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END SEMESTER EXAMINATION, NOVEMBER-2018

Semester : 1st (New Course)

Subject Code : Me-101

ENGINEERING DRAWING

Full Marks – 100

Time – Four hours

The figures in the margin indicate full marks for the questions.

Answer *all* questions from PART-A and any *five* from PART-B.

PART – A

Marks – 25

1. Choose the correct answer from the following:
1×10=10

- (i) The short dashed medium line is used for
- (a) Irregular boundary
 - (b) Hidden outline and edges
 - (c) Cutting plane line
 - (d) Centre line

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(ii) When all the dimensions are readable only from bottom, it is called

- (a) Aligned system
- (b) Unidirectional system
- (c) All of the above
- (d) None of the above

(iii) In orthographic projections, the lines of sight are :

- (a) Perpendicular to the plane of projection
- (b) Parallel to the plane of projection
- (c) Inclined to the plane of projection
- (d) At 45° to the plane of projection

(iv) The designation M33 \times 2 of a bolt means

- (a) Metric thread of 33 numbers in 2 cm
- (b) Metric threads with cross-section of 33 mm
- (c) Metric threads of 33 mm outside diameter and 2 mm pitch
- (d) Bolt of 33 mm nominal diameter having 2 threads per cm

(v) What is the formula for calculating the length of the scale ?

- (a) Minimum length to be measured \times R.F.
- (b) Minimum length to be measured \div R.F.
- (c) Maximum length to be measured \div R.F.
- (d) Maximum length to be measured \times R.F.

(vi) A point 'P' is below Horizontal Plane (H.P.) and behind Vertical Plane (V.P). The point is in

- (a) First quadrant
- (b) Second quadrant
- (c) Third quadrant
- (d) Fourth quadrant

(vii) A circle will appear on an isometric drawing as a (n)

- (a) Ellipse
- (b) Cycloid
- (c) Circle
- (d) Parabola

(viii) In a third angle projection method, left hand side view of an object is drawn _____ front view.

- (a) Left side of
- (b) Right side of
- (c) Rear side of
- (d) None of the above

(ix) When a line is inclined to H.P. and parallel to V.P., the front view will be _____ to xy.

- (a) Parallel
- (b) Perpendicular
- (c) Inclined at angle ϕ
- (d) None of these

(x) Rivet head commonly used for general purpose is :

- (a) Snap head
- (b) Counter sunk head
- (c) Pan head
- (d) Flat head

2. Fill in the blanks with appropriate words :

1×10=10

(i) Lettering is usually done in _____ letters.

(ii) Two systems of placing dimensions are _____ and _____.

(iii) Drawings of buildings are drawn using _____ scale.

(iv) The plane which is inclined to V.P. but perpendicular to H.P. is known as _____ vertical plane.

(v) When a line is perpendicular to one of the planes, it is _____ to the other plane.

(vi) The included angle in B.S.W. thread is _____.

(vii) Rivets are generally specified by _____ of the rivet.

(viii) When the projectors are perpendicular to the plane of projection, it is called _____ projection.

(ix) The sectional view gives us _____ of the object.

(x) The function of a washer is to provide _____.

3. State true or false :

1×5=5

- (i) Diagonal scales are used for measurement of two units.
- (ii) The bisector of an arc passes through its centre.
- (iii) In first angle projection, to obtain right side view, the A.V.P. is assumed to be on left of object.
- (iv) In a full sectional view the object is imagined to be cut off one half.
- (v) In second quadrant the top view and front view both will be above xy line.

PART-B

Marks – 75

4. (a) Write the following in single stroke vertical style. Height of the letters should be 18 mm. Attention should be given to thickness, shape of letters, spacing and general arrangement.

5

GROW MORE FOOD

- (b) Draw the following types of lines and write their general applications used in engineering practice :

2×5=10

- (i) Outline
- (ii) Centre line
- (iii) Dotted line
- (iv) Dimension line
- (v) Extension line

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(6)

5. (a) Explain with the help of sketches : 3×3=9

- (i) Chain dimensioning
- (ii) Parallel dimensioning

(iii) Combined dimensioning.

- (b) (i) Construct a 30° angle with the help of a compass. 3×2=6

(ii) Inscribe a regular hexagon in a circle of 60 mm diameter.

6. (a) An area of 144 sq. cm on a map represents an area of 36 sq. km on the field. Find the RF of the scale of the map and draw a diagonal scale to show kilometres, hectometres and decametres and to measure upto 10 kilometres. Indicate on the scale a distance 7 kilometres, 5 hectometres and 6 decametres. 8

- (b) A point A is 40 mm above H.P., and 25 mm in front of V.P. Another point B is 15 mm above H.P. and 50 mm in front of V.P. The distance between their projectors is 40 mm. Draw the projections of the points A and B and find the distance between them. 7

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7. (a) A line AB 50 mm long, has its end A in both the H.P. and V.P. It is inclined at 30° to the H.P. and 45° to the V.P. Draw the projections of the line AB. 8

- (b) Figure-1 shows the front view and top view of a frustum of a hexagonal pyramid. Draw the isometric projection of the pyramid. 7

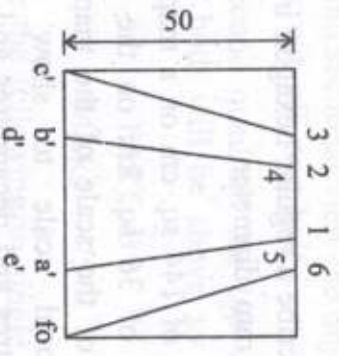


Fig. 1

8. (a) Draw three views of a hexagonal nut for 24 mm diameter bolt according to rough rule/ approximately standard dimensions. $2+2+2=6$

- (b) Sketch neatly, a sectional front view and top view of a single riveted butt joint for two 10 mm thick plates, using two butt straps. Show all dimensions on your sketch. $6+3=9$

9. Fig-2 shows a pictorial view of an object. Draw the following views: $6+5+4=15$

- (a) Sectional front view
(b) Top view and
(c) Side view from left.

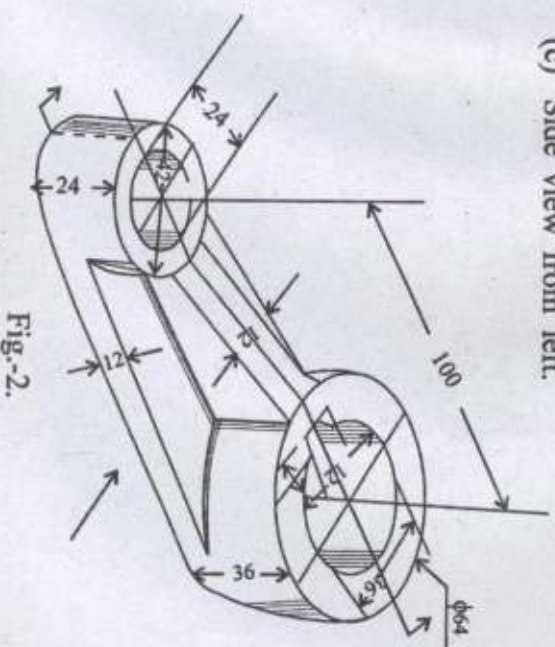


Fig.-2.