

WORKSHOP TECHNOLOGY [15ME11T]

Unit – 1 MATERIALS FOR MANUFACTURING			
S No	Questions	Marks	Appeared in
1	Name the different Heat Treatment Processes.	5	Nov 2015
2	Define non-ferrous metals and name any four non-ferrous metals.	5	Nov 2015
3	State plasticity and elasticity of metals.	5	May 2016
4	Name the different heat treatment process.	5	May 2016
5	Differentiate between pig iron and cast iron,	5	Nov 2015, May 2016
6	Indicate any five uses of cast iron.	5	Nov 2015, May 2016,
7	State the six properties of plastics	5	Nov 2015, May 2016
8	Define composite materials. List the uses of composite materials.	5	Nov 2015, May 2016, NOV-2019
9	Name the different engineering materials with examples.	5	Nov 2016
10	Define Heat treatment and indicate any four purposes.	5	Nov 2016, May 2017
11	Explain the Annealing process of Heat treatment with applications.	5	Nov 2016, Nov 2017,
12	Explain the Tempering process of Heat treatment with applications	5	Nov 2016
13	Compare thermoplastics and thermosetting plastics.	5	Nov 2016, May 2017, NOV-2019
14	Distinguish wrought iron with steel.	5	Nov 2016, Nov 2017, April 2019
15	Write uses ,properties of Ceramics.	5	Nov 2016, May 2017, NOV-2019
16	List any five properties of cast iron.	5	May 2017
17	Explain Hardening processes of heat treatment with applications	5	May 2017, May 2018
18	Explain Normalizing processes of heat treatment with applications	5	May 2017, NOV-2019
19	State any five properties of Non-ferrous metals.	5	Nov 2017
20	Explain Ductility and Malleability of metals	5	May 2018
21	List any five properties and five uses of aluminum.	5	Nov 2018
22	List any five properties and five uses of Pig iron	5	Nov 2018, NOV-2019
23	Explain thermosetting plastics	5	Nov 2018
24	State any five uses of Non-ferrous metals.	5	April 2019
25	Explain Normalizing process	5	April 2019
26	Differentiate between ferrous & Non ferrous metals	6	April 2019
27	Indicate any four examples for non ferrous metals	4	April 2019
28	State any four uses of Wrought iron	4	April 2019
29	List five properties of material	5	NOV-2019
Unit – 2 BASIC MANUFACTURING PROCESS			
1	Define Forging. List the common forging operations.	5	Nov 2015, May 2018, April 2019
2	Define extrusion. State the uses of it.	5	May 2016, Nov 2016, April 2019
3	Explain with a neat sketch four high rolling.	5	May 2016, May 2018, NOV-2019

WORKSHOP TECHNOLOGY [15ME11T]

