

JUNE 2009

A-02

Time: 4 Hours

Max. Marks: 100

Subject: ENGINEERING GRAPHICS

June 2006

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:
20)

(2 x 10 =

HERE

QUESTIONS

ANSWER

- a When a point lies in H.P. its front view will lie

(A)

on

X-Y

line.

(B) below X-Y line.

(C) above X-Y line.

(D) behind X-Y line.

- b The appropriate position of the title block in the drawing sheet is

(A)

right

hand

bottom

corner.

(B) right hand top corner.

(C) left hand top corner.

(D) left hand bottom corner.

CENTRE STAMP

Suptd/invigilator

Signature of

ratio of the length of the drawing of an object to the length of the object is called

- (A) resulting fraction.
- (B) representative figure.
- (C) representative fraction.
- (D) reduced fraction.

d If D is the diameter of a sphere, its length in the isometric projection will be

- (A) $\sqrt{\frac{3}{2}}D$
- (B) $0.82D$
- (C) D
- (D) $\sqrt{\frac{2}{3}}D$

e Shape of the section obtained when a cone is cut by a plane passing through the apex and center of the base of the cone, is

- (A) parabola.
- (B) circle.
- (C) ellipse.
- (D) triangle.

f A hexagonal headed bolt and nut are more common in use as compared to square headed bolt and nut because

- (A) they offer more flat area for spanner

- (B) they do not get loose easily
 (C) their efficiency is high
 (D) they can be tightened in narrow spaces.
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- g If the hole is designated as 40 Hg and shaft as 40^{d4} , what type of fit is indicated?
 (A) interference (B) clearance
 (C) transition (D) no relation between these two
-

- h If there is 0.5° angular misalignment between two shafts which are to be joined, which coupling will be used?
 (A) protected flange coupling. (B) muff coupling.
 (C) compression coupling. (D) flexible coupling.
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- i Make a sketch of the brasses in a plummer block journal bearing for preventing its rotation



- j The front elevation and plan of an object are two identical concentric squares, sketch the side view.



SECTION B (Compulsory)

- Q.2** Fig. 1 on page 4 shows the details of a Footstep Bearing. Draw the following views of the assembly to a scale full size (1 : 1).

- (i) Front view, left half in section.
 (ii) Top view, left half in section.

Show main dimensions. Print the title and draw the projection symbol.
(16+10+4+1+1=32)

SECTION C

Answer any THREE Questions. Each question carries 16 marks.

- Q.3** A hexagonal plate 30 mm sides is resting on one of its sides in V.P. and is inclined at 40° to H.P. Its surface is inclined at 30° to V.P. Drawing its projections. **(16)**
- Q.4** A square prism of base 30 mm and axis length 60 mm is resting on H.P. on one of its longer edges with its axis inclined at 35° to V.P. One of the faces containing the resting edge is inclined at 25° to V.P. Draw its projections. **(16)**
- Q.5** A hexagonal pyramid of base sides 25 mm and axis length 50 mm is resting on H.P. on one of its triangular faces with its axis parallel to V.P. It is cut by a vertical plane passing through the topmost base edge of the solid. Draw its top view, front view and true shape of the section. **(16)**
- Q.6** A right circular cone of base diameter 80 mm and height 90 mm is resting on H.P. on its base. A cylinder of diameter 40 mm with its axis horizontal penetrates the cone centrally 30 mm above the base, the axes are intersecting at right angles. Draw the curves of intersection in plan and elevation. **(16)**
- Q.7**
- Draw a schematic representation of the following for clearance fit of a shaft:
Zero line, basic size, maximum size, minimum size, upper deviation, lower deviation, tolerance, tolerance zone.
 - Draw two views of a double riveted lap joint for connecting two plates 16 mm thick. Show the main dimensions. **(8+8=16)**

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