

CBCS Scheme

USN

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15AEL48

Fourth Semester B.E. Degree Examination, June 2018
(AE)

COMPUTER AIDED AIRCRAFT DRAWING

Time: 3 Hours

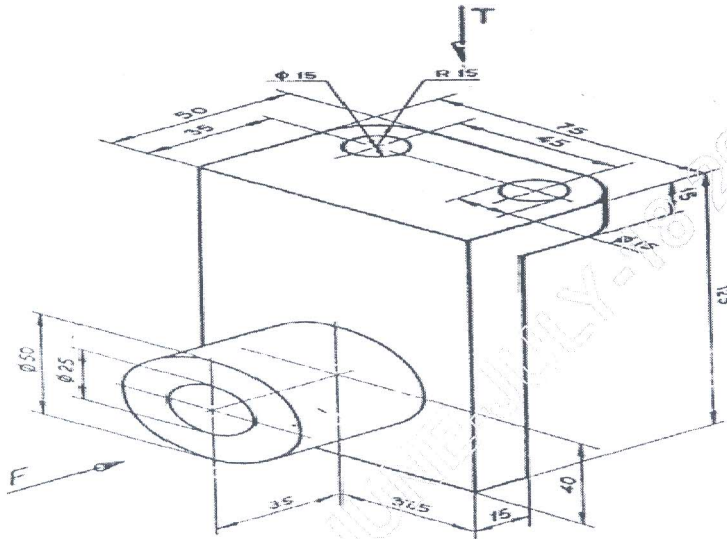
Max. Marks: 80

Note:

1. Answer any ONE question from each of the parts A, B & C
2. Use **FIRST ANGLE** projection only
3. Missing data if any may suitable may assumed
4. All the calculation should be on answer sheet supplied
5. All the dimensions are in mm
6. **Part C** assembled view should be in 3D and other 2 views in 2D

Part - A

1. A cone diameter of base 60 mm and axis 70 mm long is resting on its base on HP. It is cut by a section plane perpendicular to VP and inclined at 45° to HP. Section plane passes through the axis at a point 40 mm above HP. Draw the sectional top view, front view and True shape of section. **15 Marks**