4	Explain briefly the common forging operations.	5	Nov 2015, Nov 2016, NOV-2019
5	Explain with a neat sketch Three high rolling	5	Nov 2015, Nov 2016, May 2017, Nov 2017, Nov2018, April 2019, NOV-2019
6	State the uses of manufacturing process.	5	May 2016
7	Explain with a neat sketch tube extrusion,	5	Nov 2015, Nov 2017, Nov 2018, May 2018
8	Explain with a neat sketch Two high rolling	5	Nov 2015
9	Compare cold working with hot working,	5	May 2016, Nov 2016, May 2017, Nov 2017, May 2018
10	Explain the principle of wire drawing operation.	5	May 2016, May 2018, Nov 2016, Nov 2017,
11	Explain with neat sketch - Indirect Extrusion.	5	Nov2018
12	Define Rolling operation & list the types of Rolling.	5	Nov 2016, Nov 2017, April 2019
13	List the different types of manufacturing processes	5	May 2017
14	Explain with a neat sketch Direct Extrusion	5	May 2017, Nov 2017, April 2019, NOV-2019
15	Compare direct extrusion with indirect extrusion.	5	Nov 2018
16	Illustrate wire drawing with a neat sketch.	5	Nov 2018
17	List the uses of hot working & cold working	4	April 2019
18	Explain cold working	5	NOV-2019
Unit – 3 BASIC FABRICATION PROCESS			
1	Define welding and classify.	5	Nov 2015, April 2019, NOV-2019
2	List the uses of Arc welding.	5	Nov 2015, Nov 2016
3	Explain with a neat sketch TIG welding,	5	Nov 2015, May 2016, Nov 2018
4	Explain with a neat sketch the gas welding,	5	Nov 2015, Nov 2016, April 2019, NOV-2019
5	Explain briefly welding defects.	5	Nov 2015, May 2016, May 2017, Nov 2017, May 2018, Nov2018, NOV-2019
8	Differentiate between welding and soldering.	5,4	May 2016, April 2019, NOV-2019
9	Explain with neat sketch MIG welding.	5	May 2016, May 2017, Nov 2018, April 2019
10	Explain with neat sketch butt welding	5	May 2016, May 2018
11	Name different types of Resistance welding.	5	May 2016
12	List the equipments used for Arc Welding	5	Nov 2016, May 2017, April 2019
13	Compare MIG welding with TIG welding	5	Nov 2016, Nov 2017, May 2018
15	Define soldering and classify.	5	Nov 2016
16	Explain with neat sketch 'Submerged Arc Welding'.	5	Nov 2016, Nov 2017
14	Explain with a sketch arc welding,	5	May 2017, May 2018
15	Explain briefly soldering.	5	May 2017
16	Explain with sketch Spot welding.	5	Nov 2017, May 2018, Nov2018, NOV-2019.
17	Differentiate between brazing and soldering	5	Nov 2017

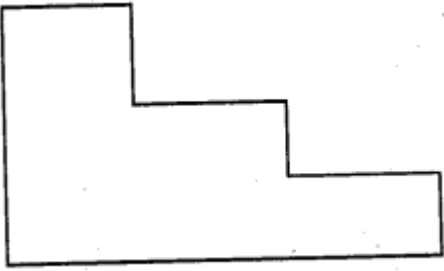
WORKSHOP TECHNOLOGY [15ME11T]

18	State the difference between arc welding and gas welding	5	April 2019
Unit - 4 METAL CASTING PROCESSES			
1	State the properties and molding sand.	5	Nov 2015, May 2016, May 2017, Nov 2017
2	List the defects in casting.	5	Nov 2015, May 2017, May 2018, Nov2018. NOV2019
3	List pattern allowances.	5	Nov 2015, May 2017, NOV-2019
4	List the types of foundry sand.	5	Nov 2015
5	Explain with a sketch split pattern	5	Nov 2015, Nov 2017, April 2019
6	Explain with sketch slush casting,	5	Nov 2015, May 2017
7	Explain metal casting process.	5	May 2016
8	Explain casting allowances.	5	May 2016, Nov 2017, May 2018
9	Differentiate between sand casting and die casting.	5	May 2016, Nov 2017
10	Name the different types of patterns,	5	May 2016, May 2017, May 2018, Nov 2018
11	State the uses of metal casting.	5	Nov 2016
12	State the ingredients of Foundry sand.	5,3	Nov 2016, April 2019
13	Explain briefly 'Runner' and 'Raiser' used in casting process.	5	Nov 2016
14	List different pattern making materials.	5,4	Nov 2016, Nov 2018, April 2019
15	Explain briefly 'Cope', 'Drag' and 'Core' used in casting process.	5	Nov 2016, Nov 2018
16	Briefly explain die-casting with its applications.	5	May 2017
17	With neat sketch explain centrifugal casting	5,7	Nov 2017, April 2019, NOV2019
18	Explain with neat sketch die casting	5	April 2019
19	List advantages and disadvantages of metal casting process	5	NOV-2019
Unit – 5 SHEET METAL PROCESSES			
1	Explain briefly squeezing and blanking, bending, drawing operations of sheet metal	5	Nov 2015, Nov2016, NOV2019
2	State any three applications of sheet metals	5	Nov 2015, Nov 2018
3	Explain ball or Fly press with a neat sketch.	5	Nov 2015, May 2016, May 2017, May 2018, Nov2018
4	Name different metals used for sheet metal work.	5	May 2016, May 2018
5	State any three applications of presses.	5,3	May 2016, Nov 2018, April 2019
6	State the properties and Gauges of sheet metal.	5	Nov 2016
7	Explain 'power press' with neat sketch	5,7	Nov 2016, Nov 2017, April 2019
8	State the uses of sheet metal in engineering.	5	May 2017, Nov 2017, April 2019
9	Briefly explain 'Lancing'	5	May 2017
10	List five applications of presses	5	NOV-2019
Unit – 6 POWDER METALLURGY			
1	Explain the uses of powder metallurgy in engineering.	5	Nov 2015

