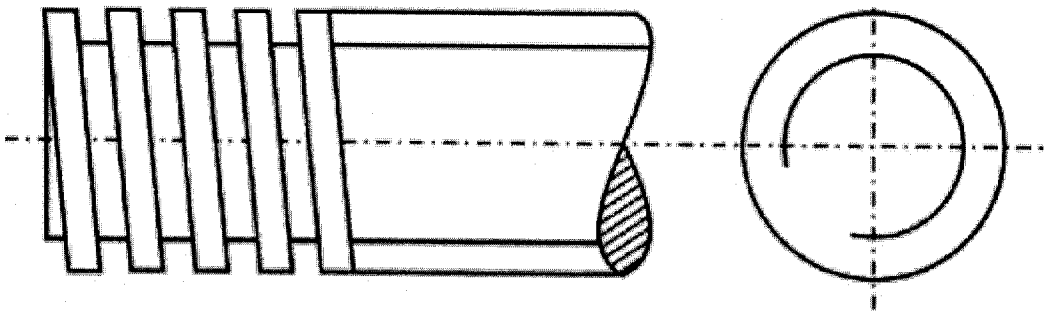
(iv) Missing and mismatching dimensions, if any, may be suitably assumed.

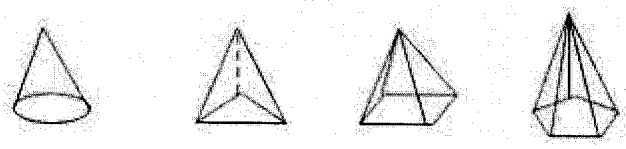
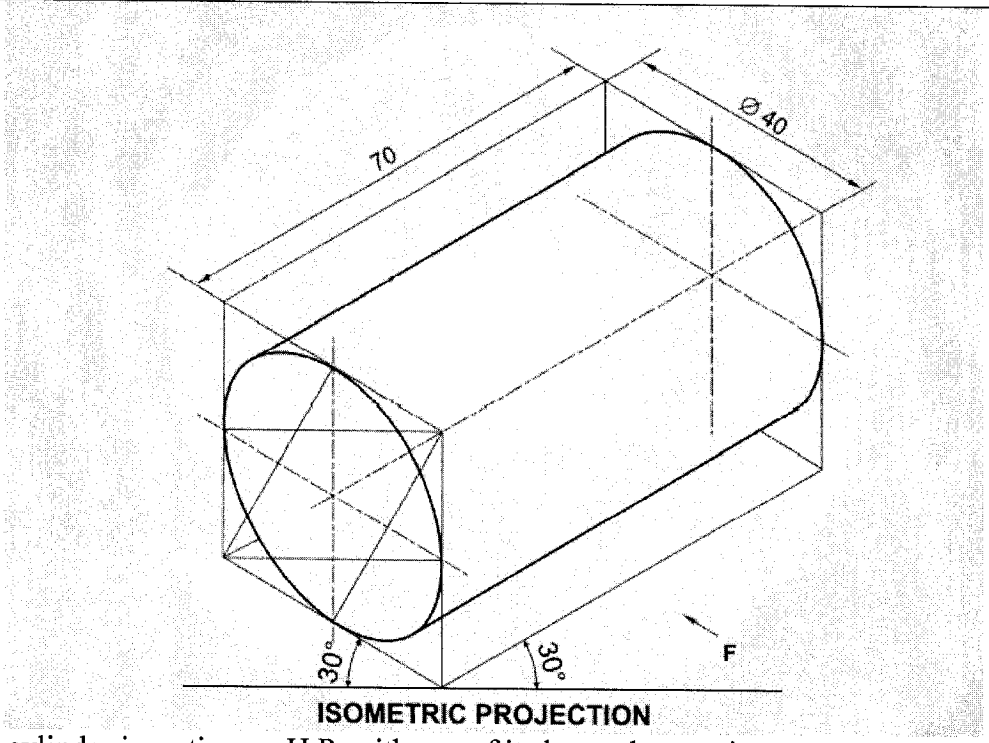
(v) Follow the SP: 46 – 2003 revised codes. (with first angle method of projection)

(vi) In no view of question 21, are hidden edges or lines required.