2. For the object shown below draw the front, top and right views. Show all the dimensions. **15 Marks**



Part - B

3. Draw neat sketch of ISO thread profile of pitch 50mm. Indicate all dimensions. **15 Marks**
4. Draw the top and front views of a single riveted butt joint with double cover plate. The thickness of the plate is 9 mm. Show at least three rivets in each row. Indicate all the dimensions. **15 Marks**

Part - C

5. The details of an ENGINE MOUNT ASSEMBLY are shown in Fig. 1. Draw the following views of the assembly.
 a. Front View b. Top view c. Left view **50 Marks**
6. The details of a DESIGN OF MAIN ROTOR BLADE ASSEMBLY OF HELICOPTER are shown in Fig. 2. Draw the following views of the assembly.
 a. Front View b. Top view c. Left view **50 Marks**

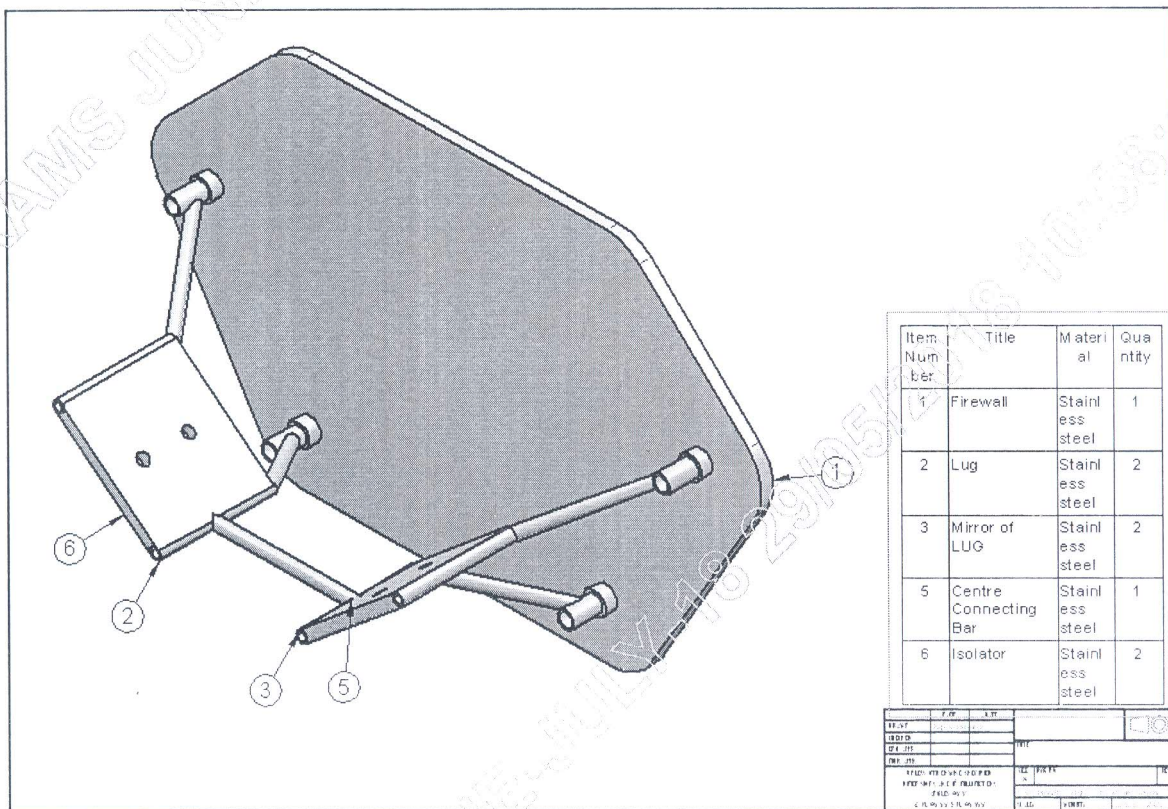
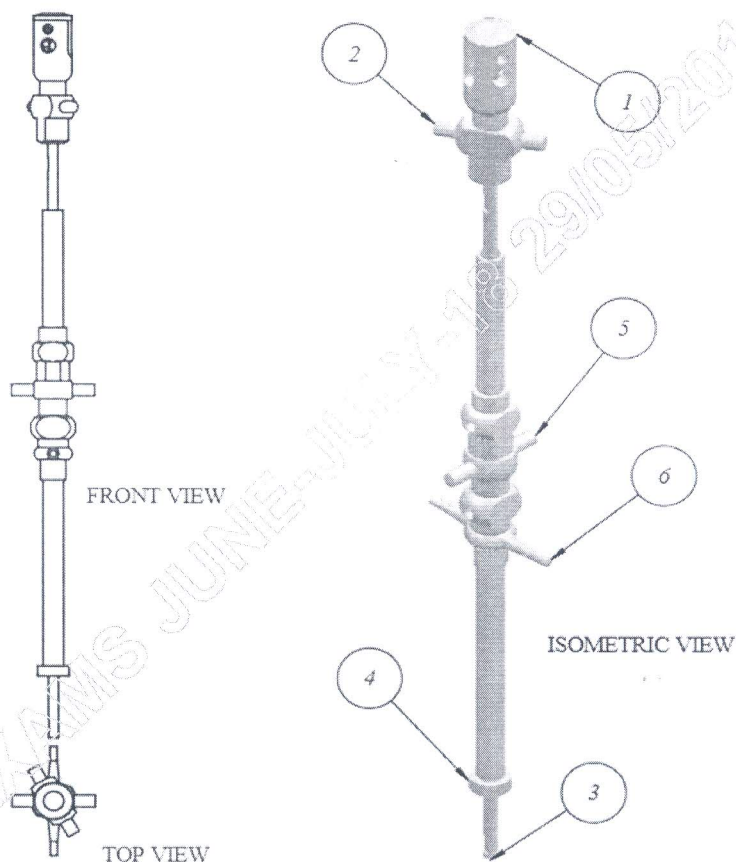
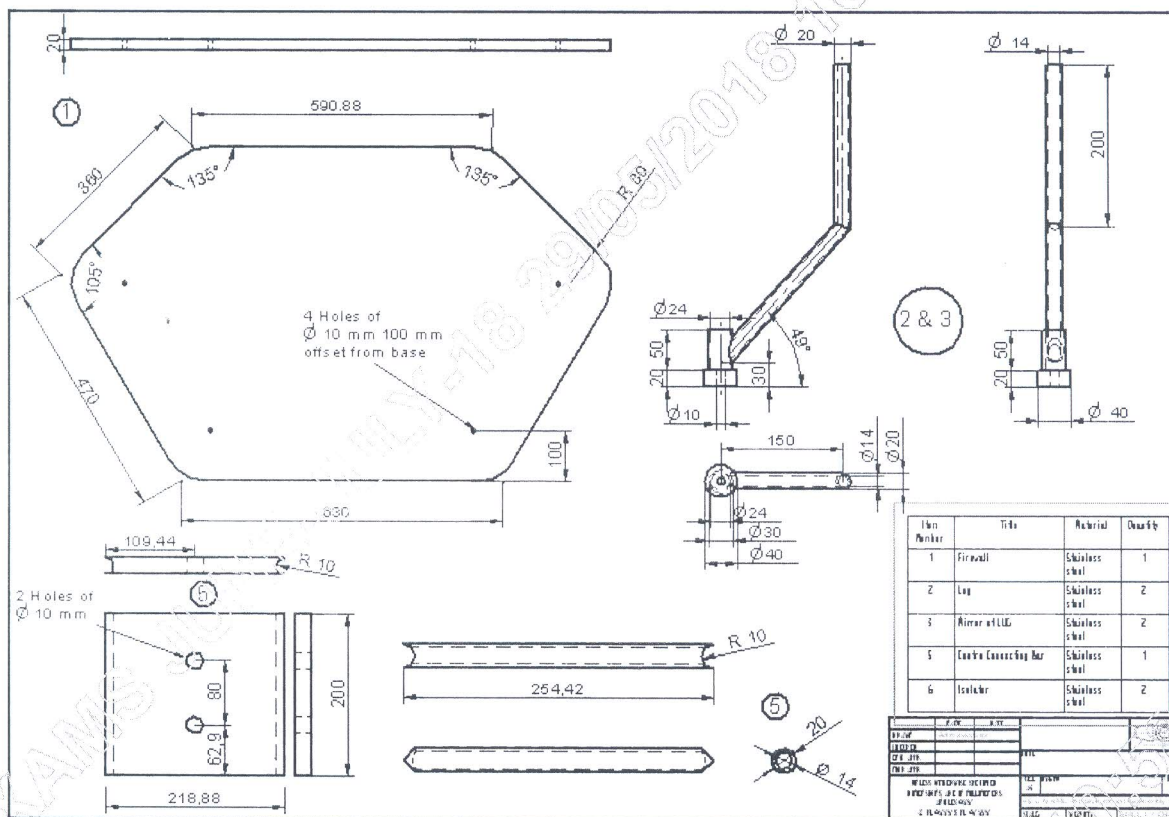