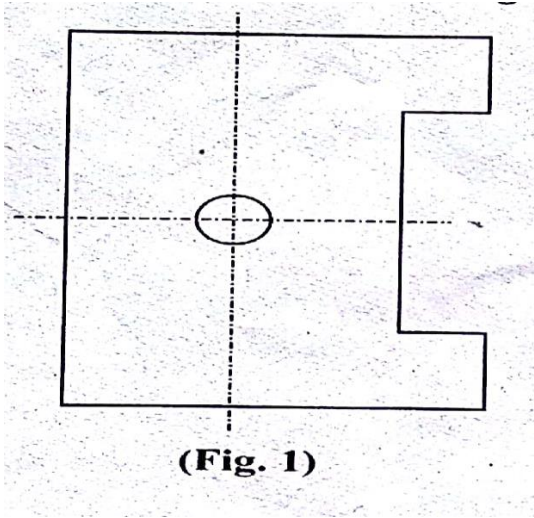
WORKSHOP TECHNOLOGY [15ME11T]

2	Define metal powder and name the different methods of manufacture.	5	Nov 2015,Nov2016
3	State any five advantages of powder metallurgy.	5	May 2016,Nov2016, May 2017, May 2018
4	State the limitations of powder metallurgy.	5	Nov 2015,Nov 2018
5	Name the different products of powder metallurgy.	5,4	Nov 2015, May 2016, Nov 2017, April 2019, NOV-2019
6	Explain Automization for manufacturing of powder metal	5	April 2019
7	State the advantages &limitations of powder metallurgy	5	April 2019
8	List primary and secondary powder metallurgy process	5	NOV-2019
9	Explain reduction for manufacturing of powder metal		NOV-2019

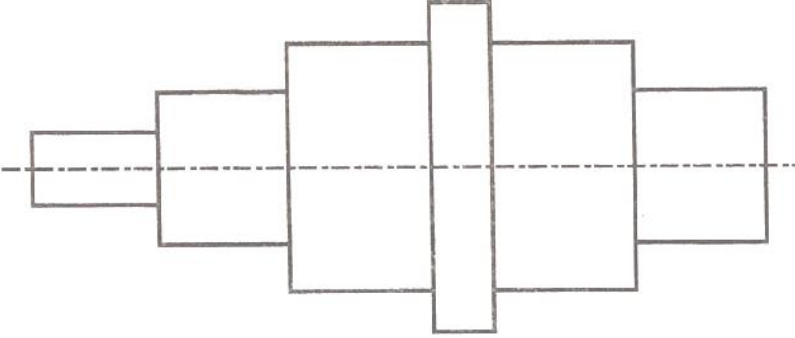
Engineering Graphics I [15ME12D]

