

ID No. \_\_\_\_\_

A1

Name \_\_\_\_\_

## **BITS, Pilani – Dubai**

Dubai International Academic City

I Year – I Semester 2009 – 2010

### **COMPREHENSIVE EXAMINATION**

**Course No.** : TA C111  
**Course Title** : Engineering Graphics  
**Nature of Exam** : Closed Book  
**Weightage** : 40 % (120 Marks)  
**Duration** : 90 minutes  
**Date** : 31-12-2009

**NOTE:** (a) Answer all questions  
(b) Save your drawings every 5 minutes.  
(c) Use First angle Projection

#### **PART –A (20Marks)**

**(8 x 2 = 16 Marks)**

**(1 x 4 = 4 Marks)**

[8X2 marks]

1. Draw the symbol for Third angle projection.
2. If the top view of an object is 20mm above XY and its front view is 40mm above XY line, the object is in the \_\_\_\_\_  
(a) First Quadrant (b) Second Quadrant (c) Third Quadrant (d) Fourth Quadrant
3. The meeting point of the triangular faces of a pyramid is called  
(a) Vertex (b) Centre point (c) Centre point
4. An object is cut by a plane perpendicular to the VP and inclined to the HP. The apparent section will be seen in the \_\_\_\_\_  
(a) Front View (b) Top View (c) Right Side View (d) Left Side View

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### **Part – B (60 Marks)**

1. A Triangular pyramid of base 86.6 mm and height 104.0 mm is resting on the ground with one of its base sides making an angle of  $45^\circ$  to VP. The pyramid is cut by a cutting plane inclined  $30^\circ$  to HP and perpendicular to VP. The cutting plane cuts the axis of the pyramid 52.0 mm from the base. Draw the following

- Projection of the Pyramid (15 Marks)
- Section of the Pyramid (15 Marks)
- True shape of the section of the Pyramid (10 Marks)
- Development of the lateral surface of the truncated Pyramid. (20 Marks)

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#### **Part – C (40 Marks)**

2. The end A of a line AB is 30.7mm in front of VP and 51.2 mm above HP. The line is inclined at  $40^{\circ}$  to HP and the front view of the line is  $50^{\circ}$  to XY. The top view is 128.2mm long. Draw its projections

(25 Marks)

3. A Pentagonal lamina of side 65 mm rest on the ground on one of its corner, such that the surface makes an angle of  $50^{\circ}$  to the HP. Draw the projections of the lamina if the resting corner is 128.2 in front of the VP.

(15 Marks)

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6. Function Key for GRID On/Off in AutoCAD

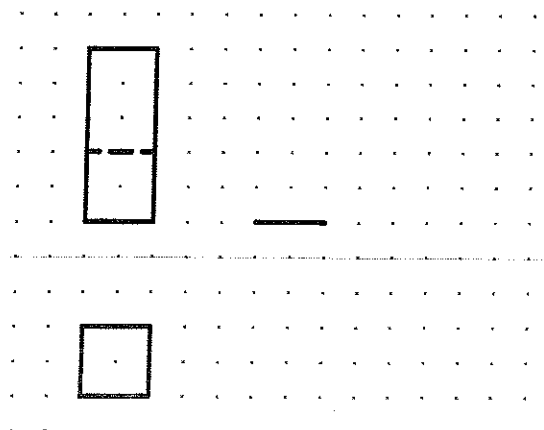
(a) F1    b) F6    c) F7    d) F8

7. The isometric length of a 50 mm line is \_\_\_\_\_

(a) 30.0 mm    (b) 24.6 mm    (c) 41.0 mm    (d) 15.5mm

8. Draw the symbol for First angle projection.

9. Draw the missing view in of the following orthographic projection. ( 4 Marks)



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### **Part – B (60 Marks)**

1. A Square Prism of base side 50 mm and height 83.4 mm is resting on its base on ground with one of its vertical face inclined at  $30^{\circ}$  to VP. The prism is cut by a cutting plane inclined at  $45^{\circ}$  to HP and perpendicular to VP. The cutting plane cuts the axis of the prism 38.8 mm from the base. Draw the following.

- Projection of the Prism (15 Marks)
- Section of the Prism (15 Marks)
- True shape of the section of the Prism (10 Marks)
- Development of the lateral surface of the truncated Prism (20 Marks)

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**Part – C (20 x 2 = 40 Marks)**

2. The top view and front view of a line AB measures 90mm and 117mm respectively. The line is inclined  $35^\circ$  to VP. The end A is 27mm above HP and 36 mm in front of the VP. The other end B is in the first quadrant. Draw the projections.

(25 Marks)

3. A Square lamina of base side 50mm lies on the ground such that one of its diagonals is perpendicular to VP. The corner containing the other diagonal which is parallel to HP makes an angle of  $45^\circ$  to HP. Draw its projections.

