Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem (Even) Examination May-2018

EN3ES02 Engineering Graphics

Programme: B.Tech. Branch/Specialisation: All

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. Representative Fraction is less than 1 for **1**

(a) Reduced Scale (b) Enlarged Scale

(c) Full Size Scale (d) None of these

ii. Eccentricity is 1 for which curve **1**

(a) Ellipse (b) Parabola (c) Circle (d) None of these

iii. The front view (FV) and top view (TV) of a point which lies in HP and VP both is on the **1**

(a) xy line (b) FV above and TV below xy line

(c) TV above and FV below xy line (d) FV and TV both above xy line

iv. The Trace of a line parallel to HP and VP both are lying in **1**

(a) xy line (b) HT above and VT below xy line

(c) HT and VT both above xy line (d) No HT and VT exist

v. Drafters should use a _____ in a section view of a mechanical part that includes the cylindrical view of a threaded hole. **1**

(a) Centre line (b) Hatch line (c) Poly line (d) Dimension line

vi. The difference between a prism and a pyramid is that **1**

(a) Pyramid have Apex

(b) Developments of top & bottom surface prism are same

(c) Lateral surface of prism is rectangle

(d) All of these

vii. In isometric projection, all distances are approximately this percentage of their true size: **1**

(a) 120 Percent (b) 80 Percent (c) 50 percent (d) 20 Percent

viii. Lines of an isometric drawing that are not parallel to the isometric axes are called: **1**

(a) Trimetric lines (b) Dimetric lines

(c) Non isometric lines (d) Multi view Lines

P.T.O.

ix. A line with a tapering width can be easily created by using the _____ tool **1**
(a) Circle (b) Ellipse (c) Polyline (d) Line

x. The UCS icon represents the intersection of the _____ **1**
(a) X axis (b) Y axis (c) Z axis (d) All of these

Q.2 i. Divide a 100 mm straight line into seven equal parts. **2**

ii. A cube of 5 cm side represents a tank of 1000 cubic meter volume. Find the R.F. and construct a plain scale to measure up to 35m and mark a distance of 27m on it. **8**

OR iii. A fountain jet discharges water from ground level at an inclination of 45º to the ground. The jet travels a horizontal distance of 7.5m from the point of discharge and falls on the ground. Trace the path of the jet. Name the curve. **8**

Q.3 i. Draw Projection of following points on the same ground line keeping the projectors 25 mm apart. **2**
Point B: 30 mm below the HP and 40 mm behind the VP.
Point C: 50 mm above the HP and 25 mm behind the VP.

ii. The top view of a 75 mm long line measure 65 mm while the length of its front view is 50 mm. Its one end is in the HP and 12 mm in front of the VP. Draw the projections of AB and determine its inclinations with the HP and the VP. **8**

OR iii. Draw the front and top view of the object shown in figure 1 below **8**

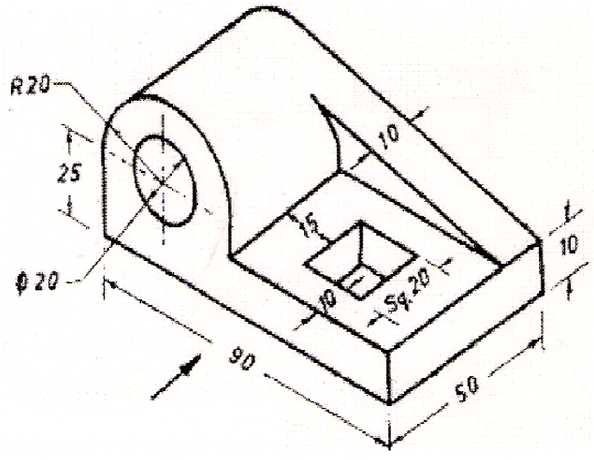

Figure 1

Q.4 i. A pentagon of 30 mm side has one corner in VP and its plane is inclined at 60 degree to VP and perpendicular to HP. Draw the projection of the pentagon. **4**

ii. Draw the projections of a cone, base 75 mm diameter and axis 100 mm long, lying on the HP on one of its generator with the axis parallel to the VP. **6**