Unit – 1 DIMENSIONING			
S No	Questions	Marks	Appeared in
1	<p>Copy the given sketch to 1 : 1 scale and dimension adopting progressive system of dimensioning.</p> 	10	Nov./Dec. 2015 NOV-2019
2	<p>(a) Write the uses of the following drawing instruments.</p> <p>(i) Protractor (ii) French curve (iii) Bow compass (iv) Clinograph (v) Minidrafter</p> <p>(b) Give the conventional representation for the following materials, (i) Cast iron (ii) Lead (iii) Porcelain (iv) Glass (v) Wood.</p>	10	April/Ma y-2016
3	<p>(a) Define RF. Mention the types of scales based on RF.</p> <p>(b) Give the conventional representation of the following materials</p> <p>(i) Steel (ii) Zinc (iii) Glass (iv) Wood (v) Water</p>	5+5	Nov./Dec . 2016, Nov 2018

Engineering Graphics I [15ME12D]

4	<p>(a) List the standard sizes of Drawing sheet.</p> <p>(b) Write the uses of the following drawing instruments</p> <p>(i) Set square</p> <p>(ii) Protractor</p> <p>(iii) Compass</p> <p>(iv) French Curves</p> <p>(v) Clinograph</p>	5+5	NOV-2019 April/Ma y-2017
5	<p>(a) Mention the types of lines and their applications.</p> <p>(b) Mention the uses of the following instruments :</p> <p>(i) T - square</p> <p>(ii) Set - square</p> <p>(iii) Mini - drafter</p> <p>(iv) Erasing shield</p> <p>(v) French curves</p>	5	Nov./Dec . 2017
6	<p>(a) Mention the types of lines and their applications.</p> <p>(b) Copy the given sketch (Fig. 1) to 1 : 1 scale and dimension adopting unidirectional system with parallel dimensioning method</p> <div style="text-align: center;">  <p>(Fig. 1)</p> </div>	5+5	April/Ma y-2018
7	Illustrate the elements of dimensioning with the help of a sketch		Nov 2018

Engineering Graphics I [15ME12D]

8	<p>Copy the given sketch to 1 : 1 scale and dimensions adopting align system with parallel dimensioning</p> 	10	April 2019
Unit – 2 CONIC SECTIONS AND SPECIAL CURVES			
1	Draw a rectangular hyperbola given a point P on it at a distance 40 mm and 30 mm from two asymptotes	15	Nov./Dec. 2015
2	Draw an ellipse by rectangle method taking major axis 100 mm and minor axis 70 mm long	15	Nov./Dec. 2015
3	A circle of 50 mm diameter rolls on a line. A point on the circumference of the circle is in contact with the line in the beginning and after one complete revolution. Draw the cycloidal of the point. Draw a tangent and normal at any point on the curve.	15	Nov./Dec. 2015
4	Construct a Hyperbola when the distance of the focus from the directrix is 30 mm and eccentricity is equal to 9/7.	15	April/May- 2016
5	An ellipse has the major axis and the minor axis in the ratio of 3 : 2. Draw the ellipse when the major axis is 135 mm by concentric circle method	15	April/May- 2016, Nov 2018
6	A circle of 50 mm diameter rolls on a line. A point on the circumference of the circle is in contact with the line in the beginning and after one complete revolution. Draw the	15	April/May- 2016

Engineering Graphics I [15ME12D]

	cycloidal path of the point. Draw a tangent and normal at any point on the curve		
7	An ellipse has the major axis and minor axis in the 5 : 3. Draw the ellipse, when the major axis is 150 mm by concentric circles method.	15	Nov./Dec. 2016
8	A shot from a rifle is discharged from the ground level at an inclination of 60° to the ground which is assumed to be horizontal. The shot returns to the ground at a point of 80 metre distant from the point of discharge. Trace the path of the shot. Select a scale of 1:1000	15	Nov./Dec. 2016
9	A circle of 50 mm diameter rolls on a straight line without slipping. Trace the path of the point on the circumference of the circle for one complete revolution. Draw a tangent and normal at any point on the curve	15	Nov./Dec. 2016
10	Construct a rectangular Hyperbola, given a point P on it at a distance of 20 mm and 15 mm from the two asymptotes	15	April/May-2017
11	Draw the involute of a circle of diameter 40 mm. Also draw a tangent and normal at any point on the curve	15	April/May-2017, Nov 2018 NOV-2019
12	Construct an ellipse, when the distance of focus from the directrix is 45 mm and the eccentricity is $2/3$. Find the lengths of major and minor axes	15	Nov./Dec. 2017
13	A stone thrown from the ground level reaches a maximum height of 50 metre and falls on the ground at a distance of 100 metre from the point of projection. Trace the path of the stone in space.	15	Nov./Dec. 2017 NOV-2019