(15 Marks)

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**PART –A (20Marks)****(8 x 2 = 16 Marks)****(1 x 4 = 4 Marks)****[8X2 marks]**

- In orthographic view Center line is used  
a) To indicate only circular features  
b) To indicate hidden edges  
c) To indicate objects with axis symmetric
- If the top view of an object is 80mm below XY and its front view is 90mm below XY line, the object is in the \_\_\_\_\_  
(a) First Quadrant (b) Second Quadrant (c) Third Quadrant (d) Fourth Quadrant
- The line perpendicular to one principle plane is parallel to the other.  
(a) True (b) False
- Whatever be the position of a plane cutting a sphere, the true shape of the section obtained is a circle.  
(a) True (b) False
- The lower portion of cone cut by a plane inclined to its base is called  
(a) Frustum of a cone (b) Truncated cone (c) None of the above

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**Course Title** : Engineering Graphics  
**Nature of Exam** : Closed Book  
**Weightage** : 40 % (120 Marks)  
**Duration** : 90 minutes  
**Date** : 31-12-2009

<p><u>NOTE:</u> (a) Answer all questions (b) Save your drawings every 5 minutes. (c) Use First angle Projection</p>
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### **Part – B (60 Marks)**

1. A Pentagonal Pyramid of base side 60.0mm and height 100.1mm is resting on the ground with one of its base sides perpendicular to VP. The pyramid is cut by a cutting plane inclined  $45^\circ$  to HP and perpendicular to VP. The cutting plane cuts the axis of the pyramid 60mm from the base. Draw the following.
- Projection of the Pyramid (15 Marks)
  - Section of the Pyramid (15 Marks)
  - True shape of the section of the Pyramid (10 Marks)
  - Development of the lateral surface of the truncated Pyramid (20 Marks)



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### **COMPREHENSIVE EXAMINATION**

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**Nature of Exam** : Closed Book  
**Weightage** : 40 % (120 Marks)  
**Duration** : 90 minutes  
**Date** : 31-12-2009

<p><u>NOTE:</u> (a) Answer all questions (b) Save your drawings every 5 minutes. (c) Use First angle Projection</p>
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#### **Part – C (2 x 20 = 40 Marks)**

2. The top view and front view of a line AB measures 115mm and 143.7mm respectively. The line is inclined  $30^\circ$  to VP. The end A is 34.5mm above HP and 34.5mm in front of the VP. The other end B is in the first quadrant. Draw the projections.

(25 Marks)

3. A Hexagonal lamina of side 75.0 mm rest on the ground on one of its corners, such that the surface makes an angle of  $45^\circ$  to the HP. Draw its projections if this corner is 140.0 mm in front of the VP.

(15 Marks)

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<p><u>NOTE:</u></p> <p>(a) Answer all questions</p> <p>(b) Save your drawings every 5 minutes.</p> <p>(c) Use First angle Projection</p>
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**PART –A (20Marks)****(8 x 2 = 16 Marks)****(1 x 4 = 4 Marks)***[8X2 marks]*

1. Function Key for SNAP in AutoCAD  
(a) F1    b) F6    c) F9    d) F11
2. The lateral surface development view of a cone will look like a \_\_\_\_\_  
(a) Triangle    (b) Semicircle    (c) Chord of circle    (d) Sector of a circle
3. Top view is also known as  
(a) Plan    (b) Elevation    (c) Side Elevation
4. If the top view of an object is 70mm above XY and its front view is 60mm above XY line, the object is in the \_\_\_\_\_  
(a) First Quadrant    (b) Second Quadrant    (c) Third Quadrant    (d) Fourth Quadrant
5. Draw the symbol for First angle projection.

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**Duration** : 90 minutes  
**Date** : 31-12-2009

<p><u>NOTE:</u> (a) Answer all questions (b) Save your drawings every 5 minutes. (c) Use First angle Projection.</p>
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### **Part – B (60 Marks)**

1. A Pentagonal Prism of base side 47.4 mm and height 94.9mm is resting on its base on ground with one of its vertical face inclined at  $30^{\circ}$  to VP. The prism is cut by a cutting plane inclined at  $45^{\circ}$  to HP and passing through the axis 47.4 mm above the base. Draw the following.

- Projection of the Prism (15 Marks)
- Section of the Prism (15 Marks)
- True shape of the section of the Prism (10 Marks)
- Development of the lateral surface of the truncated Prism (20 Marks)

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~~B2~~  
B3

Name \_\_\_\_\_

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**Duration** : 90 minutes  
**Date** : 31-12-2009

<p><u>NOTE:</u> (a) Answer all questions (b) Save your drawings every 5 minutes. (c) Use First angle Projection</p>
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#### **Part – C (20 x 2 = 40 Marks)**

2. A line CD inclined  $45^{\circ}$  to VP, with its end C 35mm in front of VP and 46.7mm above HP. The distance between the projectors is 93.3 mm with the end D 116.6 mm above HP and in front of VP. Draw the projections.

(25 Marks)

3. A Circular lamina of diameter 120mm is perpendicular to HP and inclined to the VP, such that front view is an ellipse of major axis 120mm and minor axis 90mm. Draw the projections of the lamina and determine the true inclination with the VP, if the center of the lamina is 90mm above the HP and 60mm in front of the VP.