Fig. 1



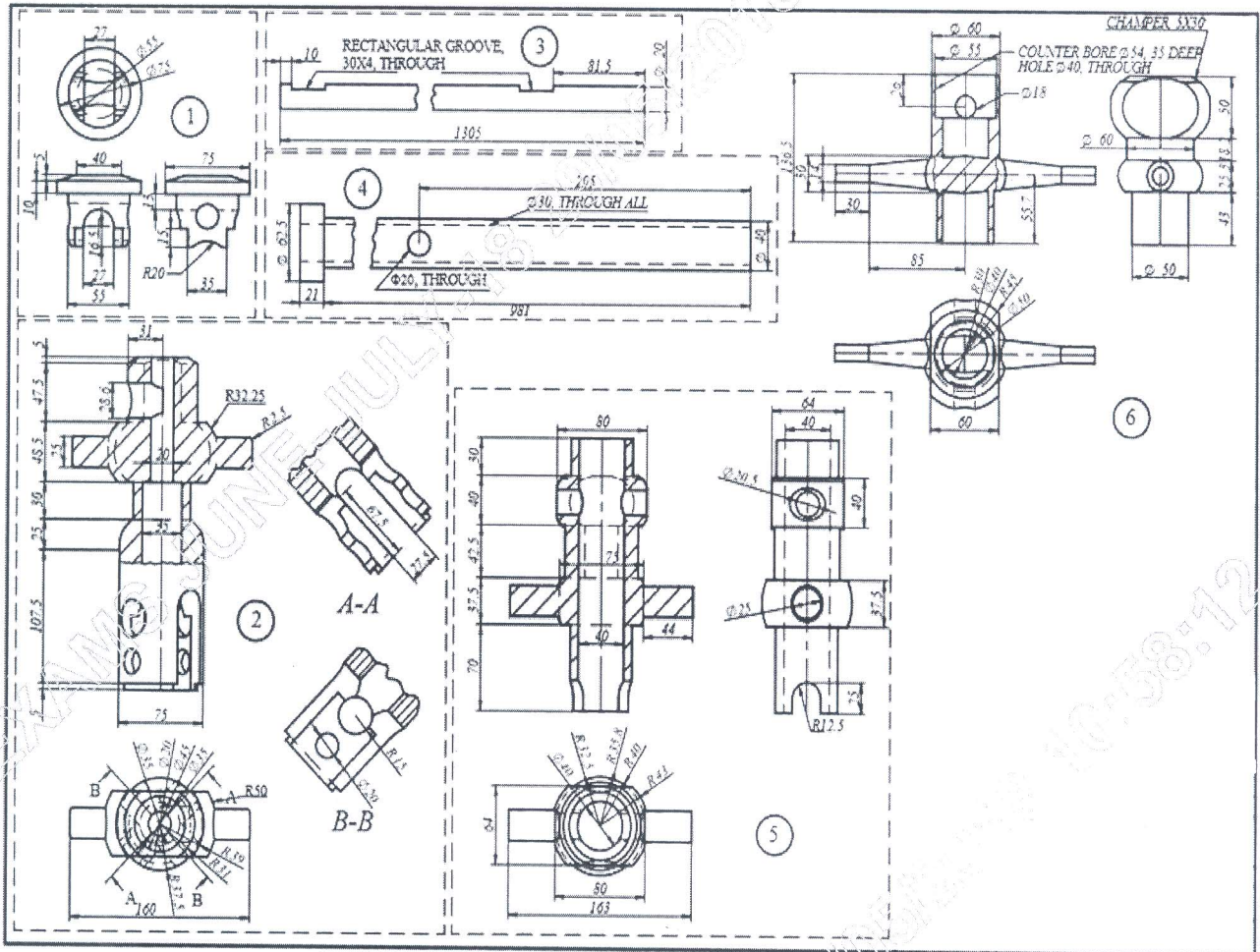


Fig. 2

CBCS Scheme

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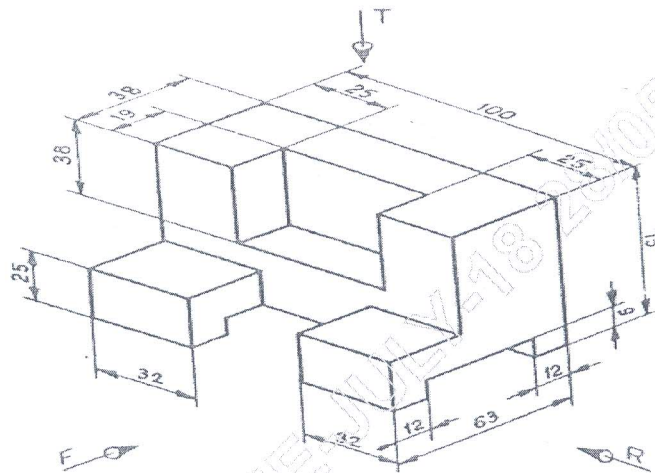
Max. Marks: 80

Note:

1. Answer any ONE question from each of the parts A, B & C
2. Use **FIRST ANGLE** projection only
3. Missing data if any may suitable may assumed
4. All the calculation should be on answer sheet supplied
5. All the dimensions are in mm
6. **Part C** assembled view should be in 3D and other 2 views in 2D

Part - A

1. A cone base 60 mm dia and axis 70 mm stands vertically with its base on HP. A section plane perpendicular to VP and parallel to one of its end generator of cone passes at a distance of 15 mm from it. Draw the sectional top view and true shape of section. **15 Marks**
2. For the object shown below draw the front, top and right views. Show all the dimensions. **15 Marks**



Part - B

3. Draw neat sketch of ISO thread profile of pitch 30mm. Indicate all dimensions. **15 Marks**
4. Draw KNUCKLE Joint to connect 2 rods of 20mm diameter when the PIN is in Horizontal Position. Draw sectional front and simple Top view. **15 Marks**

Part - C

5. The details of a DESIGN OF WING ASSEMBLY are shown in Fig. 1. Draw the following views of the assembly.
 a. Front View b. Top view c. Left view **50 Marks**
6. The details of an ENGINE MOUNT ASSEMBLY are shown in Fig. 2. Draw the following views of the assembly.
 a. Front View b. Top view c. Left view **50 Marks**

REVISION			
NO.	DESCRIPTION	DATE	BY

Item Number	Title	Material	Quantity
1	Wing Skin	Aluminum Alloy	1
2	Spar Front	Aluminum Alloy	1
3	Spar Rear	Aluminum Alloy	1
4	Rib	Aluminum Alloy	2