Engineering Graphics I [15ME12D]

	Select a scale of 1 : 1000		
14	Draw the involute of a circle of diameter 45 mm. Also draw a tangent and normal at any point on the curve	15	Nov./Dec. 2017
15	Inscribe an ellipse in a rectangle of 130 mm x 80 mm by intersecting lines method	15	April/May-2018 NOV-2019
16	Draw the parabola when the distance of the focus from the directrix is 30 mm and eccentricity equal to one.	15	April/May-2018, April 2019
17	A circle of 50 mm diameter rolls on a line. A point on the circumference of the circle is in contact with the line in the beginning and after one complete revolution. Draw the cycloidal path of the point. Draw a tangent and normal at any point on the curve	15	April/May-2018
18	Construct a parabola in a parallelogram of the sides 100 mm * 45 mm and with an included angle of 75°.	15	Nov 2018
19	A parallelogram has sides 130 mm and 80 mm at an included angle of 60° inscribe an ellipse in the parallelogram. Find the major and minor axis of the ellipse.	15	April 2019
20	Draw the involute of a circle of diameter 50 mm. Also, draw a tangent and normal at any point on the curve.	15	April 2019

Engineering Graphics I [15ME12D]

Unit – 3 PROJECTION AND PROJECTION OF POINTS			
1	<p>(a) Draw the three principal views of a point P lying 50 mm behind VP, 60 mm below HP and 40 mm behind the right profile plane.</p> <p>(b) Draw the projections of the following points on a common reference line. Take 30 mm distance between the projector.</p> <p>(i) A - 35 mm above HP and 25 mm in front of VP.</p> <p>(ii) B - on both HP and VP.</p> <p>(iii) C - 50 mm below HP and 25 mm behind VP.</p> <p>(iv) D - 45 mm below HP and 20 mm in front of VP</p>	8+7	Nov./Dec. 2015
2	<p>Draw the projections of the following points :</p> <p>(a) Point 'A' is 30 mm below the HP and 35 mm in front of the VP.</p> <p>(b) Point 'B' is 25 mm above the HP and 35 mm in front of the VP.</p> <p>(c) Point 'C' is 40 mm in front of the VP and in the HP.</p> <p>(d) Point 'D' is 25 mm above the HP and 40 mm behind the VP.</p> <p>(e) Point 'E' is 35 mm below the HP and 30 mm behind the VP.</p>	15	April/May- 2016
3	<p>(a) Draw the projections of a line 60 mm long placed parallel to VP, perpendicular to HP. The line is 40 mm in front of VP and 25 mm in front of right PP. The lower end of the line is 20 mm above HP.</p> <p>(b) A line AB 80 mm long is inclined at 45° to VP and parallel to HP. The end nearer to VP is 30 mm in front of VP, 60 mm above HP and 100 mm in front of right PP. Draw its projections.</p>	7+8	April/May- 2016
4	<p>(a) Draw the symbolic representation of first angle projection method.</p> <p>(b) Draw the projections of the following points :</p> <p>(i) 'P' is 30 mm below HP and in VP.</p> <p>(ii) 'Q' is 40 mm behind VP and in HP.</p> <p>(iii) 'R' is 35 mm below HP and 35 mm in front of VP.</p>	3+12 ,5	April/May- 2016, Nov 2018

Engineering Graphics I [15ME12D]