(15 Marks)

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<p><u>NOTE:</u></p> <p>(a) Answer all questions</p> <p>(b) Save your drawings every 5 minutes.</p> <p>(c) Use First angle Projection</p>
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**PART –A (20Marks)****(8 x 2 = 16 Marks)****(1 x 4 = 4 Marks)**

[8X2 marks]

1. If the top view of an object is 50mm below XY and its front view is 40mm below XY line, the object is in the \_\_\_\_\_  
 (a) First Quadrant (b) Second Quadrant (c) Third Quadrant (d) Fourth Quadrant
  
2. The formula used for finding out the angle ( $\theta$ ) in development of cone is \_\_\_\_\_  
 (a)  $r/l * 360$  (b)  $180 * (r/l)$  (c) Both 1 & 2 (d) None
  
3. When a cylinder intersects a pyramid the resulting line of intersection is \_\_\_\_\_  
 (a) Curve (b) line (c) Surface (d) Solid
  
4. The projections of an object (both the front and top view) lie on the XY line if  
 a) The object lies on HP  
 b) The object lies on VP  
 c) The object lies on the intersection of VP and HP  
 d) The object is placed above HP and in front of VP
  
5. Isometric axes make an angle of \_\_\_\_\_ with each other.  
 (a)  $120^{\circ}$  (b)  $180^{\circ}$  (c)  $240^{\circ}$  (d)  $360^{\circ}$

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(c) Use First angle Projection

**Part – A (60 Marks)**

1. A square pyramid of base 81.0 mm and height 101.2 mm is resting on the ground with two of its base sides perpendicular to VP. The pyramid is cut by a cutting plane inclined  $30^\circ$  to HP and perpendicular to VP. The cutting plane cuts the axis of the pyramid 45.6mm from the base. Draw the following
- Projection of the Pyramid (15 Marks)
  - Section of the Pyramid (15 Marks)
  - True shape of the section of the Pyramid (10 Marks)
  - Development of the lateral surface of the truncated Pyramid. (20 Marks)

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	(b) Save your drawings every 5 minutes.
	(c) Use First angle Projection

**Part – C (2 x 20 = 40 Marks)**

2. The front view of a line TS measures 130mm long and makes  $40^\circ$  to XY line. The end T is in HP and 65mm in front of VP. The line is inclined  $40^\circ$  to VP. Draw its projections.

(25 Marks)

3. A hexagonal lamina of side 75 mm having a square slot of side 45 mm on its centre is resting on the ground on one of its side. The surface is making  $45^\circ$  with HP. Draw its projections.

(15 Marks)

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**PART –A (20Marks)****(8 x 2 = 16 Marks)****(1 x 4 = 4 Marks)***[8X2 marks]*

1. The projections of an object (both the front and top view) are above the XY line if
  - a) The object is in I Quadrant
  - b) The object is in II Quadrant
  - c) The object lies on the intersection of VP and HP
  - d) The object is placed above HP and in front of VP
  
2. The isometric length of a 60 mm line is \_\_\_\_\_
 

(a) 32.8 mm      (b) 49.2 mm      (c) 42.9 mm      (d) 40.0 mm
  
3. If the top view of an object is 40mm below XY and its front view is 30mm below XY line, the object is in the \_\_\_\_\_
 

(a) First Quadrant (b) Second Quadrant (c) Third Quadrant (d) Fourth Quadrant
  
4. An object is cut by a plane perpendicular to the HP and inclined to the VP. The apparent section will be seen in the \_\_\_\_\_
 

(a) Front View (b) Top View (c) Right Side View (d) Left Side View
  
5. Function Key for ORTHO on/off in AutoCad
 

a) F8      b) F6      c) F7      d) F9
  
6. When a prism meet a pyramid the resulting line of intersection is \_\_\_\_\_
 

(a) Curve      (b) line      (c) Surface      (d) Solid



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**Part – B (60 Marks)**

1. A Cone of base diameter 82.0 mm and height 117.1mm is resting on the ground on its base. The cone is cut by a cutting plane inclined  $45^\circ$  to HP and perpendicular to VP. The cutting plane cuts the axis of the cone 70.3mm from the base. Draw the following

- Projection of the Cone (15 Marks)
- Section of the Cone (15 Marks)
- True shape of the section of the Cone (10 Marks)
- Development of the lateral surface of the truncated Cone (20 Marks)

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(c) Use First angle Projection

**Part – C (2 x 20 = 40 Marks)**

2. The top view and front view of a line AB measures 95.1mm and 123.6mm respectively. The line is inclined  $35^\circ$  to VP. The end A is 28.5 mm above HP and 38.0 mm in front of the VP. The other end B is in the first quadrant. Draw the projections.

(25 Marks)

3. A semi circular lamina of 125mm diameter has its straight edge in the VP and inclined  $45^\circ$  to HP. Draw its projections.

(15 Marks)