Fig. 1

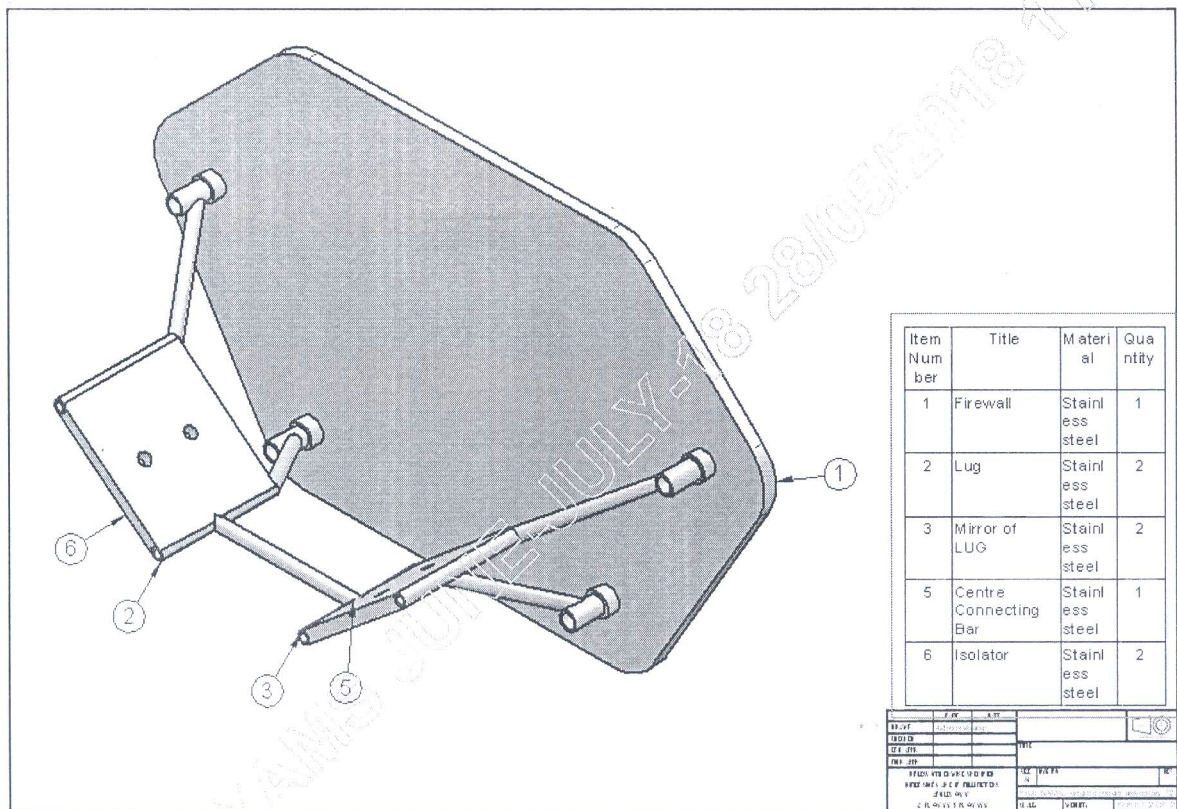
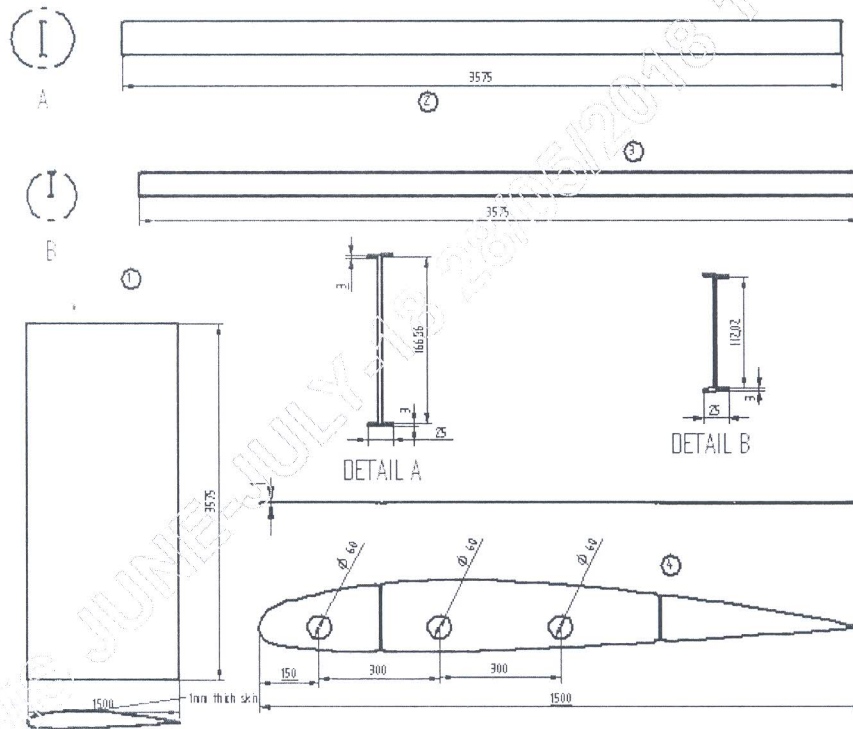
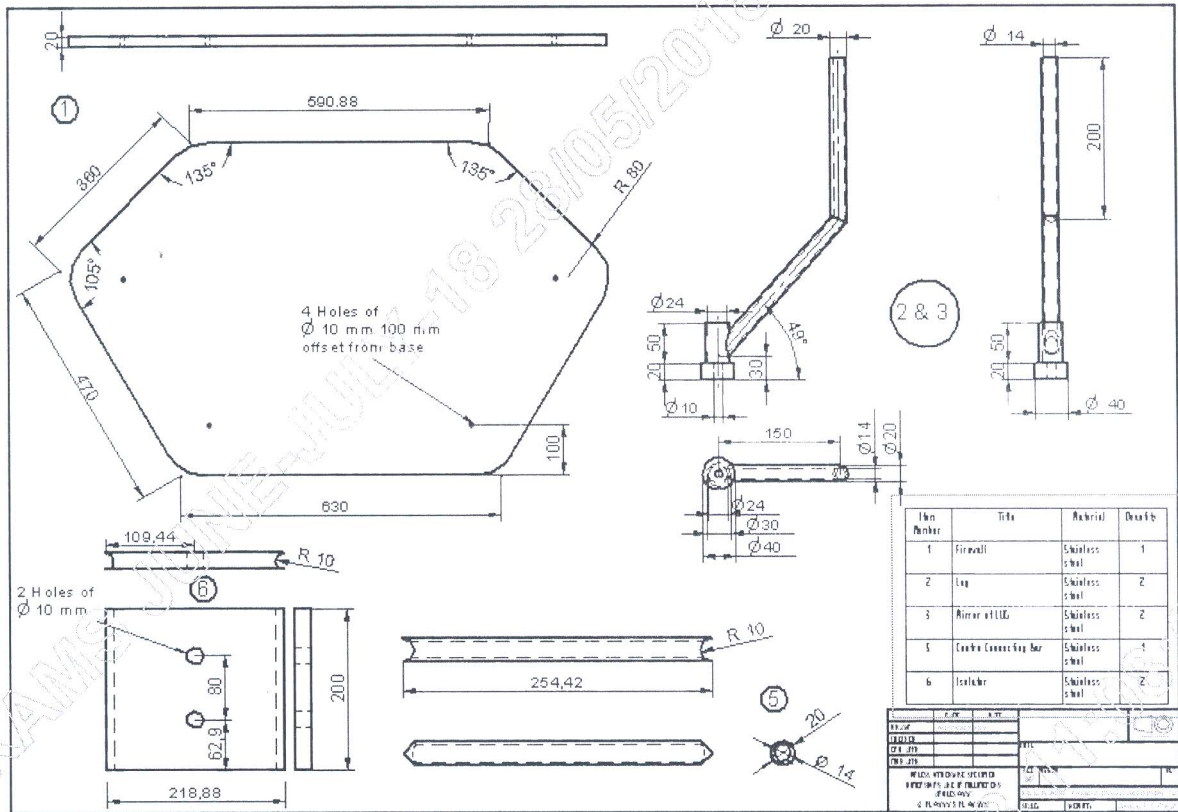


Fig. 2



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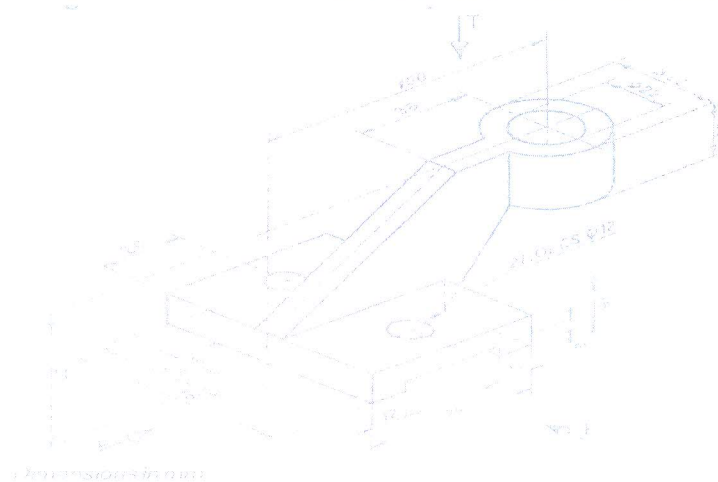
Max. Marks: 80

Note:

1. Answer any ONE question from each of the parts A, B & C
2. Use **FIRST ANGLE** projection only
3. Missing data if any may suitable may assumed
4. All the calculation should be on answer sheet supplied
5. All the dimensions are in mm
6. **Part C** assembled view should be in 3D and other 2 views in 2D

Part - A

1. A cone base 60 mm dia and axis 70 mm stands vertically with its base on HP. A section plane perpendicular to VP and parallel to one of its end generator of cone passes at a distance of 15 mm from it. Draw the sectional top view and true shape of section. **15 Marks**
2. For the object shown below draw the front, top and right views. Show all the dimensions. **15 Marks**



Part - B

3. Draw 2 views of Hexagonal headed bolt with nut for a 24 mm diameter bolt. Length of the bolt 100 mm. **15 Marks**
4. Draw KNUCKLE joint to connect 2 rods of 20mm diameter when the PIN is in Horizontal Position. Draw sectional front and simple Top view. **15 Marks**

Part - C

5. The details of a DESIGN OF WING ASSEMBLY are shown in Fig. 1. Draw the following views of the assembly.
 a. Front View b. Top view c. Left view **50 Marks**
6. The details of a DESIGN OF MAIN ROTOR BLADE ASSEMBLY OF HELICOPTER are shown in Fig. 2. Draw the following views of the assembly
 a. Front View b. Top view c. Left view **50 Marks**

