Roll Number		

A

INDIAN SCHOOL MUSCAT
SECOND PRE-BOARD EXAMINATION

ENGINEERING GRAPHICS

CLASS: XII | Sub. Code: 046 | Time Allotted:3 HRS

12.02.2020 | Max. Marks: 70

GENERAL INSTRUCTIONS:

- Attempt all the questions.
- Follow the SP: 46-2003 codes. (with first angle method)
- Missing and mismatching dimension if any may be assumed suitably.
- All dimensions are in millimeters.
- Use both the sides of the drawing sheet, if necessary.

1. I. Construct an Isometric scale of length 90 mm. 3

   II. Draw the isometric projection of a frustum of a regular hexagonal pyramid, base side 25 mm, top side 40 mm and height 65 mm, resting on its hexagonal end of 25 mm side on H.P., with two of sides perpendicular to V.P. Draw the axis and indicate the direction of viewing. Give all dimensions. 7

   III. A Cylinder, base diameter 90 mm and height 30 mm, is resting on one of the circular ends on HP. A pentagonal prism, base side 20 mm and height 25 mm with its axis perpendicular to V.P and having a rectangular face resting centrally, on the top circular face of the cylinder. Draw the isometric projection of the two solids, placed together, to isometric scale. Draw the axis of both the sides and indicate the direction of viewing. Give all dimensions. 14

2. Draw to scale 1:1, the front view of the assembly of a square head bolt, having nominal diameter = 30 mm, shank length of the bolt = 120 mm and threaded length = 80 mm, fitted with a hexagonal nut and washer, keeping their common axis parallel to H.P. and V.P. both. Two opposite sides of square head bolt and that of hexagonal nut are parallel to V.P. Give standard dimensions. 8

3. Sketch freehand the front view and top view of a collar stud, keeping the axis perpendicular to H.P. Take nominal diameter = 20 mm. Give standard dimensions. 5

4. Answer the following Multiple Choice Questions. 1

   i. A solid without any edge or vertex, when visualized from any direction appears as a circle is :

      a) Sphere b) Cone c) Cylinder d) Circle

4. ii. The threads formed on the surface of a cone are called as 4

a) Straight thread b) Cylindrical thread
c) Parallel thread d) Taper thread

iii. The key which is largely used in machine tools and automobile work is

a) Woodruff key b) Feather key
c) Rectangular taper key d) None of the above

iv. In a flange coupling the keys driven from

a) Internal faces of Nuts b) External faces of Bolts
c) Internal faces of the flanges d) Broken end of the shafts

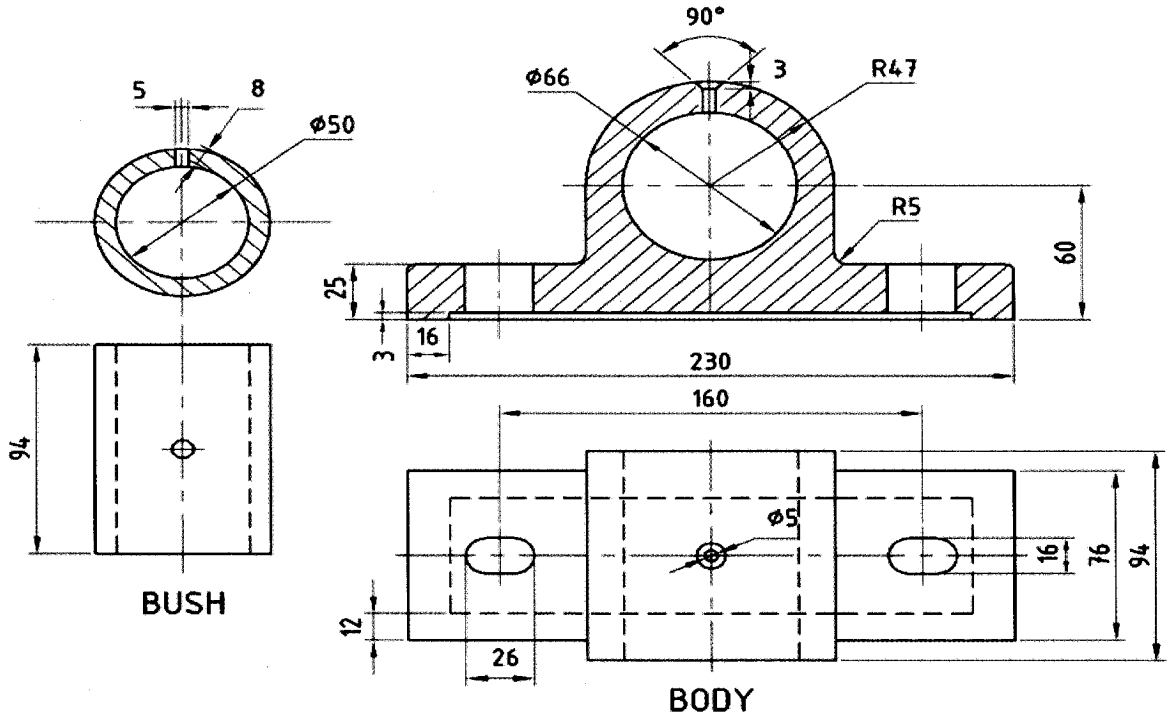
v. When the cutting plane passes through the whole object centrally then it is known as:

a) Half Section b) Full Section
c) Cross Section d) Middle Section

5. The figure shows the details of the parts of a Bushed Bearing. Assemble these parts correctly and then draw its following views to a scale 1:1: 28

a) Front view, left half in section.
b) Side view, viewing from the left.