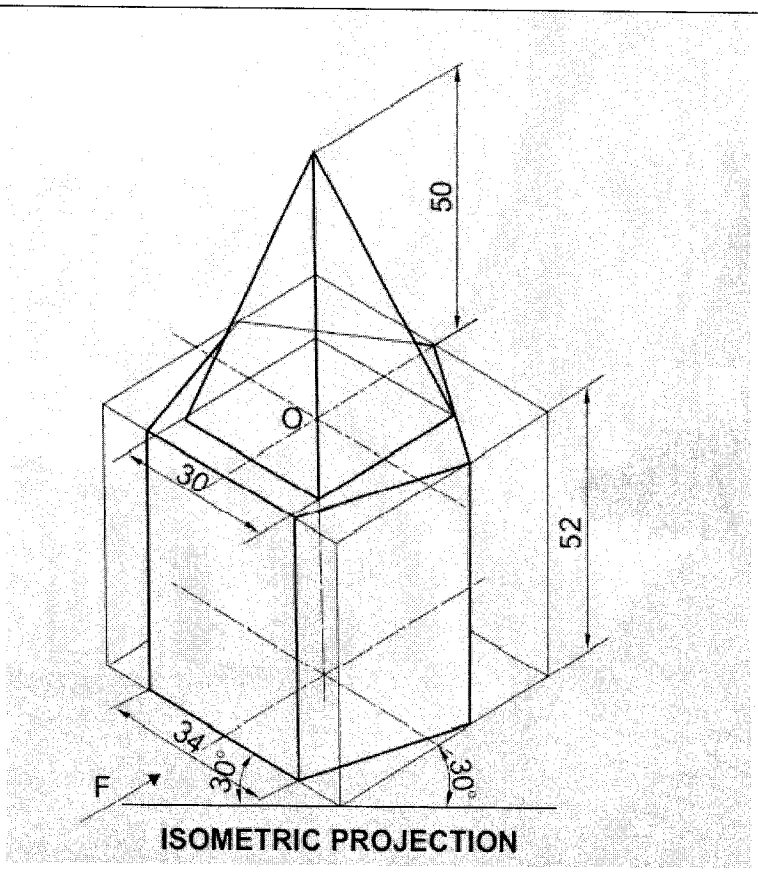
(vii) In question 23, hidden edges or lines are to be shown in views without section.

	Q 1 to Q 8 – Answer the following multiple choice questions. Print the correct choice on your drawing sheet:	
1.	Which type of projection is extensively used in mechanical engineering to show the blocks, machine parts, assemblies etc. a) Perspective projection b) Axonometric projection c) Orthographic projection d) Oblique projection	1
2.	Name the solid with apex. a) Square prism b) Triangular prism c) Cone d) Sphere	1

3.	A thin circular packing ring of soft material such as Indian rubber or canvas coated with red lead which is used in pipe joint is called as ------ a) Flange b) Gasket c) Bolt d) Nut	1
4.	The fig given below shows conventional representation of which thread? a) External square threads b) External V threads c) Internal square threads d) Internal v threads 	1
5.	------ serves as joining device between the ropes and the rods or the posts. a) Bearing b) Pipe joint c) Turnbuckle d) Sleeve and cotter rod joint	1
6.	The full form of B. S. W. thread is _____. a) Bureau of Standard Width b) Bureau of Standard Whitworth c) British Standard Width d) British Standard Whitworth	1
7.	Which among these is used for power transmission? a) Square thread b) BSW thread c) Metric thread internal d) Metric thread external	1

