Code: A-02 **Subject: ENGINEERING GRAPHICS**

December 2005

Time: 4 Hours **Max. Marks: 100**

NOTE:

1. **(a) There are SEVEN questions in all and these are arranged in three Sections A, B and C.**
   (b) Sections A and B are compulsory and carry 20 marks and 32 marks respectively.
   (c) Out of remaining 5 questions (of 16 marks each) in Section C students are required to answer any 3 questions.
2. **Detach this sheet from the question paper and write answers on this sheet only on Pages 1 & 2. Attach it to the main drawing sheet. Remaining questions are to be answered on the main drawing sheet.**
3. **All dimensions given are in mm. Use suitable values of any missing and mismatching dimensions.**
4. **Use BIS Code: SP: 46-1988 for all drawings and do not rub off construction lines.**

Roll No……..

SECTION A (Compulsory) – Marks – 20

Note : - Answer this on question paper itself and annex with the drawing sheet.

Q1. Choose the correct or best alternative in the following: (2 x 10 = 20)

QUESTIONS **ANSWER HERE**

a If the Vertical Trace (VT) of a line lies 30 mm above X-Y line, then its position will be
(A) 30 mm infront of V.P.
(B) 30 mm behind V.P.
(C) 30 mm above H.P.
(D) 30 mm below H.P.

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b When an object is cut by a section plane parallel to H.P and perpendicular to V.P, then the sectional view of the object is obtained in
(A) top view.
(B) front view.

(C) left side view.
(D) right side view.

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If an object lies in IIIrd quadrant, its position with respect to reference planes will be
(A) infront of V.P, above H.P.
(B) behind V.P., above H.P.
(C) behind V.P., below H.P.
(D) infront of V.P., below H.P.

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d The curve generated by a point on the circumference of a circle, which rolls without slipping along outside of another circle is known as
(A) Hypocycloid **(B)** Epicycloid
(C) Cycloid **(D)** Trochoid

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e If a line looks like a point in the profile view, then the position of the line will be
(A) parallel to H.P and perpendicular to V.P.
(B) parallel to V.P and perpendicular to H.P.
(C) perpendicular to both H.P and V.P.

(D) parallel to both H.P and V.P.

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f _____ are temporary fasteners used to hold two parts together when they are subjected to axial forces
(A) cotters **(B)** keys

(C) rivets **(D)** None of these

_____

g Balls in a ball bearing are held in equally spaced position using
(A) inner race. **(B)** outer race.
(C) cage. **(D)** bracket.

_____

h The convexity provided on the rim of the pulley is known as
(A) Grooving.
(B) Caulking.
(C) Forming.
(D) Crowning.

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i The 'fit' made of a 25 mm H-hole with tolerance grade IT8 and a 25 mm f-shaft with tolerance grade IT7 is represented by
(A) 25 H7-f8.
(B) 25 H8-f7.
(C) 25 f8-H7.
(D) 25 f7-H8.

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j Which of the following object gives a circular section, when it is cut completely by a section plane (irrespective of the angle of the section plane)
(A) Cylinder. **(B)** Sphere.
(C) Cone. **(D)** Circular lamina.

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SECTION B (Compulsory)

Q.2 Fig. 1 shows the details of a machine component. Draw the following views to full scale size:

