



Figure 1

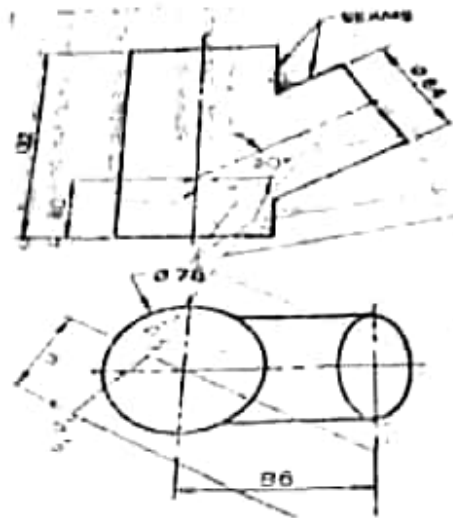


Figure 3

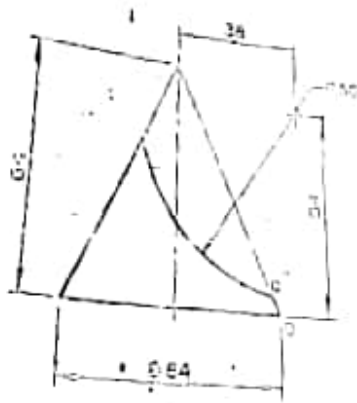


Figure 2

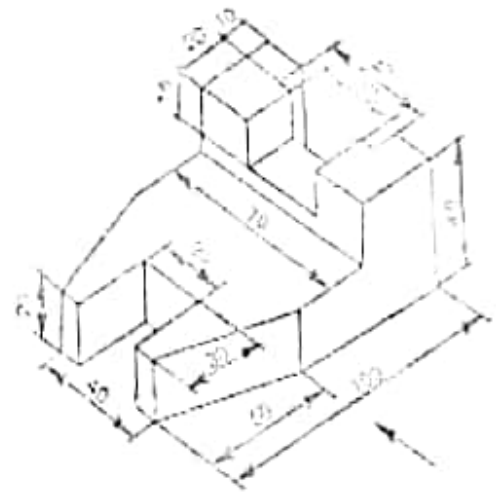


Figure 4

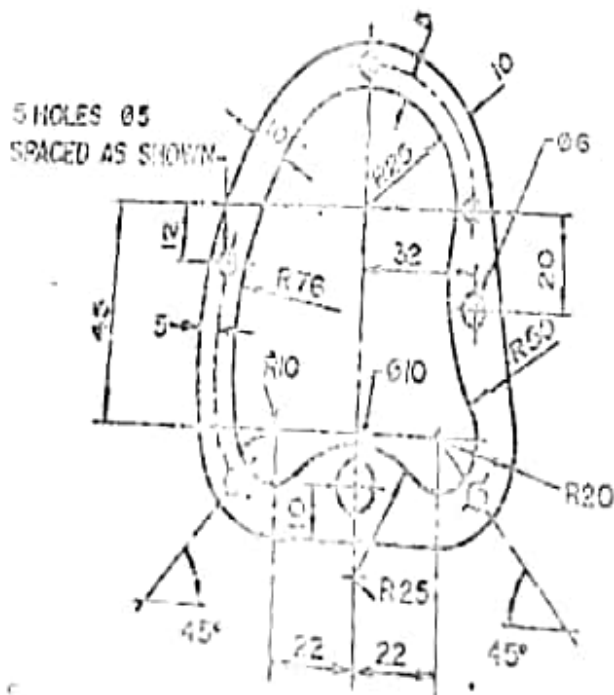


Figure 5



FEDERAL UNIVERSITY DUTSIN-MA
FACULTY OF ENGINEERING
MECHANICAL ENGINEERING DEPARTMENT
FIRST SEMESTER 2018/2019 ACADEMIC SECTION

COURSE CODE: MEL207

COURSE TITLE: ENGINEERING DRAWING I

UNIT: 1

TIME ALLOWED: 2HRS

INSTRUCTION: answer questions one and any other three questions

Question 1

1. Define Computer Aided Design (CAD)
- ii. List five (5) CAD software packages
- iii. State the meaning of the following: CNC, CAM, CATD, CADD and CAP.
- iv. State five (5) merit of CAD over traditional engineering drawing.
- v. Explain the following, indicating the symbol to be used in each case:
 1. First angle projection
 2. Third angle projection.

20mks

- b. Obtain the interpenetration curve of the elevation shown in Fig.1 and develop both cylinders full size using the seams shown.

20mks

20 mks

Question 2 Draw the block in Fig. 2 in isometric projection as shown.

Question 3 Draw (i) the view from the front and (ii) the view from right of the object shown in Fig. 3 in isometric projection.

20mks

Question 4 a. Draw the given view in Fig. 4 full size and project a first auxiliary view X^1Y^1 .

- b. Develop the right lateral surface of a right circular cylinder, truncated at both ends by two parallel planes and resting on ground plane on the lower cut end face, which is an ellipse, as shown in Fig. 5

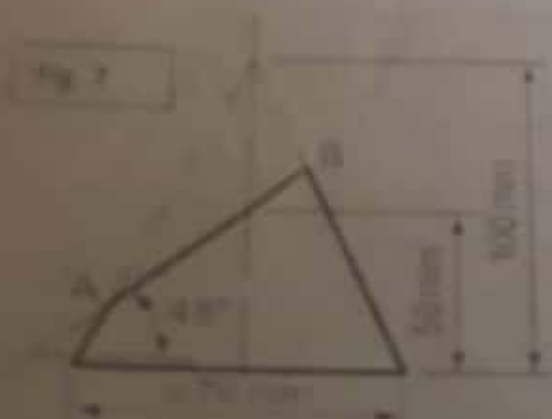
20mks

Question 5 Fig. 6 shows a garden hose. Draw this given view, full size, and show any construction lines used in making the drawing.

