

PRE-BOARD EXAMINATION-I (NOVEMBER – 2019)

CLASS: XII

ENGINEERING GRAPHICS

Time: 3 hrs.

MAX. MARKS : 70

General Instructions:

- (i) Attempt all the questions.
- (ii) Use both sides of the drawing sheet, if necessary.
- (iii) All dimensions are in millimeters.
- (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 2, hidden edges or lines are required.
- (vii) In question 4, hidden edges or lines are to be shown in views without section.
- (viii) Give your answers according to questions.

1. Answer the following multiple choice questions. Print the correct choice on your drawing sheet. (5)

- (i) What will be the shape of a 'circle' in Isometric Projection?
 - a) Ellipse
 - b) Circle
 - c) Parabola
 - d) Cycloid
- (ii) The end of the stud which is screwed in the body of casting with threaded hole is called
 - a) Nut end
 - b) Close end
 - c) Metal end
 - d) Open end
- (iii) In which of the following joints, a single line/row of rivets is used to join two plates together?
 - a) Zigzag joint
 - b) Single riveted lap joint
 - c) Double riveted lap joint
 - d) Multiple riveted joint
- (iv) The portion of the shaft which rotates in the sleeve/bush of a bushed bearing is called as
 - a) Journal
 - b) Rod
 - c) Axle
 - d) Pipe

(v) Protected flange coupling is better than the unprotected flange coupling with regard to

a) Protection from dirt

b) Protection from fire hazards

c) Protection from water

d) Ensure safety

2. (i) Construct an isometric scale. (4)

(ii) Draw the isometric projection of a frustum of a hexagonal pyramid (top base edge 30 mm, bottom base edge 40 mm, height 60 mm), keeping its axis perpendicular to H.P. and two of its base sides parallel to V.P. Draw the axis and indicate the direction of viewing. Give all dimensions. (7)

(iii) A right circular cone (base diameter 50 mm, height 50 mm) is placed with its base resting centrally on the top rectangular face of a horizontal triangular prism (side of triangle 40 mm, length of the prism 70 mm), keeping triangular faces of the prism parallel to V.P. Draw the isometric projection of the combination of solids. (13)

Show the axis of each solid and indicate the direction of viewing. Give all dimensions.

3. (i) Draw to scale 1 : 1 the standard profile of a **B.S.W thread**, taking enlarged pitch as 40 mm. Give standard dimensions. (8)

OR

Draw to scale 1 : 1 the front view and side view of a **Hook Bolt** of size M20, keeping the axis parallel to V.P and H.P. Give standard dimensions.

(ii) Sketch freehand, the front view and the top view of a **COUNTER SUNK HEAD (60°) RIVET** of diameter = 20 mm, keeping its axis vertical. Give all the standard dimensions. (5)

OR

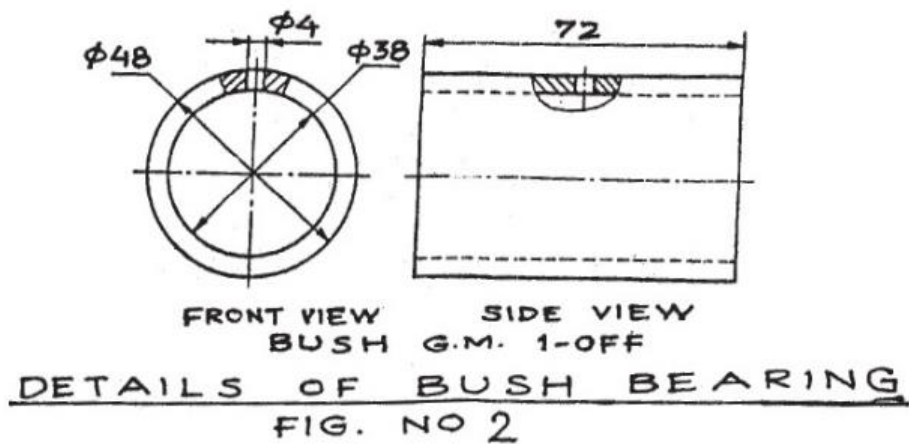
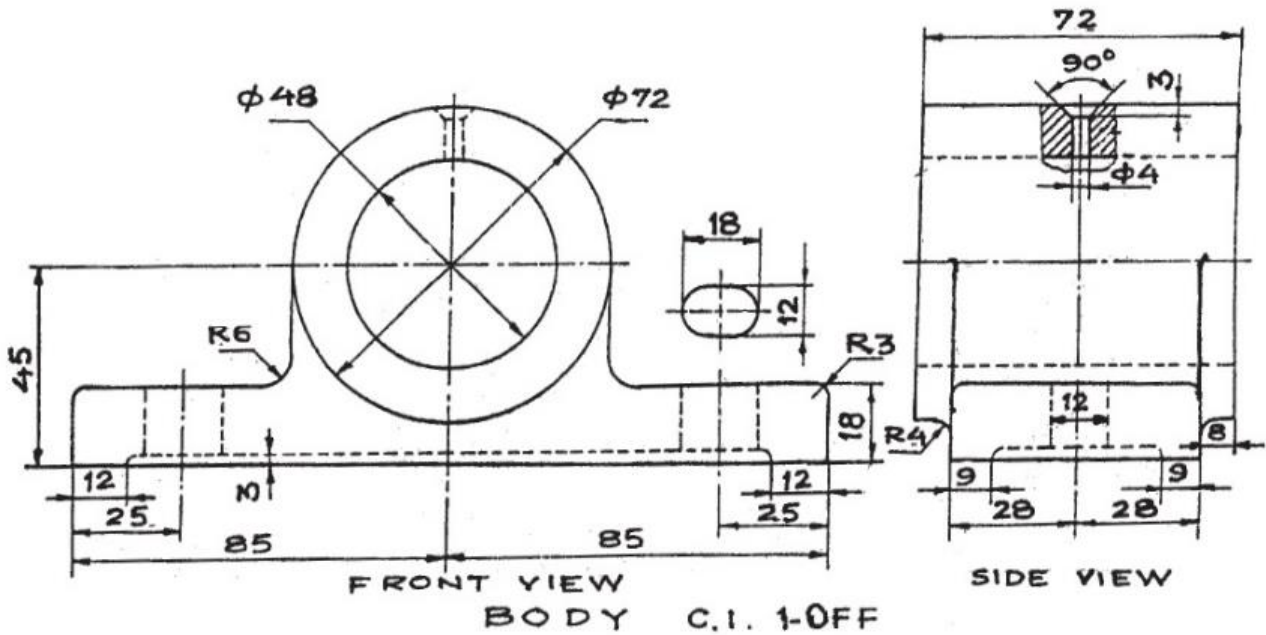
Sketch freehand the front view, top view and side view of a **Woodruff key**, suitable for a shaft of diameter 60 mm. Give standard dimensions.