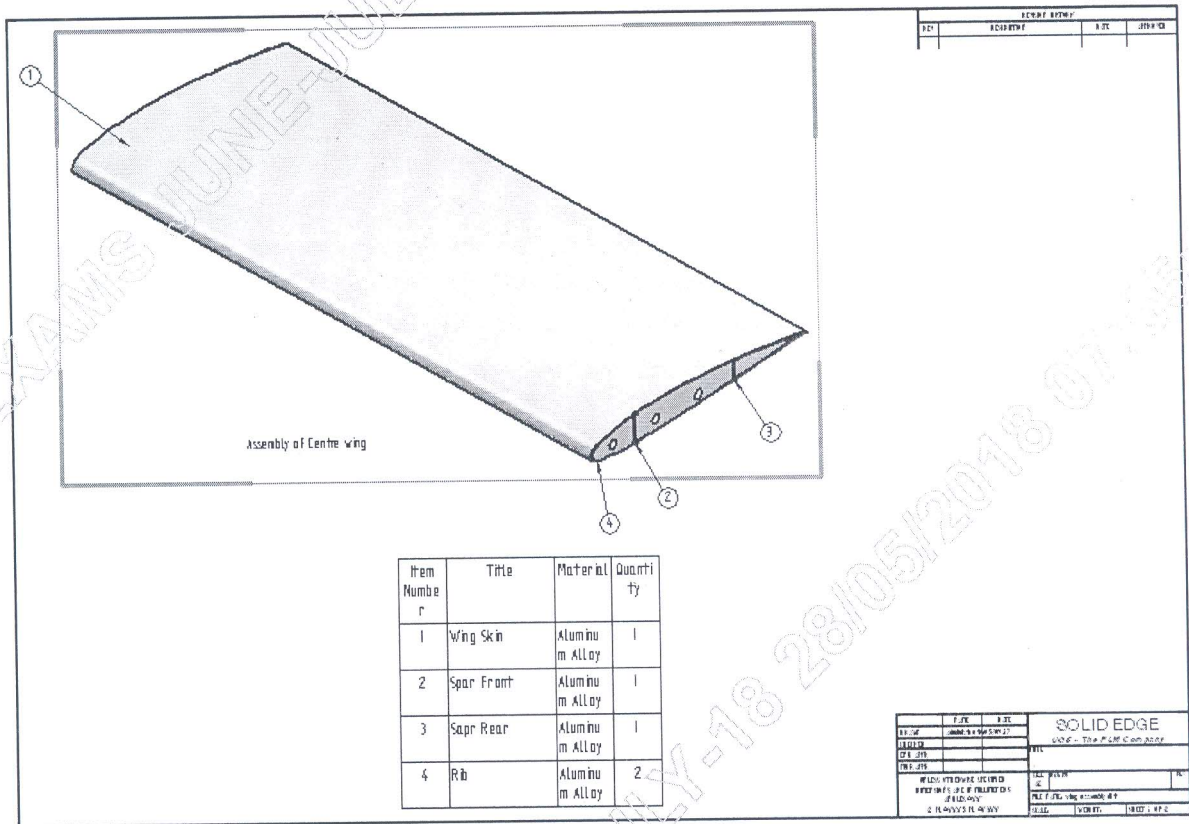
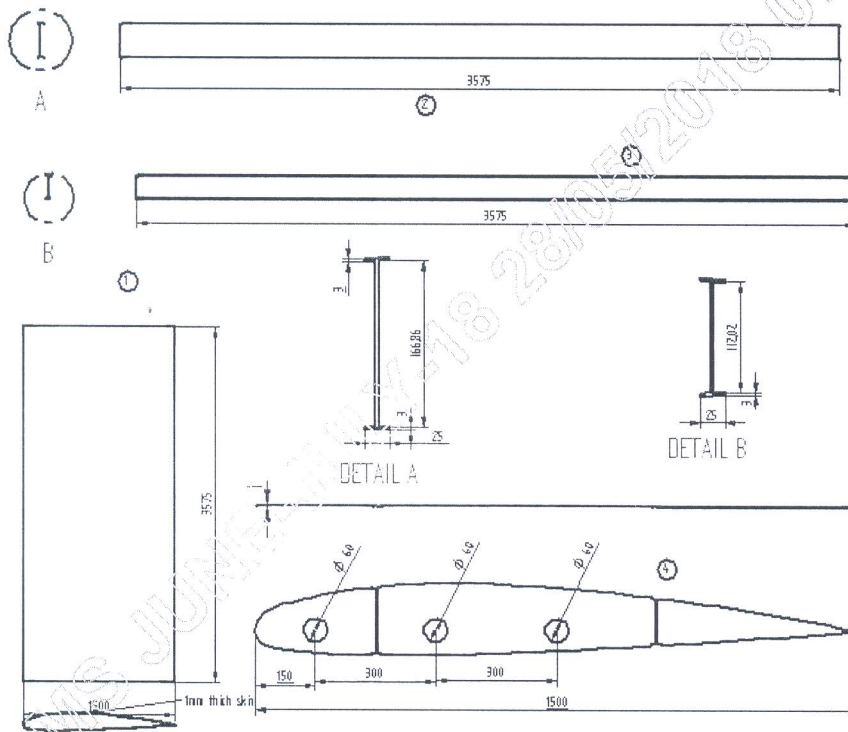


Fig. 1



Airfoil Co-ordinate Details-2412		
X	Y	Z
1	0	0.0013
0.95	0	0.0114
0.8	0	0.0375
0.6	0	0.0636
0.4	0	0.078
0.25	0	0.0767
0.15	0	0.0661
0.075	0	0.0496
0.025	0	0.0299
0	0	0
0.025	0	-0.0227
0.075	0	-0.0346
0.15	0	-0.041
0.25	0	-0.0422
0.4	0	-0.038
0.6	0	-0.0276
0.8	0	-0.015
0.95	0	-0.0048
1	0	-0.0013

Item Number	Title	Material	Quantity
1	Wing Skin	Aluminum Alloy	1
2	Spar Front	Aluminum Alloy	1
3	Spar Rear	Aluminum Alloy	1
4	Rib	Aluminum Alloy	2

