DECEMBER 2008
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 x 10 =
        20)

QUESTIONS   **ANSWER**
HERE

        a.   If end A of a straight line AB lies in HP and the end B lies in VP, with the line
            being inclined at 30° to HP and 60° to VP, then
                (A)   both   the   views   will   be   parallel   to   X-Y
            line
            (B) both the views will be perpendicular to X-Y line
            (C) top view will be perpendicular and front view parallel to X-Y line
            (D) front view will be perpendicular and top view parallel to X-Y line

            _____

        b. In _____ angle of projection plan lies on HP

Ist
(B) IInd
(C) IIIrd
(D) all

_____

. Shafts 'a' to 'h' produce _____ fit with the basic holes 'H7'
    (A) clearance
    fit
    (B) transition
    (C) interference
    (D) all

    _____

d. The development of a cone is a semi circle of diameter 180 mm , then the radius of the base circle of the cone will be
    (A) 180 mm
    (B) 90 mm
    (C) 45 mm
    (D) 22.5 mm

    _____

e. The convention used for lines showing invisible edges of an object is
    (A) thick continuous line   **(B)** thin continuous line
    (C) thin long and short line   **(D)** thick dashed line

    _____

f. For supporting the pressure _____ to the axis of the shaft, the Journal bearing is preferred
    (A) perpendicular   **(B)** parallel
    (C) inclined   **(D)** none

    _____

g. A M 30×3 represents a bolt having
    (A) Nominal bolt diameter of 30 mm and pitch of threads 3 mm
    (B) Core diameter of threads is 30 mm and pitch of threads is 3 mm
    (C) Outside diameter of bolt is 30 mm and there are 3 threads/cm
    (D) Mean diameter of bolt is 30 mm and pitch if threads is 3 mm

    _____

h. Which shape of thread is used for threaded fasteners
    (A)   V
              thread

    (B) Square thread
    (C) Acme thread
    (D)   Buttress   thread

    _____

i. In isometric projection the size of the drawing is _____ the actual dimensions
    (A) smaller than
    (B) larger than
    (C) equal to
    (D)   half   of

    _____

j. The castle nuts are used on the wheel shafts of automobiles
    (A) True
    (B)   False

    _____

SECTION B (Compulsory)

Q.2 Fig. 1 shows the details of a machine component. Draw the following views of the assembly by taking a scale of 1:2

(i)   Front view with left half in section.
(ii)   Left Profile view with right half in section
(iii)   Top view   **(14+8+10**
        = 32)
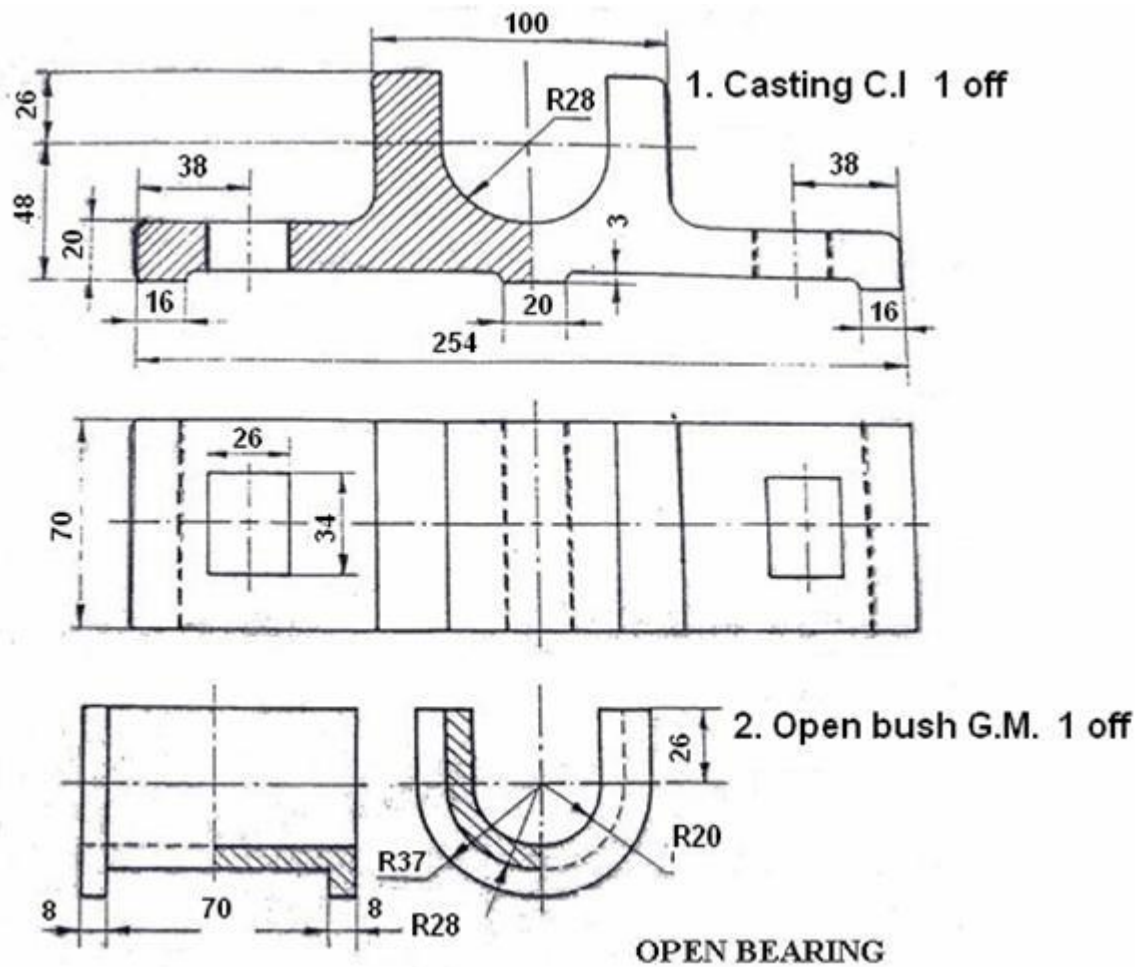
Fig.1