	(iv) 'S' is 30 mm above HP and 25 mm behind VP		
5	<p>Draw the projections of the following points :</p> <p>(a) Point 'A' is 25 mm above HP and 35 mm in front of the VP.</p> <p>(b) Point 'B' is 20 mm above HP & 40 mm behind VP.</p> <p>(c) Point 'C' is 30 mm below HP and 50 mm behind VP.</p> <p>(d) Point 'D' is 50 mm below HP and 25 mm in front of the VP</p> <p>(e) Point 'E' touches both HP and VP</p>	15	April/May-2017
6	<p>Draw the projections of the following points on a common reference line</p> <p>(i) Point 'A' is 30 mm above HP and 40 mm behind VP.</p> <p>(ii) Point 'B' is 30 mm above HP and 45 mm behind VP.</p> <p>(iii) Point 'C' is 40 mm above HP and in VP.</p> <p>(iv) Point 'D' is 30 mm below HP and in VP.</p> <p>(v) Point 'E' is 35 mm in front of VP and in HP</p>	15	Nov./Dec. 2017
7	<p>(a) Draw the symbolic representation of third angle projection method.</p> <p>(b) Draw the projections of the following points :</p> <p>(i) T is 25 mm above the HP and 30 mm in front of the VP.</p> <p>(ii) U is in both VP and HP</p> <p>(iii) V is 35 mm below the HP and 30 mm behind the VP.</p> <p>(iv) W is 30 mm above the HP and 35 mm behind the VP.</p>	5+10 , 5	April/May-2018, April 2018,
8	<p>(a) Draw the projections of the following points :</p> <p>(i) P is 25 mm below the HP and in the VP</p> <p>(ii) Q is 40 mm behind the VP and in the HP</p> <p>(iii) R is 30 mm below the HP and 30 mm in front of the VP</p> <p>(iv) S is 25 mm above the HP and 25 mm behind the VP</p>	10	Nov 2018 NOV-2019

Engineering Graphics I [15ME12D]

	<p>Draw the projections of the following points on the same XY lines. Also, state the quadrants in which they lie.</p> <p>(i) P is 40 mm below HP and 50 mm behind VP.</p> <p>(ii) Q is 55 mm below HP and 35 mm in front of VP.</p> <p>(iii) R is on HP and 45 mm behind VP.</p> <p>(iv) S is 40 mm in front of VP and 50 mm above HP.</p>	15	April 2019
Unit - 4 PROJECTION OF LINES			
1	A line AB measuring 80 mm has its end A 15 mm in front of VP and 20 mm above HP and the other end B is 60 mm in front of VP and 50 mm above HP. Draw the projections of the line and find the inclinations of the line with both the reference planes of projection	15	Nov./Dec. 2015
2	<p>(a) Draw the three principal views of a line 80 mm long when it is placed parallel to both HP and VP. One of the ends of the line 50 mm above HP, 70 mm in front of VP and 40 mm in front of right PP.</p> <p>(b) A line 80 mm long is inclined at 45° to VP and parallel to HP. The end nearer to VP is 40 mm in front of VP, 50 mm above HP and 110 mm in front of right PP. Draw its projections</p>	7+8	Nov./Dec. 2015
3	A line AB is 65 mm long has one of its extremities 25 mm in front of VP and 20 mm above HP. The line is inclined at an angle of 30° to HP and 40° to VP. Draw its top and front views	15	April/May-2016
4	A straight line AB, 70 mm long makes an angle of 45° to HP and 30° to VP. The end A is 20 mm in front of VP and is on HP. Draw the projections of the line	15	April/May-2016
5	The top view of a 75 mm long line AB measures 65 mm, while its front view measures 50 mm. Its one end A is in the HP and 15 mm		Nov./Dec. 2016