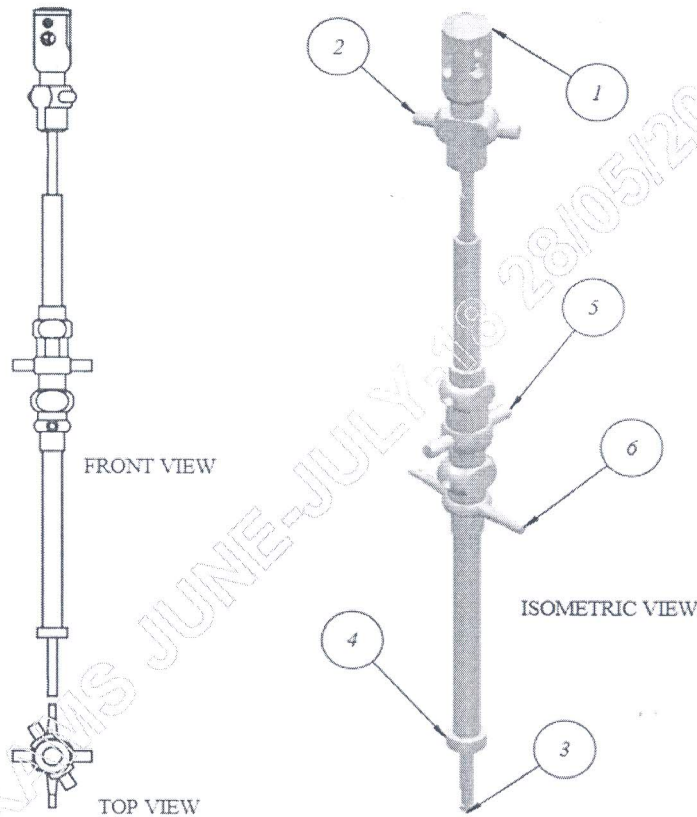
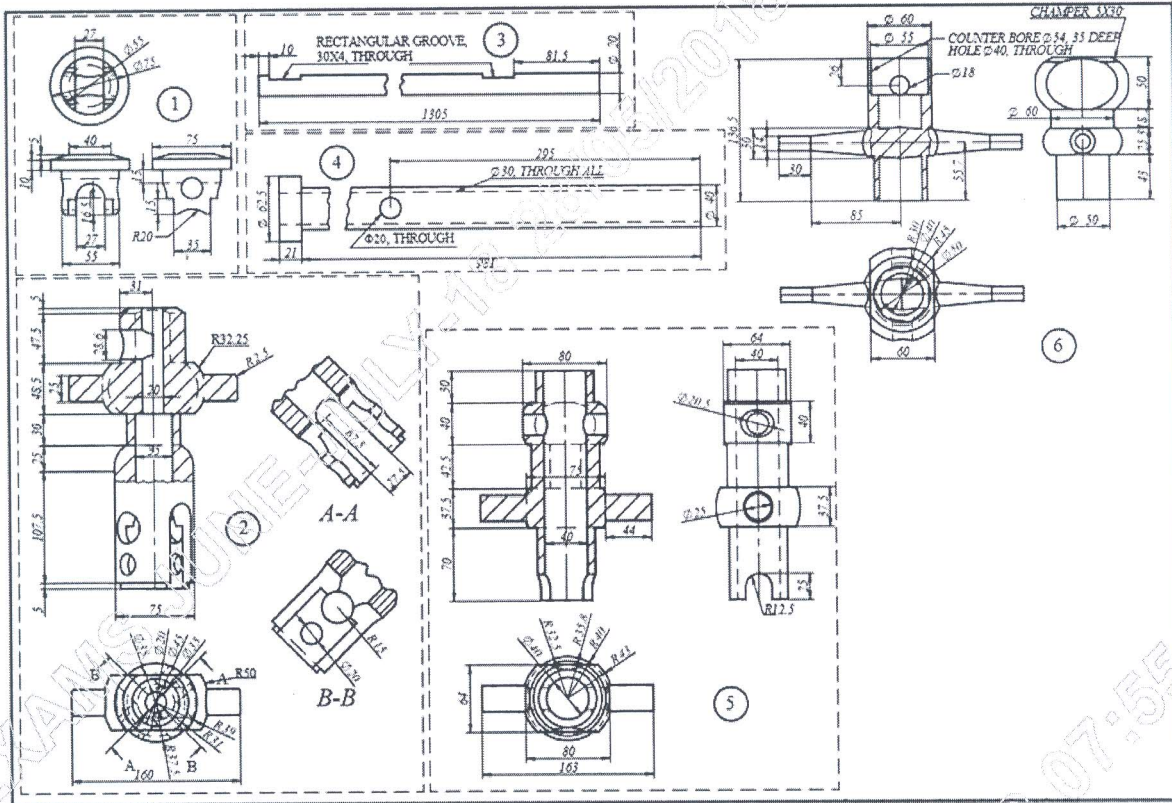


Fig. 2



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Time: 3 Hours

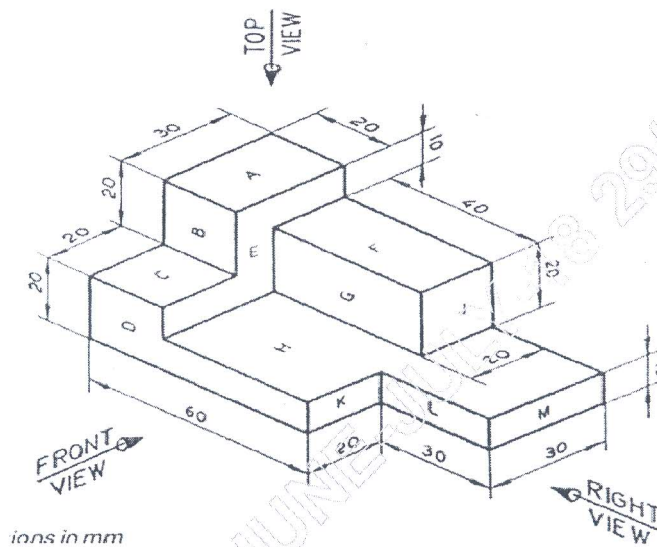
Max. Marks: 80

Note:

1. Answer any ONE question from each of the parts A, B & C
2. Use **FIRST ANGLE** projection only
3. Missing data if any may suitable may assumed
4. All the calculation should be on answer sheet supplied
5. All the dimensions are in mm
6. **Part C** assembled view should be in 3D and other 2 views in 2D

Part - A

1. A cylinder 60 mm diameter and 70 mm long stands with its circular base on HP. A section plane perpendicular to VP and inclined at 60° to HP cuts the axis at a point 28 mm below its top end. Draw the sectional Top and right views and True shape of section. **15 Marks**
2. For the object shown below draw the front, top and right views. Show all the dimensions. **15 Marks**

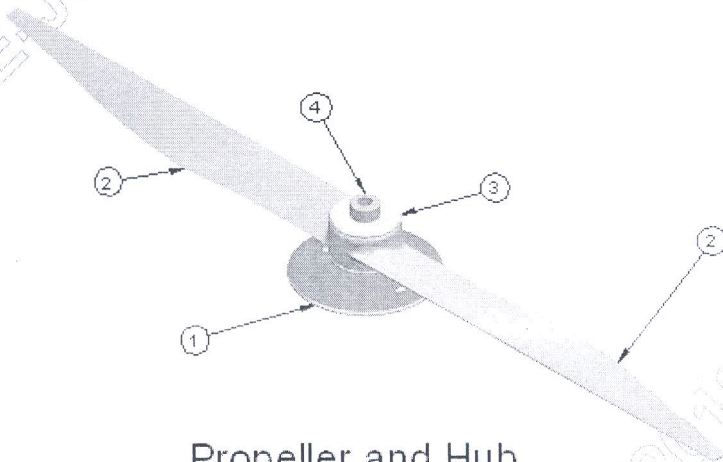


Part - B

3. Draw neat sketch of ISO thread profile of pitch 50mm. Indicate all dimensions. **15 Marks**
4. Draw Socket & Spigot cotter joint, used to join two rods of dia 20mm. Give following views
(i) Full sectional front view. (ii) Side view looking from socket end. **15 Marks**