Print title and scale used. Draw the projection symbol. Give all dimensions.



End of the Question Paper

Roll Number		

B

INDIAN SCHOOL MUSCAT
SECOND PRE-BOARD EXAMINATION

ENGINEERING GRAPHICS

CLASS: XII | Sub. Code: 046 | Time Allotted:3 HRS

12.02.2020 | Max. Marks: 70

GENERAL INSTRUCTIONS:

- Attempt all the questions.
- Follow the SP: 46-2003 codes. (with first angle method)
- Missing and mismatching dimension if any may be assumed suitably.
- All dimensions are in millimeters.
- Use both side of the drawing sheet, if necessary.

1. I. Construct an Isometric scale of length 90 mm. 3

   II. Draw the frustum of a pentagonal pyramid of base edges = 30 mm and top edges = 20 mm. The height of the pyramid is 70 mm with its axis perpendicular to H.P. and parallel to V.P. One base side is being parallel to V.P and nearer the observer. 7

   III. A Cylinder of 27 mm base diameter and 50 mm height, with its axis perpendicular to H.P is resting centrally over a hexagonal slab of 27 mm base edges and 20 mm height, having two of its rectangular faces parallel to VP. Draw an isometric projection of the combination. Keep their common axis vertical. 14

2. Draw to scale 1:1 the standard profiles of a square thread and a knuckle thread, taking pitch = 40 mm for each. Give all dimensions. 8

3. Sketch freehand, the front view and top view of a hexagonal socket head screw of size M20, keeping the axis vertical. Give all dimensions. 5

4. Answer the following Multiple Choice Questions. 1

   i. AB and AC are two straight lines making 90° with one another. AB is parallel to H.P and V.P., while AC is perpendicular to H.P. This angle CAB in isometric projection will be equal to:

   a) 30° b) 60° c) 90° d) 120°

4. ii. A continuous and projecting helical ridge of uniform section on a cylindrical surface is called 1

   a) Lead b) Screw thread c) Pitch d) Flank

4. iii. How much is the head diameter of a snap head rivet when its diameter is 'd' 3

a) 1.6d b) 2d c) 2.4d d) 1.4d

iv. In Flange coupling when spigot and socket part enter each other, then socket is the:

a) Upper cylindrical portion b) Raised cylindrical portion

c) Recessed cylindrical portion d) Lower cylindrical portion

v. A numerical value expressed in appropriate units of measures and indicated graphically on technical drawings with lines, symbols and notes is called:

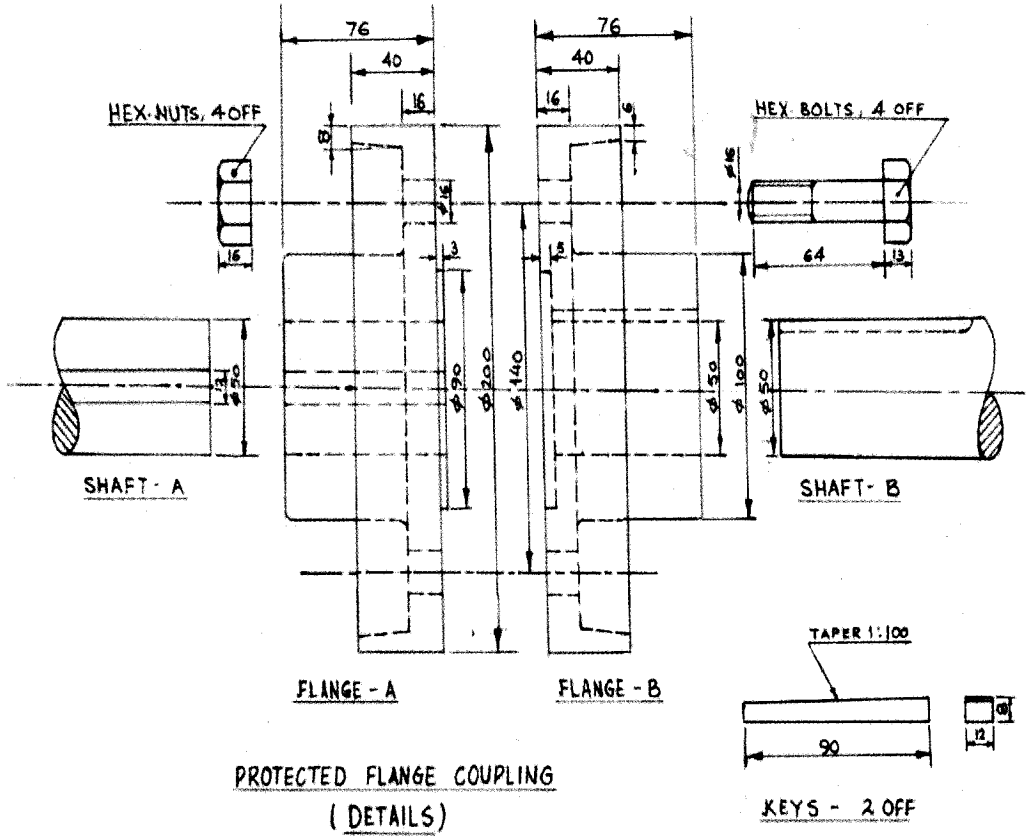
a) Leader line b) Dimension c) Extension line d) None of these

5. The figure shows the details of the parts of a protected flange coupling. Assemble these parts correctly and then draw its following views to a scale 1:1: 28

a) Front view, upper half in section.

b) Side view, viewing from the left.

Print title and scale used. Draw the projection symbol. Give all dimensions.



PROTECTED FLANGE COUPLING
(DETAILS)

End of the Question Paper