OR iii. A square pyramid of 40 mm base side and 65 mm long axis has its base on the HP and all the edges of the base equally inclined to the VP. It is cut by a section plane perpendicular to the VP and inclined at 45° to HP and bisecting the axis. Draw the sectional top view and true shape of the section. **6**

Q.5 i. Draw the isometric scale equivalent to 100 mm of true length. **2**

ii. A square pyramid of 30 mm base sides and 50 mm long axis is centrally placed on the top of a cube of 50 mm long edges. Two base edges of both solids are parallel to VP. Draw isometric view of the pair. **8**

OR iii. Using free hand sketching (3D figure), draw the following: **8**
(a) Hexagonal Pyramid
(b) Table (Four legged)
(c) Book
(d) Staircase

Q.6 Attempt any two:

i. Explain any five 2D drawing commands in CAD. **5**

ii. Explain any five 2D editing commands in CAD. **5**

iii. Explain any two 3D commands in CAD. **5**

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Marking Scheme
EN3ES02 Engineering Graphics

Q.1 i. (a) Reduced scale **1**

ii. (b) Parabola **1**

iii. (a) xy line **1**

iv. (d) No HT and VT exists **1**

v. (b) Hatch line **1**

vi. (d) All of these **1**

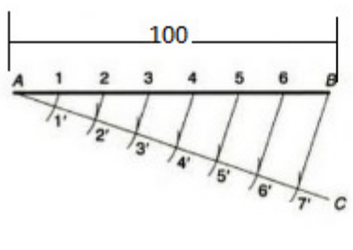
vii. (b) 80 percent **1**

viii (c) Non isometric lines **1**

ix. (c) Polyline **1**

x. (d) All of these **1**

Q.2 i. **2**



1 mark dimensioning and marking

1 mark drawing

ii. **8**

1. As R.F. is the ratio of linear quantities therefore,

$$\text{R.F.} = \frac{5\text{ cm}}{\sqrt[3]{100\,0\text{ m}^3}} = \frac{5\text{ cm}}{10\text{ m}} = \frac{5\text{ cm}}{10\times 100\text{ cm}} = \frac{1}{200}$$

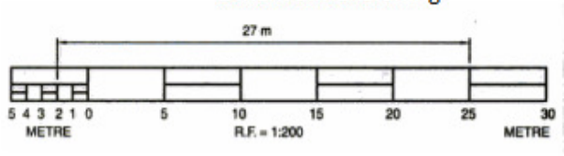
1 mark

2. Calculate length of scale

$$L_s = \text{R.F.} \times \text{maximum length} = \frac{1}{200} \times 35 \times 100 = 17.5\text{ cm}$$

1 mark

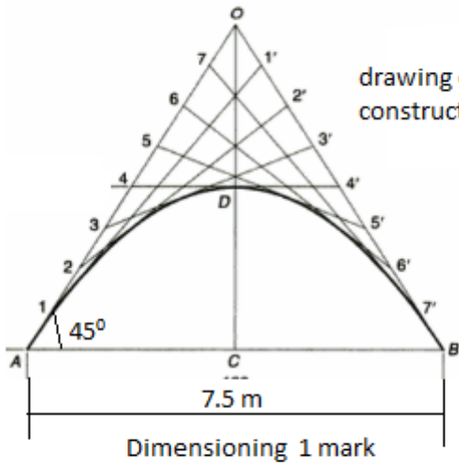
1 mark dimensioning



1 mark naming

4 marks scale drawing and construction work

OR iii. **8**



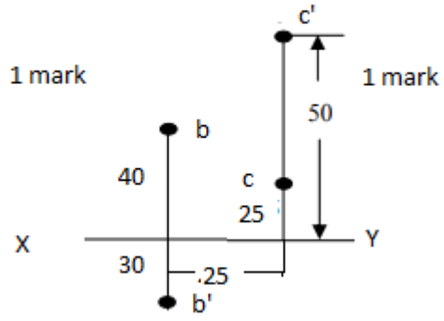
drawing curve and construction work 5 marks