Engineering Graphics I [15ME12D]

	infront of VP. Draw the projection of the line AB and determine its inclinations with the HP and VP		
6	<p>(a) Draw the projections of a line 50 mm long, placed parallel to both HP & VP. The line is 40 mm above HP, 60 mm infront of the VP & 30 mm infront of the right PP.</p> <p>(b) A line AB 60 mm long is inclined at 30° to HP & parallel to VP. The line is 60 mm infront of VP. The lower end 'A' is 35 mm above HP, 110 mm infront of right PP and its away from it, than the lower end. Draw its projections.</p>	7+8	April/May-2017
7	A line AB is 60 mm long has one of its extremities 20 mm infront of VP, 15 mm above HP. The line is inclined at 25° to HP and 40° to VP. Draw its top and front views	15	April/May-2017
8	A line PQ measuring 80 mm has its end P 20 mm infront of VP and 30 mm above HP. Another end Q is 60 mm infront of VP and 50 mm above HP. Draw the projections of the line and find the inclinations with both the reference planes of projection	15	Nov./Dec. 2017
9	A line AB, 90 mm long is inclined at 45° to HP and its top view makes an angle of 60° with VP- The end A is in HP and 15 mm in front of VP. Draw the projections of the line and find its true inclination with VP, length of projections and inclination of projections	15	Nov./Dec. 2017
10	<p>a) A line AB 80 mm long is inclined at 30° to HP and parallel to VP. The line is 90 mm infront of VP. The lower end A is 35 mm above HP, 110 mm infront of the right PP and is away from it than the higher end. Draw the three principal views of the line.</p> <p>(b) A line AB 70 mm long is inclined at 45° to VP and parallel to HP. The end nearer to VP is 30 mm infront of VP, 60 mm above HP and 100 mm infront of right PP. Draw the three principal views</p>	8+7	April/May-2018

Engineering Graphics I [15ME12D]

	of the line.		
11	A line PQ measuring 70 mm has its end P 15 mm in front of VP and 20 mm above HP. The other end Q is 60 mm in front of VP and 50 mm above HP. Draw the projections of the line with HP and VP	15	April/May-2018
12	The length of top view of a line which is parallel to VP and inclined at 45° to HP is 50 mm. One end of the line is 12 mm above HP and 25 mm in front of VP. Draw the projections of the line and determine its true length.	15	Nov 2018
13	Draw the projections of a line 70 mm long lying in VP and inclined at 45° to HP. The lower end of the line is 10 mm above HP	15	Nov 2018
14	A straight line AB, 80 mm long makes an angle of 45° to HP and 30° to VP. The end A is 10 mm in front of VP and is on HP. Draw the projections of the line	15	Nov 2018
15	A line AB 60 mm long has one of its extremities 20 mm in front of VP and 15 mm above HP. The line is inclined at 30° to HP and 45° to VP. Draw its top and front views.	15	April 2019
16	Draw the projections of a line 90 mm long placed parallel to HP, perpendicular to VP with the rear end of the line 40 mm in front of it. The Line is 60 mm above HP and 70 mm in front of right PP	15	April 2019
17	A line AB 80 mm long is inclined at 30° to HP and parallel to VP. The line is 75 mm in front of VP. The lower end A is 30 mm above HP, 110 mm in front of right PP and is away from it than the higher end. Draw its projections	15	April 2019

Engineering Graphics I [15ME12D]

Unit – 5 PROJECTIONS OF PLANE SURFACES			
1	A square lamina ABCD of 25 mm side rests on one of its edges such that the surface is inclined at 50° to HP such that the longer side of the rectangle being parallel to both HP and VP. Draw the projections	15	Nov./Dec. 2015
2	A hexagonal lamina of sides 30 mm rests on one of its corner on HP. The lamina makes 45° to HP and the diagonal passing through the corner on which it rests appears to be inclined at 30° to VP. Draw its projections.	15	Nov./Dec. 2015
3	A circular lamina of 50 mm diameter is standing with one of its point on HP and the lamina inclined at 45° to HP. The diameter at right angles to the diameter which is passing through the point on which the lamina rests is parallel to VP. Draw its front view and top view.	15	Nov./Dec. 2015
4	A hexagonal lamina of 30 mm sides rests on HP on one of its sides. The side which is on HP is perpendicular to VP and the surface of the lamina is inclined to HP at 45° . The lamina is then rotated through 90° such that the side on HP is parallel to the VP, while the surface is still inclined to HP at 45° . Draw the front view and the top view of the lamina in its final position	15	April/May- 2016
5	A circular lamina of 60 mm diameter rests on HP such that the surface of the lamina is inclined at 30° to HP. The diameter through the point on which the lamina rests on HP appears to be inclined at 45° to VP in the top view. Obtain its projections	15	April/May- 2016
6	A square lamina of 40 mm sides rests with one of its corner on HP. The diagonal passing through this corner is inclined at 45° to HP and appears to be inclined at 30° to VP. Draw its projections	15	April/May- 2016