Part - C

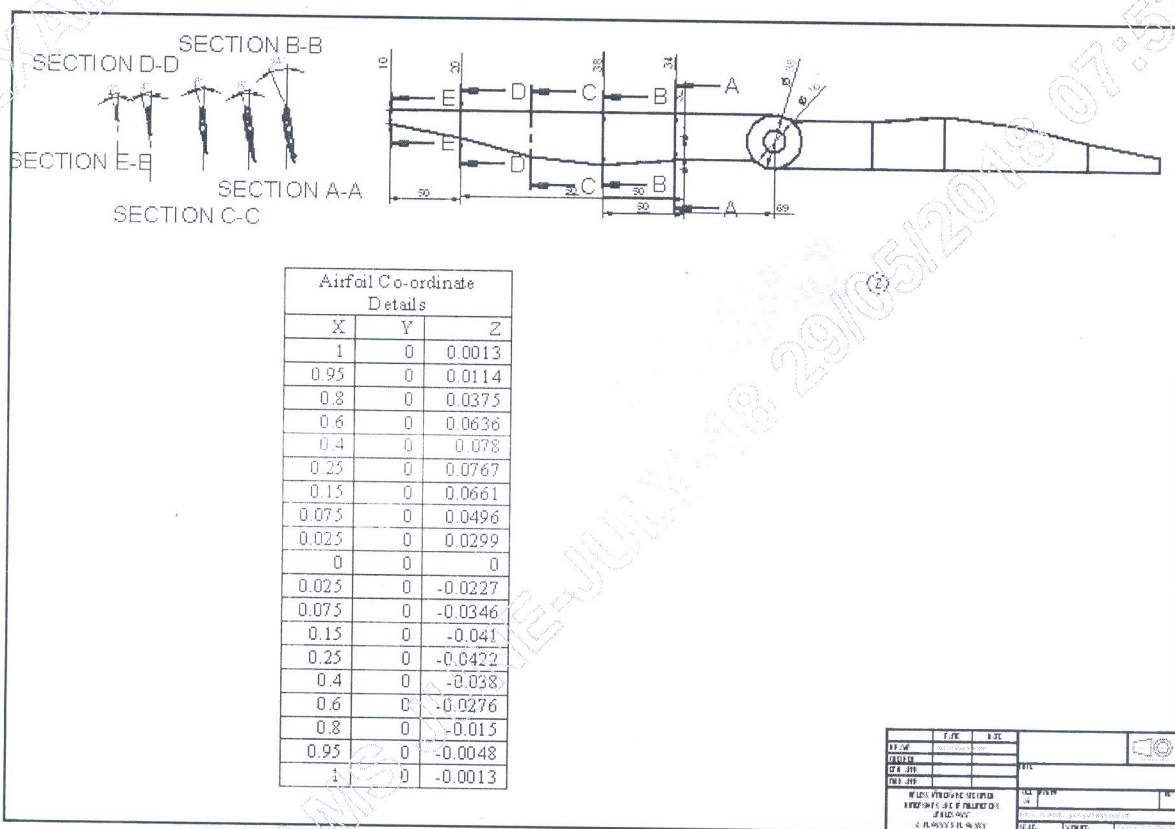
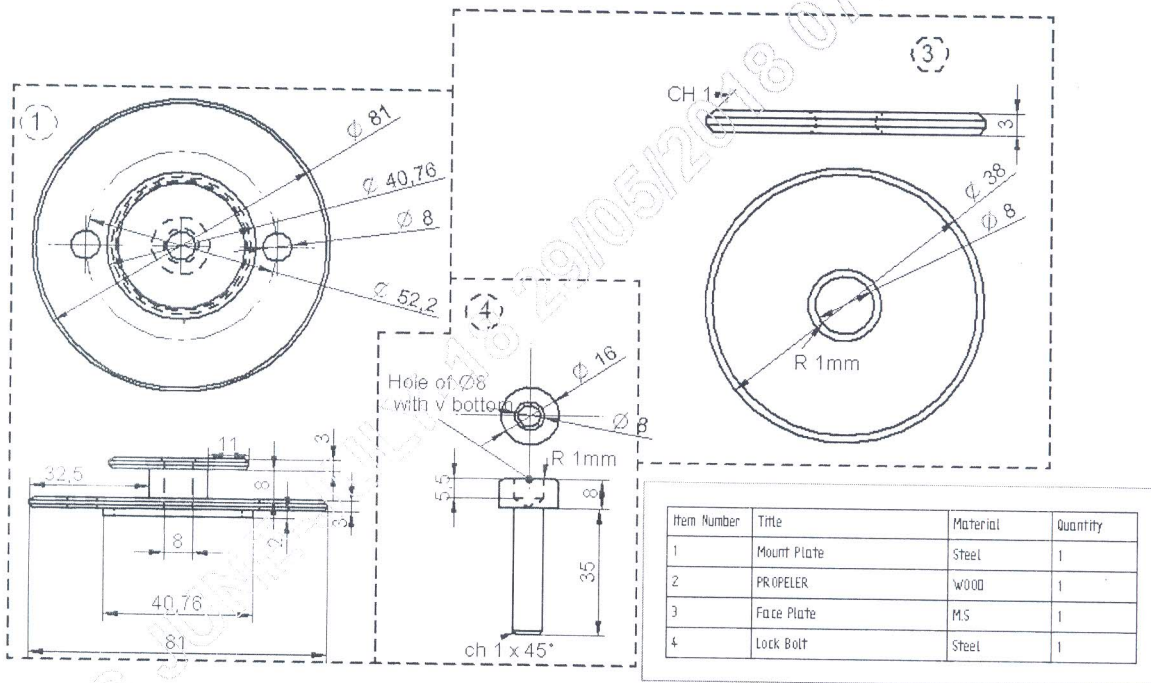
5. The details of a DESIGN OF PROPELLER AND HUB ASSEMBLY are shown in Fig. 1. Draw the following views of the assembly.
 a. Front View b. Top view c. Left view **50 Marks**
6. The details of a DESIGN OF LANDING GEAR ASSEMBLY are shown in Fig. 2. Draw the following views of the assembly.
 a. Front View b. Top view c. Left view **50 Marks**



Propeller and Hub
assembly (Iso View)

Item Number	Title	Material	Quantity
1	Mount Plate	Steel	1
2	PROPELER	WOOD	1
3	Face Plate	MS	1
4	Lock Bolt	Steel	1

Fig. 1



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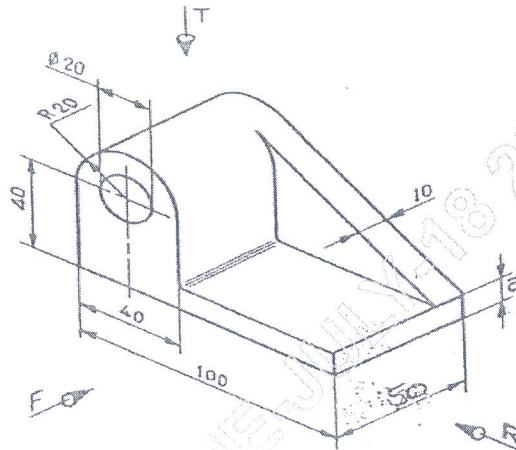
Max. Marks: 80

