AMIETE – ET (OLD SCHEME)

JUNE 2009 **Code: AE02**

Subject: ENGINEERING GRAPHICS

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 × 10 = 20)

QUESTIONS **ANSWER HERE**

a. Three dimensional representation of a three dimensional object is known as
(A) isometric projection
(B) orthographic projection
(C) development of surfaces
(D) none of the above

_____

b The double ordinate through the focus of a conic is called the

(A) foci
(B) ordinate
(C) latus rectum
(D) axis

_____

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c A pentagonal pyramid is cut by a section plane parallel to its base, the sectioned surface will be

(A) triangle
(B) rectangle
(C) pentagon
(D) rhombus

_____

d If 10 mm represents 5 m on a map, the representative fraction is

(A) $\frac{1}{200000}$ **(B)** $\frac{200000}{1}$

(C) $\frac{1}{500}$ **(D)** $\frac{1}{5000}$

_____

e. A line is parallel to V.P & inclined to H.P has _____ trace.
(A) horizontal
(B) vertical
(C) both horizontal and vertical
(D) none

_____

f If 'd' is the diameter of rivet in mm and 't' the thickness of the plate also in mm, then in practice empirical rule for calculating the diameter of rivet is _____

(A) $d = 6/\sqrt{t}$ **(B)** $d = \sqrt{t}/6$

(C) $d = \sqrt{6t}$ **(D)** $d = 6\sqrt{t}$

_____

g When a hexagonal lamina is inclined to horizontal plane and perpendicular to vertical plane, its front view is a

(A) line **(B)** regular hexagon

(C) irregular hexagon **(D)** none

_____

h When the slant height of a cone is twice the diameter of the base circle, the shape of development of the cone is

(A) circle **(B)** semicircle

(C) quarter circle **(D)** triangle

_____

i. For getting front view of an object lying in Ist quadrant, the object lies between

(A) observer and H.P **(B)** observer and V.P

(C) observer and P.P **(D)** HP and V.P

_____

j Application of involute curve is in

(A) threaded parts **(B)** cams

(C) couplings **(D)** gears

_____

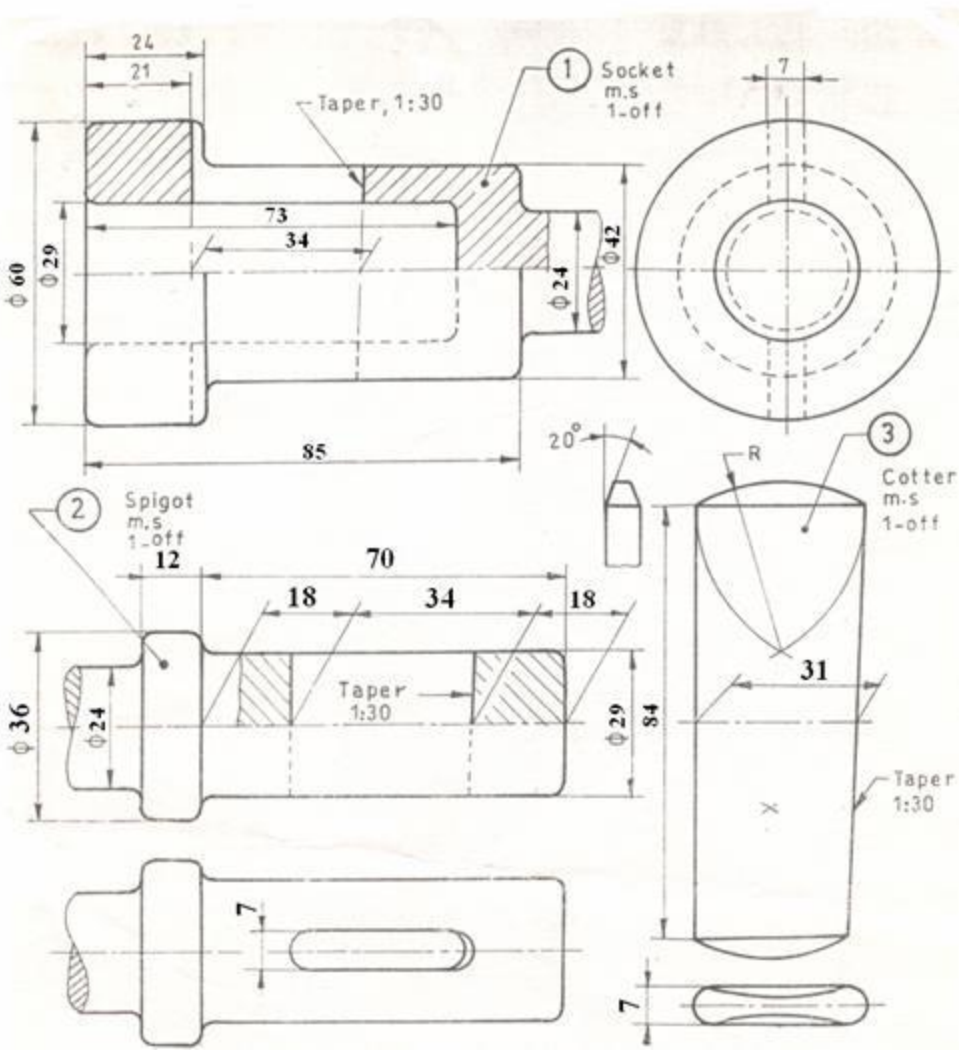
SECTION B (Compulsory)

Q.2 Details of Socket and Spigot cotter joint is shown in Fig.1. Draw the following views of the assembly

(i) Front view with top half in section

(ii) Top view

(iii) Side view **(14 + 10 + 8 = 32)**



SOCKET AND SPIGOT COTTER JOINT All Dimensions are in mm.

FOR ROUND RODS (DETAILS)

Fig.1

SECTION C

Answer any THREE Questions. Each question carries 16 marks.

Q.3 A line AB of 85 mm long is kept in the first quadrant. End A is lying 18 mm infront of V.P and 20 mm above the H.P. The line is rotated in such a way that the final position of end B is 70 mm infront of V.P and 55 mm above H.P. Draw the projections of the line in this position and mark the traces. Also measure the inclinations of the line with the reference planes**.** **(16)**

Q.4 Construct a diagonal scale of R.F=1/2 to show millimeter and centimeter to measure up to 35 centimeter. Show on the scale a distance of 23.6 centimeter. **(16)**

Q.5 A sheet metal drum of 80 cm diameter and 90 cm height is cut as shown in Fig.2. Draw the development of the lateral surface of the drum by taking Scale 1:10. **(16)**

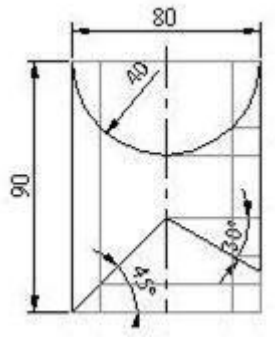


Fig.2

Q.6 A wheel of 40 mm diameter rolls on a straight line without slipping. Draw the curve traced by a point on the circumference of the wheel for one complete revolution. Name the curve. Draw a tangent and normal at a distance of 50 mm. **(16)**

Q.7 a. Draw sectional elevation and side view of a single row ball bearing. **(12)**

b. Draw a rectangular key in position for a shaft 50 mm diameter. **(4)**