SECTION C
Answer any THREE Questions. Each question carries 16 marks.

Q.3   A straight line AB has its end A lying in both HP and VP. AB measures 75 mm in its true length. Line is inclined at 50° with both HP and VP. Draw the projections of the line.   **(16)**

Q.4   Draw an involute of a circle of 30 mm diameter. Also draw normal and tangent at any   point   on   the involute.
                    (16)

Q.5   Draw   the   isometric   projection   of   the   following:
                    (16)
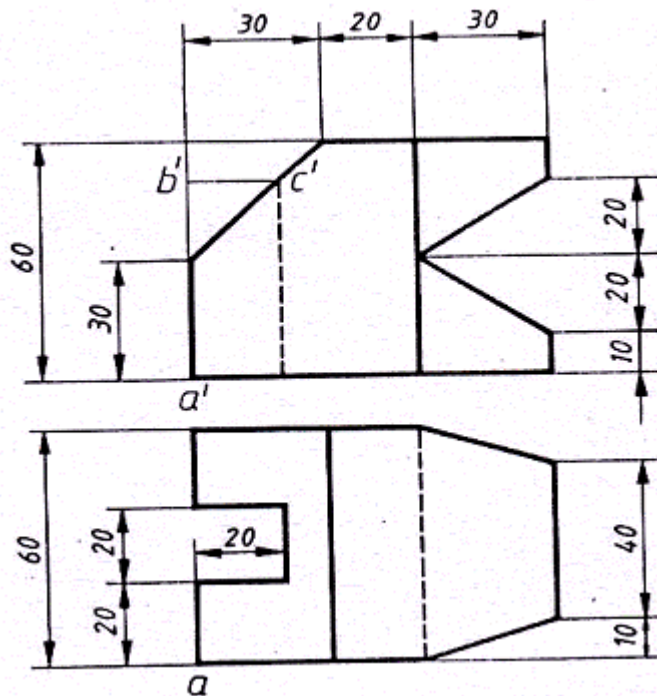
Q.6   A right circular cylinder of 60 mm diameter and height 90 mm, resting on its base on HP. It is completely penetrated by another cylinder of 45 mm diameter and 90 mm long, such that their axes bisect each other at right angles and are parallel to VP. Draw their projections showing curves of intersection. **(16)**

Q.7   a.   Draw one view of a Square headed bolt
          (i) For a nominal bolt diameter of 30 mm and shank length 100 mm.
           (ii) Slotted Nut with proportions.   Take the nominal diameter = 24 mm.   **(8)**

b. Draw two views of double riveted double cover butt joint for joining plates 16 mm thickness.   **(8)**