Note:

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2. Use **FIRST ANGLE** projection only
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5. All the dimensions are in mm
6. **Part C** assembled view should be in 3D and other 2 views in 2D

Part - A

1. A cone diameter of base 60 mm and axis 70 mm long is resting on its base on HP. It is cut by a section plane perpendicular to VP and inclined at 45° to HP. Section plane passes through the axis at a point 40 mm above HP. Draw the sectional top view, front view and True shape of section. **15 Marks**
2. For the object shown below draw the front, top and right views. Show all the dimensions. **15 Marks**



Part - B

3. Draw two views of Square headed bolt with nut for a 24mm diameter bolt. Take length of the bolt as 100mm. **15 Marks**
4. Draw the top and front views of a single riveted butt joint with single cover plate. The thickness of the plate is 12 mm. Show at least three rivets in each row. **15 Marks**

Part - C

5. The details of an ENGINE MOUNT ASSEMBLY are shown in Fig. 1. Draw the following views of the assembly

- a. Front View b. Top view c. Left view

50 Marks

6. The details of a DESIGN OF LANDING GEAR ASSEMBLY are shown in Fig. 2. Draw the following views of the assembly.

- a. Front View b. Top view c. Left view

50 Marks

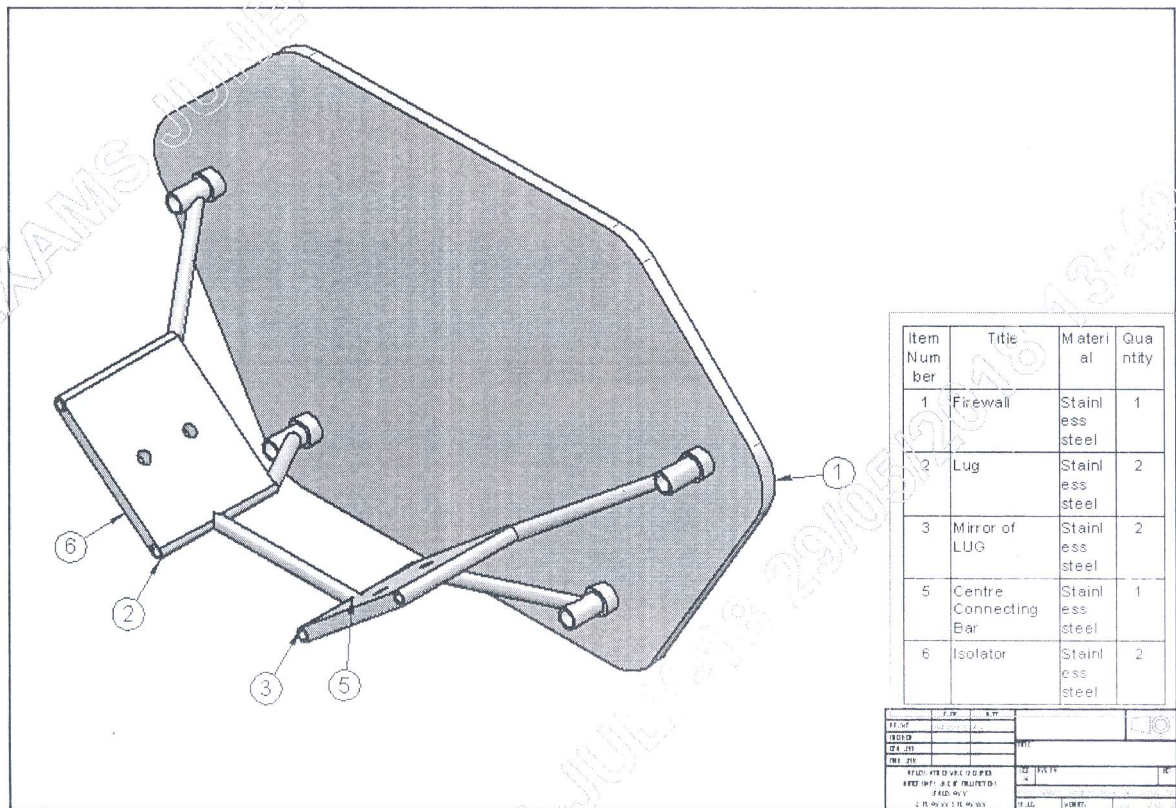


Fig. 1

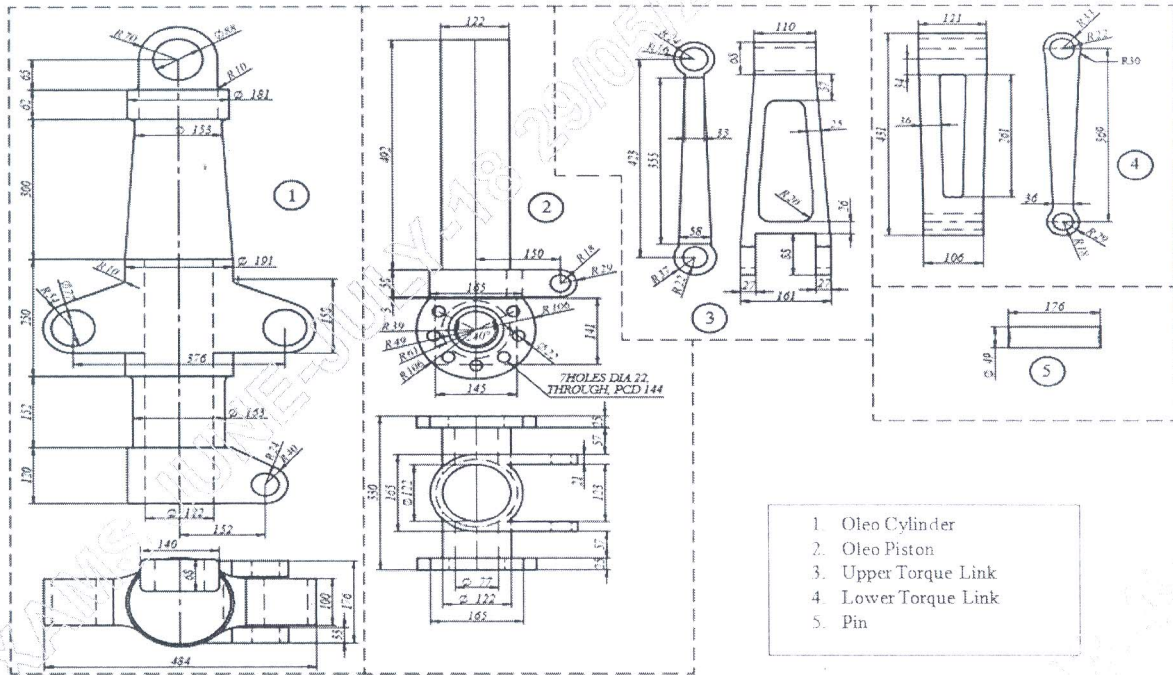


Fig. 2