Dimensioning 1 mark

Scale factor 1 mark

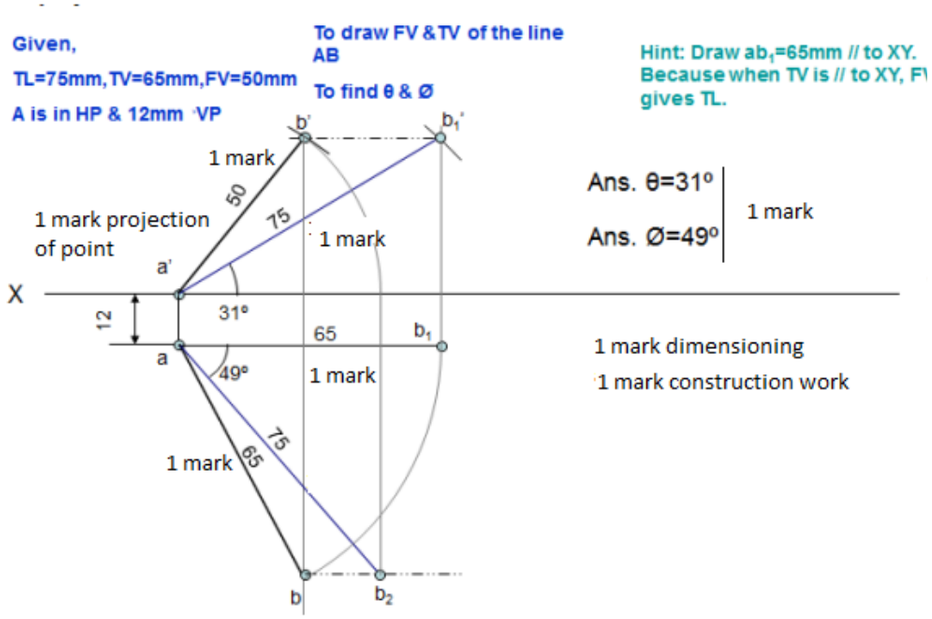
name of curve parabola 1 mark

Q.3 i. Point B FV,TV **2**

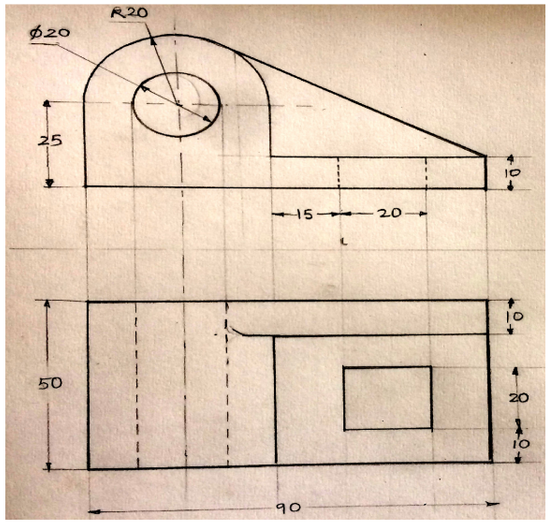


Point C FV,TV

ii. **8**



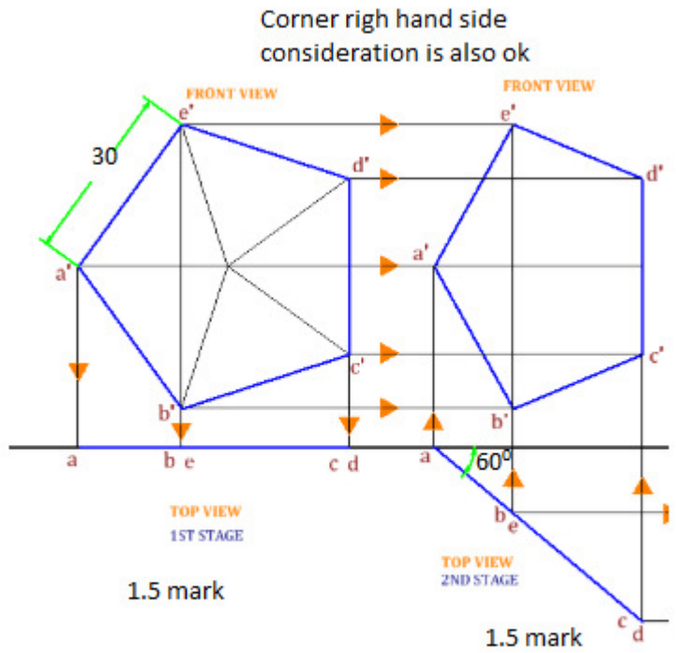
OR iii.