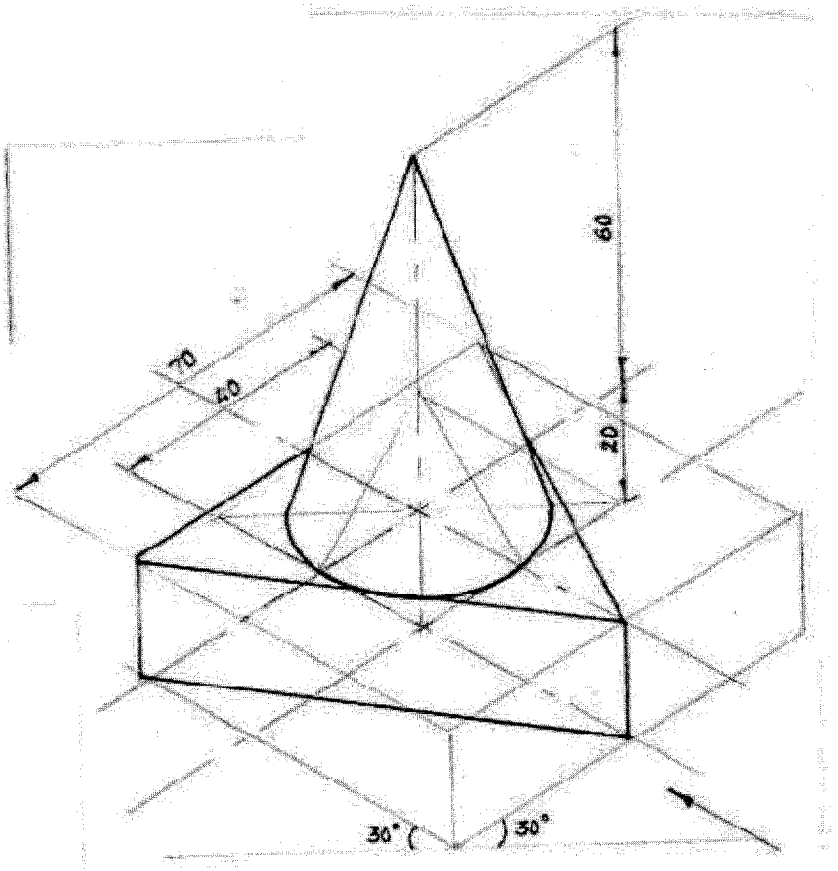
8.	A vertical pentagonal pyramid  (a) (b) (c) (d)	1
	Q 9 to Q 14 – Select the correct option corresponding to the orientation of the given Isometric Projection	
9.	 **ISOMETRIC PROJECTION** a) The cylinder is resting on H.P. with one of its long edges on it. b) The cylinder is resting on H.P. with its base on it. c) The cylinder is resting on H.P. with one of its rectangular faces on it. d) The cylinder is resting on H.P. with its axis parallel to both H.P. and V.P	1

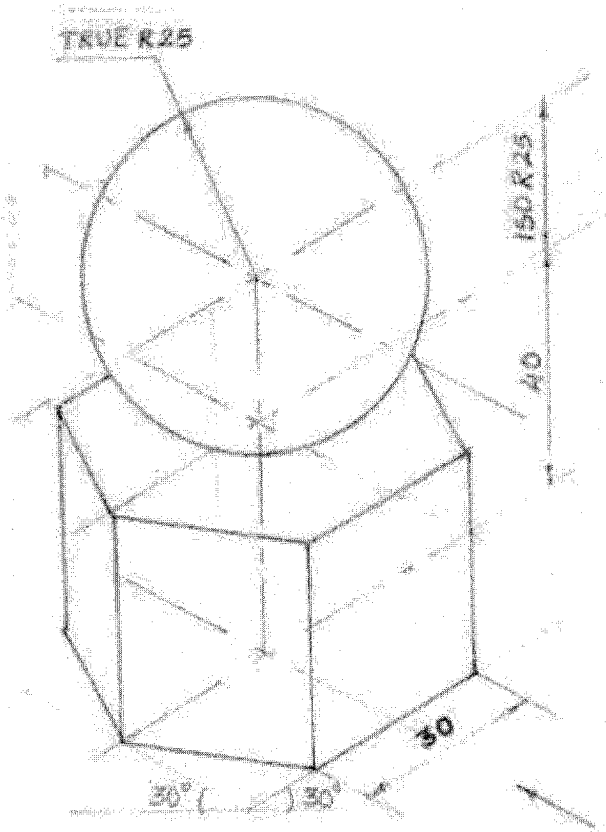
10.