20mks

Question 6 Fig. 7 is the frustum of a right cone. Draw this elevation and a plan. Draw the true shape of face AB

20mks





FEDERAL UNIVERSITY OYE EKITI
MECHANICAL ENGINEERING DEPARTMENT
FIRST SEMESTER EXAMINATION 2017/2018

COURSE CODE: MEI207 COURSE TITLE: ENGINEERING DRAWING I

UNIT: 1 TIME ALLOWED: 2 HOURS

INSTRUCTIONS: ANSWER ALL QUESTIONS IN SECTION A AND ANY OTHER TWO QUESTIONS IN SECTION B.

SECTION A

- Q1. a. Define Computer Aided Design (CAD).
b. List the (5) parts of CAD software used in engineering drawing.
c. State the meaning of the following: CIM, CAM, CATD, CAD and CAE.
d. List the (5) CAD software packages.
e (i). Draw and label complete an AutoCAD environment screen.
e (ii). With reference to the sketch in (i) discuss the items in the AutoCAD environment.
f. Explain the following, indicating the symbol to be used in each case:
i. First angle projection
ii. Third angle projection

Q2. Figure 1 is the frustrum of a right cone. Draw this elevation and a plan. Draw the true shape of face AB.

SECTION B

- Q3. Develop the sheet metal fitting shown in figure 2 full size with seam and girth.
Q4. Obtain the interpenetration curve of the elevation shown in figure 3 and develop both parts full size using the seams shown.
Q5. Draw the block in figure 4 in isometric projection as shown.
Q6. Draw the given view in figure 5 full size. Construction lines must not be erased and lines must be shown as in the figure.

6a. At a given instant, a car travels along a circular curved road with a speed of 22 m/s while decreasing its speed at the rate of 3 m/s^2 . If the magnitude of the car's acceleration is 5 m/s^2 . Determine the radius of curvature. (8marks)

b. The motor (Fig. 8) winds in the cable with a constant acceleration, such that the 20 kg crate moves a distance $S=6\text{ m}$ in 3 s , starting from rest. Determine the tension developed in the cable. The coefficient of kinetic friction between the crate and the plane is $\mu_k = 0.3$. (12marks)

7. A flywheel rotating freely at 1080 rev/min clockwise is subjected to a variable counterclockwise torque which is first applied at time $t=0$. The torque produces a counterclockwise angular acceleration $\alpha = 4t\text{ rad/s}^2$, where t is the time in seconds during which the torque is applied. Determine

(i) the time required for the flywheel to reduce its clockwise angular speed to 500 rev/min

(ii) the time required for the flywheel to reverse its direction of rotation and

(iii) the total number of revolution, clockwise plus counterclockwise, turned by the flywheel during the first 12 seconds of torque application. (20marks)

27/1
21



Fig. I



Fig. II



Fig. III

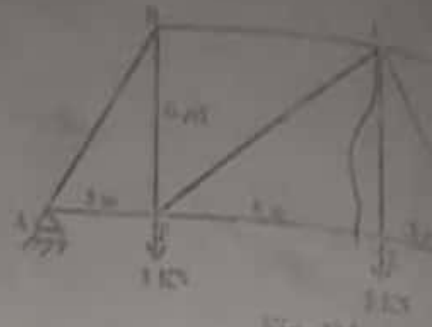


Fig. IV



Fig. V

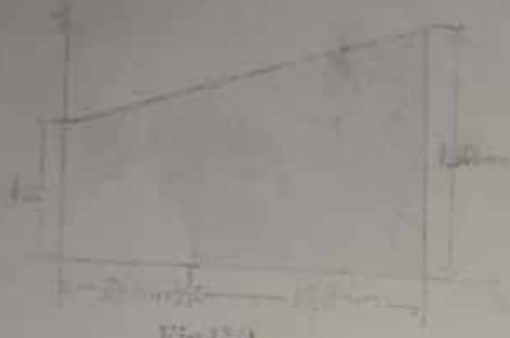


Fig. VI



Fig. VII

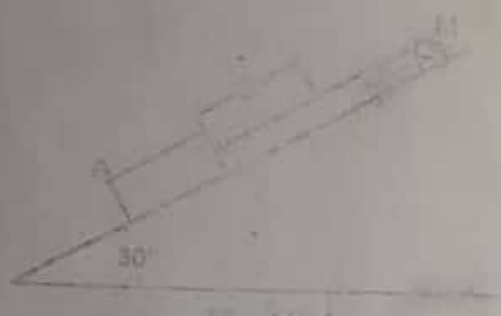


Fig. VIII

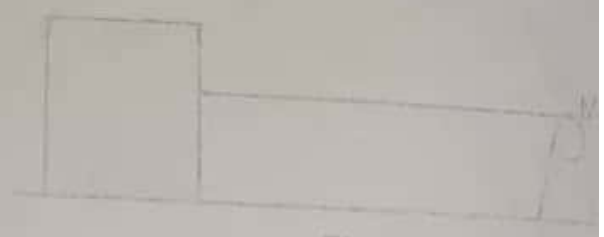


Fig. IX