Engineering Graphics I [15ME12D]

7	A square lamina ABCD of 30 mm sides rests on HP on the corner C, such that the diagonal AC appears to be inclined at an angle of 30° to the VP in the top view. The two sides BC and CD containing the corner C make equal inclinations with the HP. The surface of the lamina makes 45° with HP. Draw its top and front view	15	Nov./Dec. 2016
8	A pentagonal lamina of side 30 mm is resting with one of its edges on HP, such the plane surface makes an angle of 60° with the HP. The edge which rests on HP makes an angle of 45° to VP. Draw the top and front views of the lamina.	15	Nov./Dec. 2016
9	An equilateral triangular lamina of 30 mm side lies with one of its edges on HP such that the surface of the lamina is inclined to the HP at 60° . The edge on which it rests is inclined to the VP at 60° . Draw the projection	15	April/May- 2017 NOV-2019
10	A pentagonal plane lamina of edges 20 mm is resting on HP with one of its corners touching it such that plane surface makes an angle at 60° with HP. The two of the base edges containing the corner on which the lamina rests make equal inclinations with HP. If the edge opposite to this corner makes an angle of 45° with the VP, draw the top and front views of the plane lamina in this position	15	April/May- 2017, Nov 2018, April 2018
11	A circular lamina of 60 mm diameter rests on HP such that the surface of the lamina is inclined at 30° to HP. The diameter through the point on which the lamina rests on HP appears to be inclined at 30° to the VP in the top view. Obtain its projections	15	April/May- 2017, April 2018 NOV-2019
12	An equilateral triangular lamina of sides 40 mm is resting with one of its corners on HP. The surface of the lamina is inclined at 50° to HP and the side opposite to the corner on which the lamina rests is inclined at 40° to VP. Draw the projections of the lamina	15	Nov./Dec. 2017

Engineering Graphics I [15ME12D]

13	A hexagonal lamina of 30 mm side rests on HP on one of its sides. The side which is on HP is perpendicular to VP and the surface of the lamina is inclined to HP at 45°. The lamina is then rotated through 90° such that the side on HP is parallel to the VP, while the surface is still inclined to VP at 45°. Draw the front view and the top view of the lamina in this position	15	Nov./Dec. 2017
14	A circular lamina of 70 mm diameter rests on HP such that the surface of the lamina is inclined at 30° to the HP. The diameter through the point on which the lamina rests on HP appears to be inclined at 30° to the VP in the top view. Draw the projections	15	Nov./Dec. 2017, Nov 2018
15	An equilateral triangular lamina of side 40 mm rests with one of its sides on HP such that the surface of the lamina is inclined at 30° to HP. The side on which lamina rests is inclined at 45° to VP. Draw the projections of the lamina	15	April/May- 2018, April 2018
16	A square lamina of 40 mm sides rests with one of its corners on HP. The diagonal passing through this corner is inclined at 45° to HP and appears to be inclined at 45° to VP. Draw its projections	15	April/May- 2018
17	A hexagonal lamina of side 30 mm is resting with one of its corners on HP so that the diagonal passing through that corner is inclined at an angle of 45° to HP and appears to be inclined at 30° to VP. Draw the top and front views of the lamina	15	April/May- 2018 NOV-2019
18	A square lamina of 40 mm side rests with one of its sides on HP so that the surface of the lamina is inclined at 30° to HP. The side on which the lamina rests is inclined at 45° to VP. Draw the top and front views of the square lamina in this position	15	Nov 2018