4. Figure shows the details of the parts of a **Bush Bearing**. Assemble these parts correctly and then draw its following views to scale 1 : 1 :

(a) Front view, right-half in section. (14)

(b) Top view (8)

Print title and scale used. Draw projection symbol. Give six important dimensions. (6)



OR

Figure 2 shows the assembly of the parts of a **FLANGE PIPE JOINT**. Disassemble the parts and then draw the following views of the following components to scale 1 : 1, keeping them in the same position with respect to H.P. and V.P.

(i) FLANGE B:

a) Front view, upper half in section. (8)

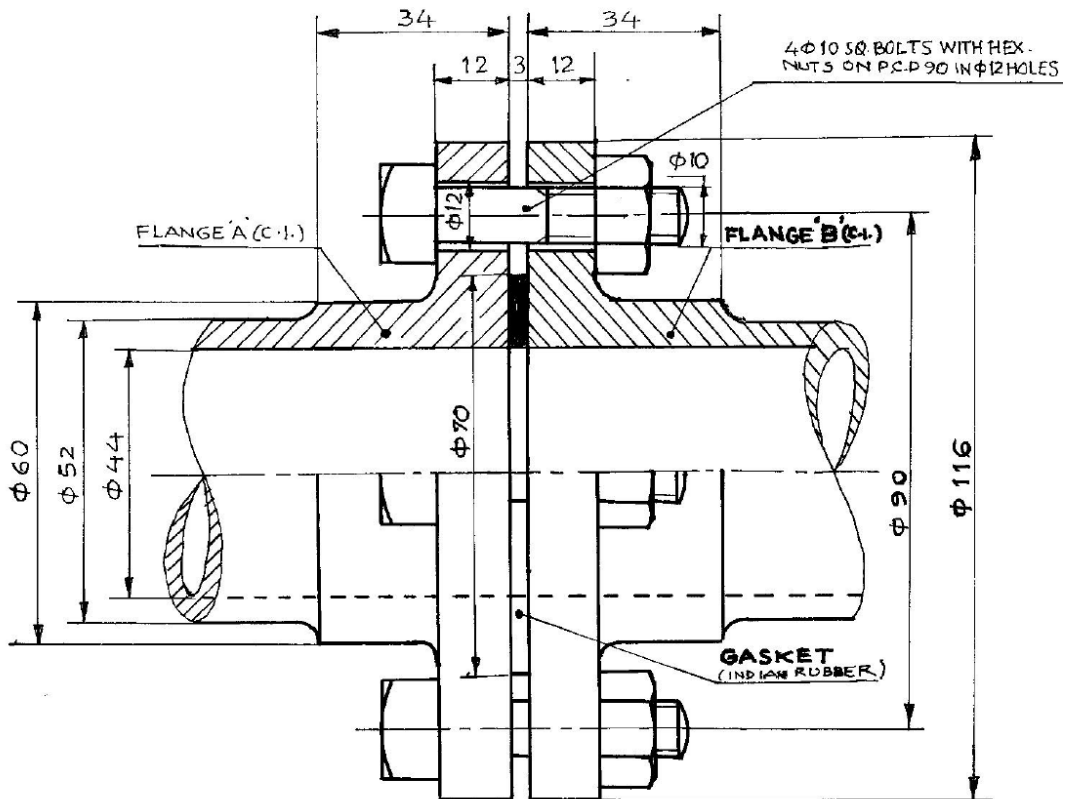
b) Right hand side view. (8)

(ii) GASKET:

a) Full sectional front view. (3)

b) Left hand side view. (3)

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



FRONT VIEW UPPER HALF IN SECTION

चित्र 2 / FIG. 2 FLANGE PIPE JOINT

NOTE: TAKE ALL FILLETS R4