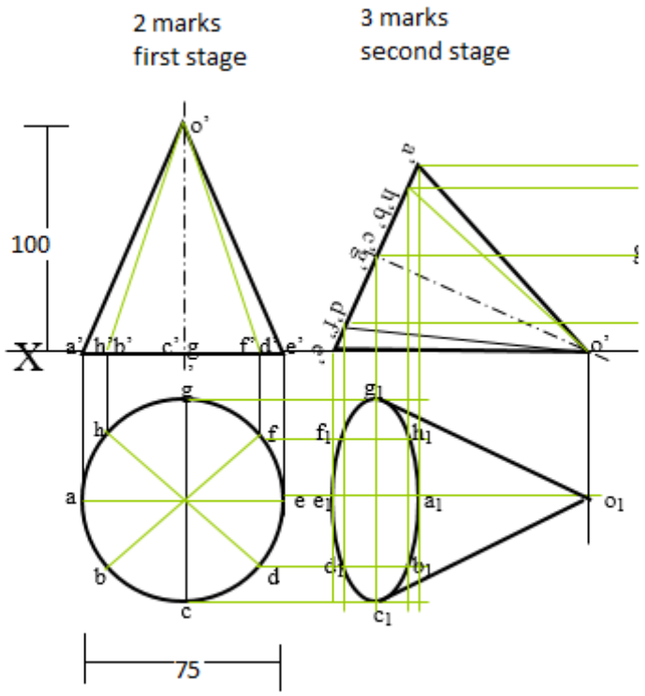
4 mark FV
3 mark TV
1 mark Dimensioning

8

Q.4 i. **4**

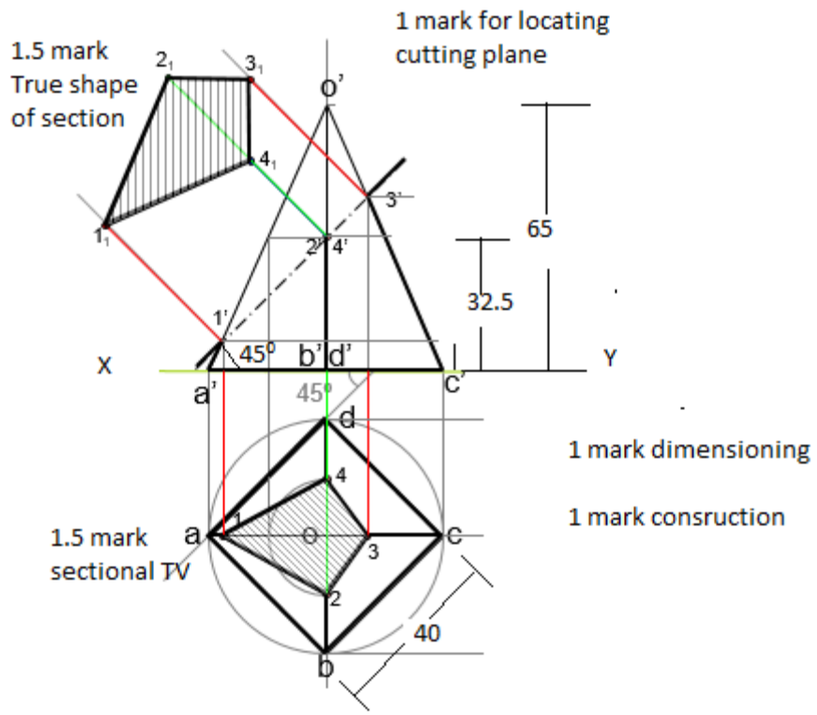


ii. **6**

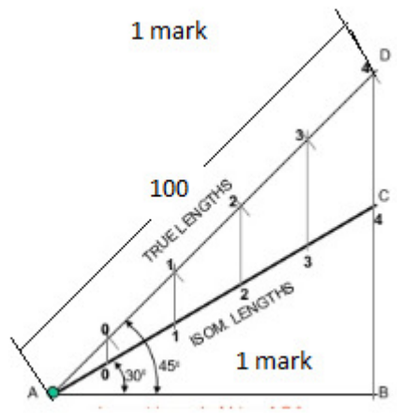


1 mark dimensioning
and consruction work

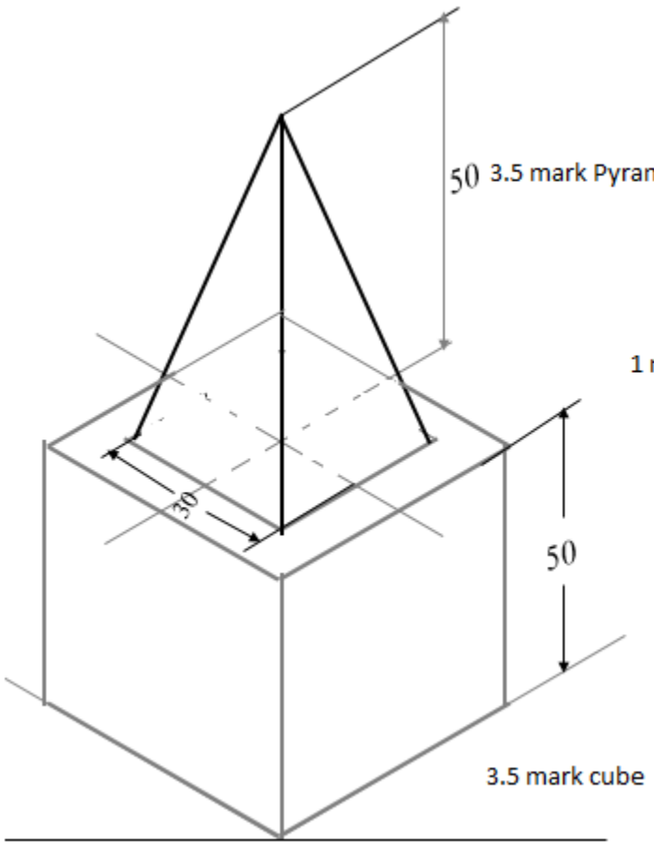
OR iii. **6**



Q.5 i. **2**



ii.



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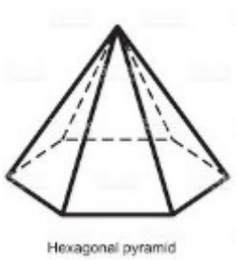
OR iii.



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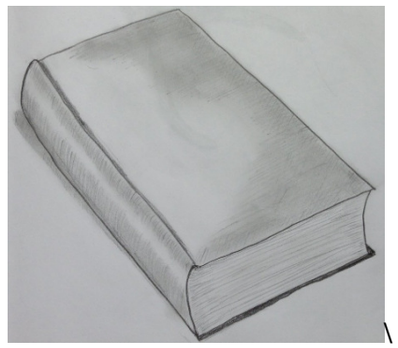

2 marks for each freehand sketching

Q.6 Attempt any two:

i. Each drawing 2D command 1 mark (1 mark * 5) **5**

ii. Each edit 2D command 1 mark (1 mark * 5) **5**

iii. Each 3D command 2.5 marks (2.5 marks * 2) **5**

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