AMIETE – ET (OLD SCHEME)

Code: AE02   **Subject: ENGINEERING GRAPHICS**
Time: 4 Hours   **Max. Marks: 100**

DECEMBER 2009

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

   (A) trapezium   **(B)** triangle
   (C) rectangle   **(D)** none

   _____

b   When a line is parallel to V.P. & inclined to H.P. it has

   (A) Horizontal trace   **(B)** Vertical trace
   (C) Profile trace   **(D)** none   _____

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Signature of Suptd/invigilator

c   A regular hexahedron is a solid bounded by six equal faces, each is regular

   (A) Triangle   **(B)** square
   (C) pentagon   **(D)** Hexagon   _____

d   When the shafts are slightly misaligned then most suitable coupling to connect them
   is
   (A) Rigid coupling   **(B)** Oldham coupling
   (C) Muff couplinng   **(D)** Flexible coupling _____

e. If a pentagonal plane is inclined to V.P. and perpendicular to H.P., its top view is a

   (A) line   **(B)** regular pentagon
   (C) compressed pentagon   **(D)** none   .   _____

f   A hexagonal bolt and nut is usually preferred to other types of bolts and nuts because
   it can be tightened in space which allows the spanner to be moved by

   (A) 60^0 rotation   **(B)** 90^0 rotation
   (C) 30^0 rotation   **(D)** 45^0 rotation   _____

g   A cotter joint is provided for joining two rods which can transmit

   (A) Transverse force   **(B)** axial force
   (C) Inclined force   **(D)** none   _____

h   The visible edge of an object is shown by:

   (A) Thin dotted line   **(B)** Thick dotted line
   (C) Thin continuous line   **(D)** Thick continuous line _____

i. Balls in a ball bearing are held in equally spaced position using

   (A) Outer race   **(B)** Inner race
   (C) cage   **(D)** rollers   _____

j   The traces of prisms are

   (A) Points   **(B)** lines
   (C) planes   **(D)** solids   _____

Q.2   Fig. 1 below shows the details of a Universal Coupling partly in section. Draw to
full scale (1 : 1) the following views of the assembly:

(i)   Front view with top half in section.
(ii)   Left side view.

Give main dimensions. Print the title and draw the projection symbol.

(16+10+4+1+1=32)

Fig·1

Hooke's Joint or
Universal Coupling (Details).
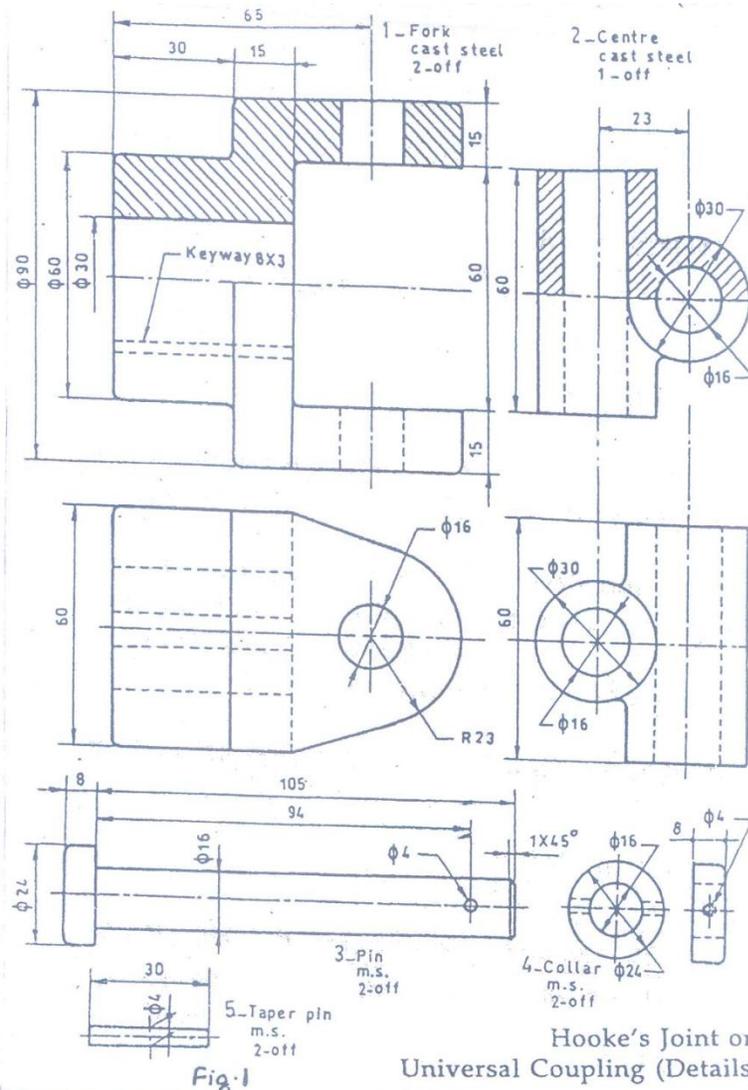
SECTION C
Answer any THREE Questions. Each question carries 16 marks.

Q.3 A straight line AB has its ends A and B, 45 mm and 20 mm infront of VP respectively. The end projectors of the line when measured parallel to the line of intersection of planes of projection are 50 mm apart. The HT of the line is 10 mm infront of VP. The line is inclined at 35° to HP. Draw the projection of the line and locate VT. Find the distance of VT of the line from HP and the inclination of the line with VP. **(16)**

Q.4 A right cone of base diameter 50 mm and length of the axis 70 mm is resting with its base on HP. A cutting plane perpendicular to VP and inclined at 45° to H.P. passes through a point on the axis of the cone, 30 mm above the base. Draw the sectional top view, front view and true shape of the section. **(16)**

Q.5 Construct a diagonal scale of representative fraction $\dfrac{1}{500}$. It should be long enough to measure 100 metres. Show a distance of 64.4 metres on the scale. **(16)**

Q.6 Draw the isometric drawing of the object shown in Fig.2. **(16)**

Fig.2
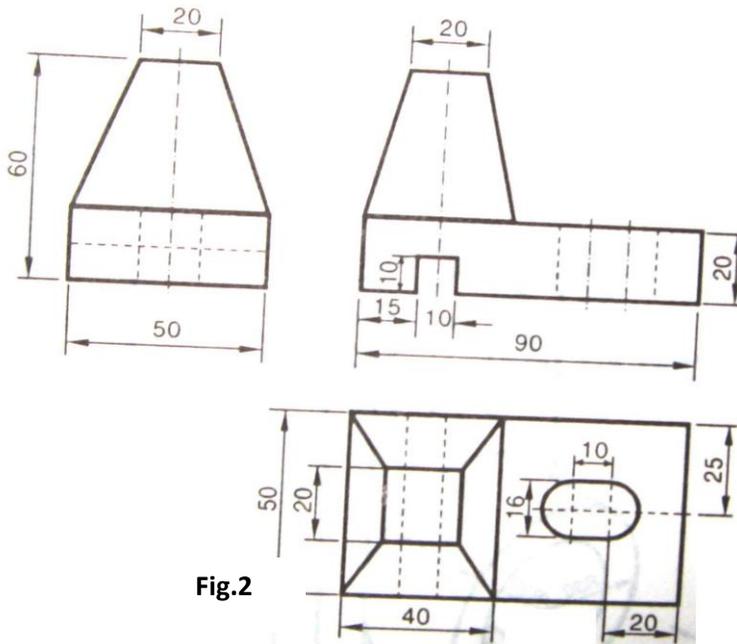
Q.7 a. $= 1$

b. Draw the involute of a square of 25 mm side.