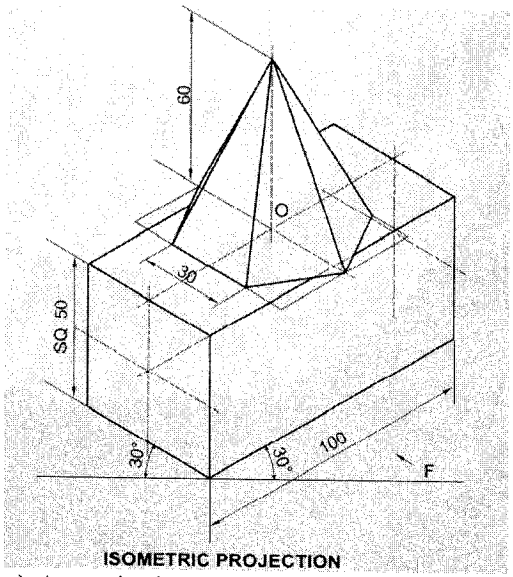
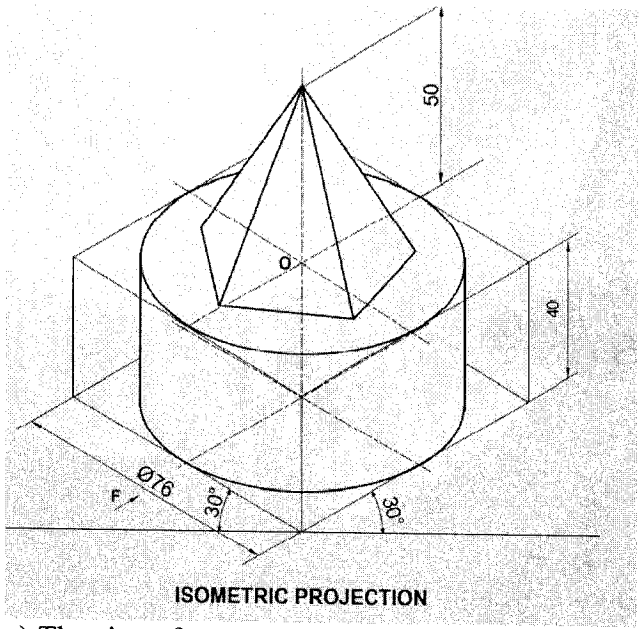


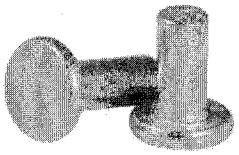
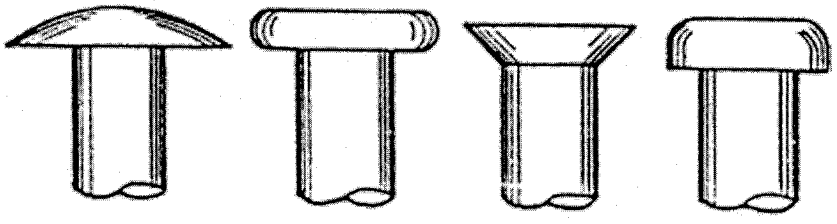
ISOMETRIC PROJECTION

a) The common axis is perpendicular to HP and parallel to VP
b) The common axis is perpendicular to VP and parallel to HP
c) The axis of the prism is parallel to HP and the axis of the pyramid is perpendicular to HP
d) The axis of the prism is perpendicular to HP and the axis of the pyramid is parallel to HP