(i) Front view.
(ii) Left Side.
(iii) Top view. **(12+8+12 = 32)**

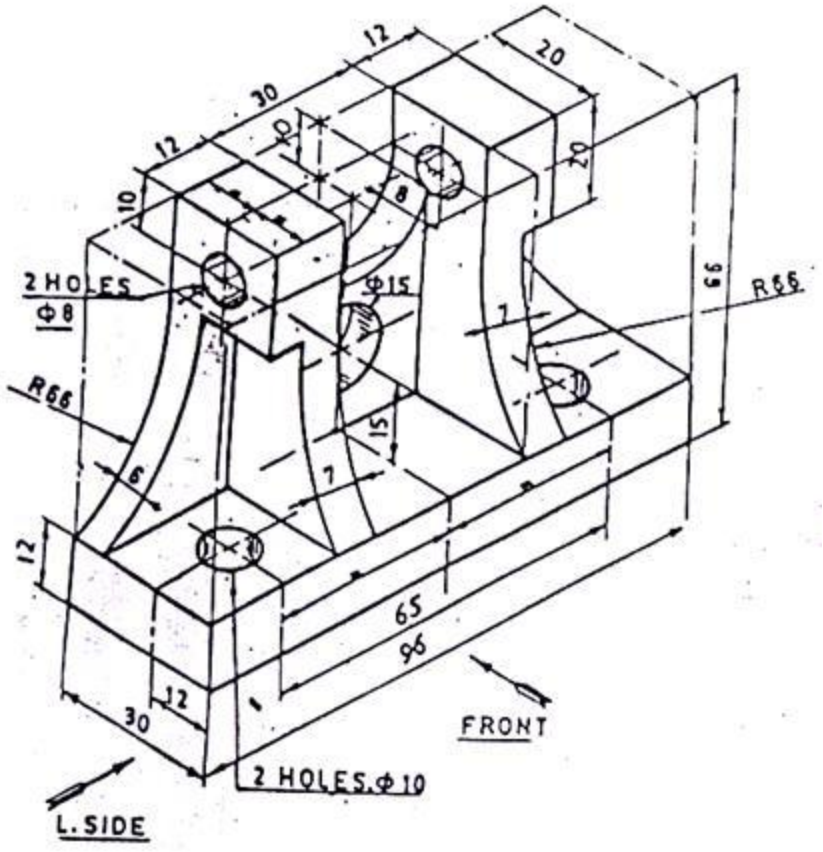

Fig.1

SECTION C

Answer any THREE Questions. Each question carries 16 marks.

Q.3 a. The right profile view of a line AB 80 mm long, makes an angle of 30^{o} to X-Y line. Draw the top and front views of the line when the length of the profile view is 50 mm. Take the point A to be 15 mm above H.P and 60 mm in front of V.P and the point B being closest to V.P. **(8)**

b. A square lamina ABCD of 30 mm side rests on the corner C such that the diagonal AC appears to be at 30^{o} to V.P in the top view. The two sides BC and CD containing the corner C make equal inclinations with H.P. The surface of the lamina makes 45^{o} with H.P. Draw its top and front views. **(8)**

Q.4 A triangular pyramid of 30 mm side of base and axis 45 mm long is placed with its base on H.P such that an edge of the base is parallel to V.P and nearer to it. A section plane inclined at 60^o to H.P and perpendicular to V.P bisects the axis of the pyramid. Draw the top and profile views in section. Also show the true shape of the section.
(16)

Q.5 Draw the isometric projection of the object for which of the orthographic projections are shown in Fig.2.
(16)

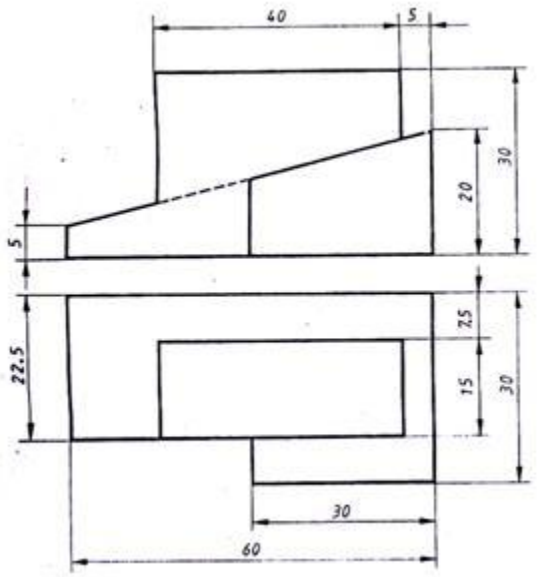

Fig.2

Q.6 a. Draw the standard thread profile of a Buttress thread using an enlarged pitch of 40 mm. **(6)**

b. A bicycle has 650 mm diameter wheels. Draw the locus of a point P on the circumference of a wheel for its complete revolution when it passes over a segmental arched culvert of radius 1950 mm. Take scale 1:10.
(10)

Q.7 a. Construct a diagonal scale using a scale of 10 centimetre to 6 metre to read metre, decimetre and centimetre. Show a distance of 6.53 metre on it. **(8)**

b. Draw the top and front views of a double riveted butt joint (zig-zag riveting) for joining two plates each of thickness 16 mm.