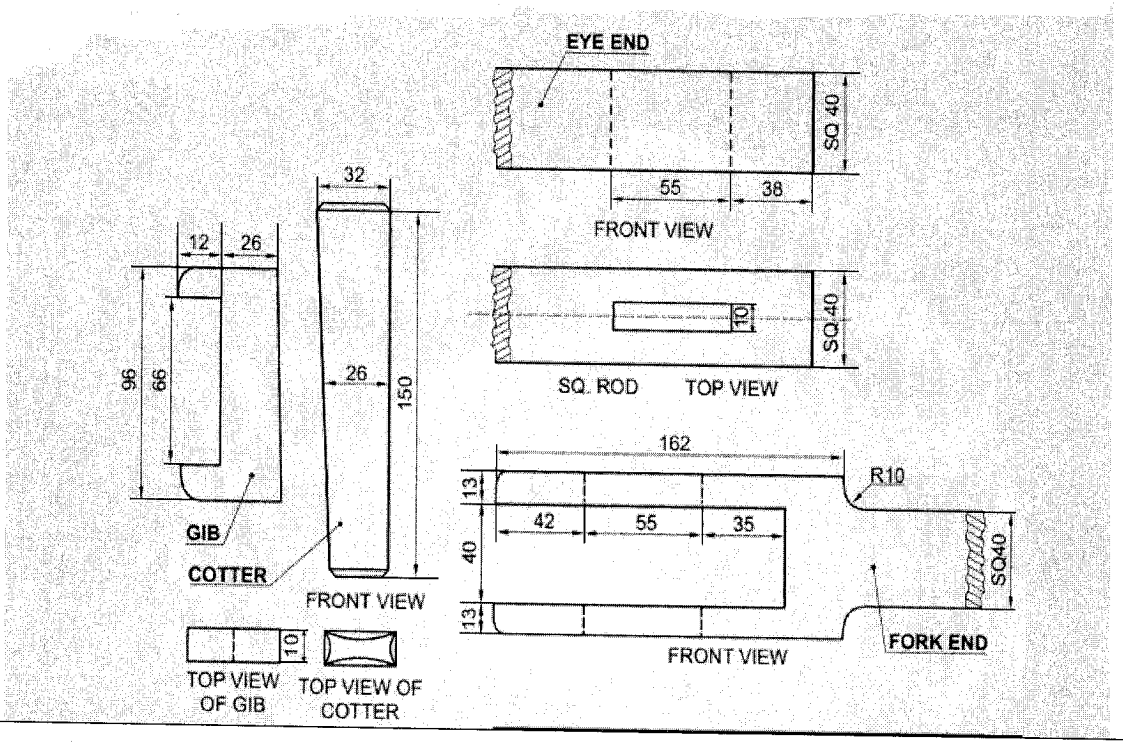
11.	 a) Both the solids are vertical and one of the base edges of the prism is parallel to VP and nearer the observer. b) Both the solids are vertical and one of the base edges of the prism is perpendicular to VP. c) Both the solids are vertical and one of the base edges of the prism is parallel to VP and near it. d) Both the solids are vertical and two of the base edges of the prism are parallel to VP.	1

12.	 ISOMETRIC PROJECTION OF SPHERE ON A HEXAGONAL PRISM a) The isometric projection of a sphere is a circle whose diameter is equal to the isometric diameter of the sphere. b) The isometric projection of a sphere is a circle whose diameter is equal to the true diameter of the sphere. c) The isometric projection of a sphere is a circle whose diameter is equal to half of the true diameter of the sphere. d) The isometric projection of a sphere is a circle whose diameter is equal to double of the true diameter of the sphere.	1

13.	 ISOMETRIC PROJECTION a) A vertical pentagonal pyramid with one of its base edges parallel to VP is placed centrally on a horizontal square prism with its square ends parallel to VP. b) A vertical pentagonal pyramid with one of its base edges perpendicular to VP is placed centrally on a horizontal square prism with its square ends perpendicular to VP. c) A vertical hexagonal pyramid with two of its base edges perpendicular to VP is placed centrally on a horizontal square prism with its square ends parallel to VP. d) A vertical hexagonal pyramid with two of its base edges parallel to VP is placed centrally on a horizontal square prism with its square ends perpendicular to VP	1
14.	 ISOMETRIC PROJECTION a) The size of common axis is true 90mm. b) The size of common axis is less than true 90mm. c) The size of common axis is more than true 90mm. d) The size of common axis is true 100mm	1

15.	**TWO STATEMENTS ARE GIVEN – ONE LABELLED ASSERTION (A) AND THE OTHER LABELLED REASON (R). SELECT THE CORRECT ANSWER TO THE FOLLOWING QUESTIONS FROM THE CODES (a), (b), (c) AND (d) AS GIVEN BELOW:** **a) Both A and R is true and R is the correct explanation of A.** **b) Both A and R is true and R is not the correct explanation of A.** **c) A is true but R is false.** **d) A is false and R is also false** A: All types of V threads have inclined flanks making an angle between them. R: square thread is an example for V threads	1
	Q16 to Q 20 – Answer Read the following paragraph and answer the following questions.	
	Amit's father bought a new study table for him, and when it got delivered the legs of the table is connected with a special type of machine part. Being an engineering graphics student, Amit sent the following image of that machine part to their Engineering Graphics teacher. Then the teacher explained everything about that part, which is called as Rivet. Analyse the figure and answer the following questions 	5
16.	Analyse the figure and identify which type of rivet head is shown in the figure? a) Snap head rivet b) Pan head rivet c) 60-degree CSK rivet d) Flat head rivet	
17.	Which of the following views best describes the above rivet?  (a) (b) (c) (d)	
18.	In this type of rivet head, outer diameter of the circle in top view will be? a) 2d b) d c) 0.8d d) 1.6d	

19.	If d = 20 mm, find the value of the height of the head portion of the given rivet head? a) 10 b) 5 c)15 d)30	
20.	A ---------- is a small cylindrical piece of metal having a head, body and tail. a) Stud b) Rivet c) Screw d) Nut	
21.	a. Draw an isometric scale of length 80mm.	5
	b. Draw the isometric projection to isometric scale of a pentagonal prism side 45mm and height 80mm,keeping its axis parallel to both VP and HP.	10
22.	Draw to scale 1:1, standard profile of B.S.W. thread(internal), taking pitch = 40 mm. Give standard dimensions. **OR** Draw to scale 1:1, the front view, top view and side view of a hexagonal nut of size M30, keeping the axis perpendicular to H.P. Give standard dimensions.	8
23.	Figure given below shows the parts of a Gib and Cotter Joint. Assemble the parts correctly and then draw the following views to a scale 1: 1 (a) Front view, upper half in section. (b) Side view, viewing from the left. (c)Print title and scale used. Draw the projection symbol. Give '8' important dimensions.	27



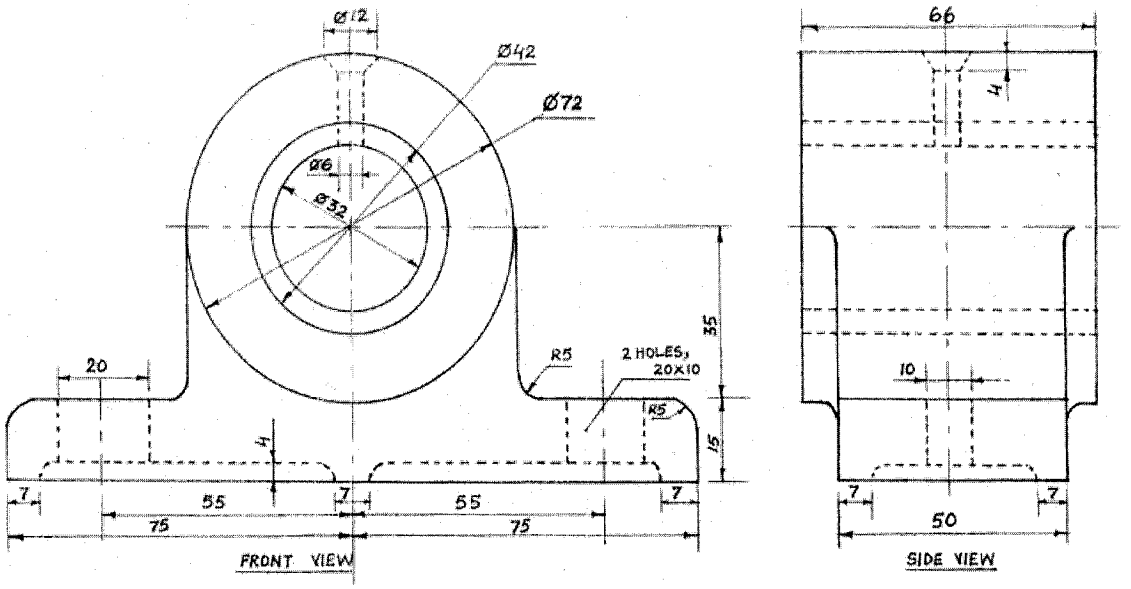
OR

Figure-2, shows the assembly of a Bushed Bearing. Disassemble the parts correctly and then draw to scale 1:1 the following views of the following components. Keep the same position of both, Body and Bush, with respect to H.P. and V.P.

(i) Body:
(a) Front view, left half in section.
(b) Top view.

(ii) Bush:
(a) Full sectional front view.
(b) Top view.

(iii) Print the titles of both and scale used. Draw the projection symbol. Give 6 important dimensions.



चित्र 2 / **FIGURE 2 :** BUSHED BEARING

NOTE : FIGURE NOT TO SCALE. USE DIMENSIONS GIVEN FOR SOLUTIONS.

******END OF THE QUESTION PAPER******