Code.No: 43037

R07

SET-1

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
II.B.TECH - I SEMESTER REGULAR EXAMINATIONS NOVEMBER, 2009
AIRCRAFT ENGINEERING DRAWING
(AERONAUTICAL ENGINEERING)

Time: 3hours   Max.Marks:80

Answer any two questions from
Part A and Part B is compulsory.

- - -
PART-A   **(2X20= 40Marks)**

1.a)   Draw the conventional representation of lead, glass, porcelain, and square on Shaft.
   b)   Draw three views of hexagonal headed bolt and nut for 30 mm diameter.

2.   Draw half sectional front view of solid flanged coupling used to connect shafts of 25mm diameter.

3.   Draw 2-d airfoil of NACA 0009. Using the following data

Table

NACA – 0009.

Distance from L.E , % chord	Upper and lower surfaces %chord
0	0
1.25	1.42
2.5	1.96
5.0	2.67
7.5	3.15
10	3.51
15	4.01
20	4.31
30	4.50
40	4.35
50	3.98
60	3.50
70	2.75
80	1.97
90	1.09
95	0.61
100	0

PART-B   **(40Marks)**

1.   Figure gives the part drawings of loading gear hydraulic cylinder. Assemble all the parts and draw the following assembled views.
   a)   Half sectional front view
   b)   Side view
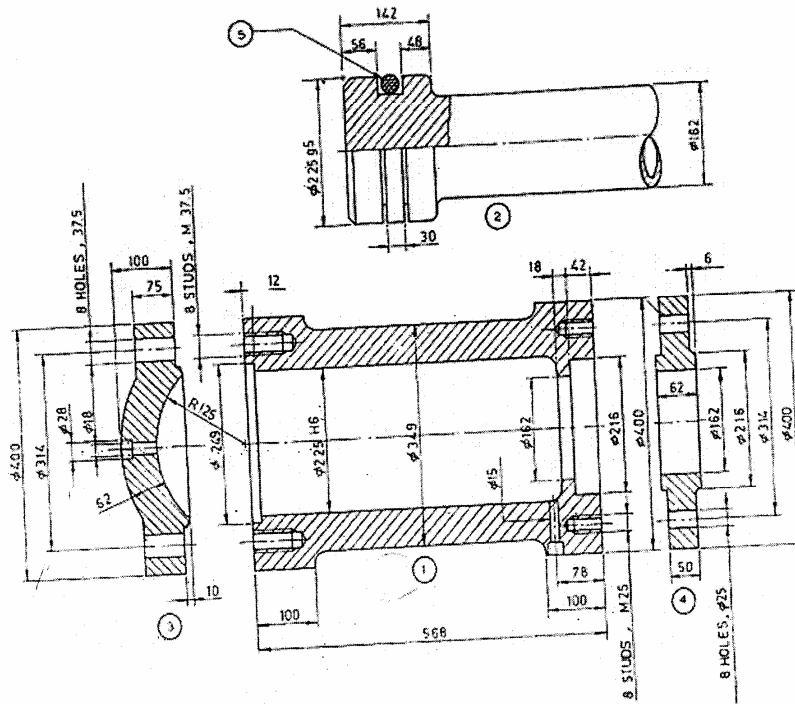
Part List

Part No.	Name	Material	Quantity
1	Cylinder	C.I.	1
2	Piston	Cast steel	1
3	Cylinder head	C.I.	1
4	Cylinder cover	C.I.	1
5	Packing ring	Fabric rubber	1

Hydraulic cylinder and piston

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AIRCRAFT ENGINEERING DRAWING
(AERONAUTICAL ENGINEERING)

Time: 3hours   Max.Marks:80

Answer any two questions from
Part A and Part B is compulsory.

- - -

PART-A   (2X20= 40Marks)

1.a) Draw the conventional representation for diamond knurling, straight knurling, Wood, holes on circular pitch.

   b) Draw the sketches of look bolt and eye bolt.

2. Draw the sectional front view of muff coupling to connect shafts of 30mm Diameter.

3. Draw a 2-d sectional profile of NACA 2415 from the data given below. Take Airfoil chord of 25cm for your workout.

NACA - 2415

Upper surface		Lower surface	
Station	Ordinate	Station	Ordinate
0	....	0	0
1.25	2.71	1.25	-2.06
2.5	3.71	2.5	-2.86
5.0	5.07	5.0	-3.84
7.5	6.06	7.5	-4.47
10	6.83	10	-4.90
15	7.97	15	-5.42
20	8.70	20	-5.66
25	9.17	25	-5.70
30	9.38	30	-5.62
40	9.25	40	-5.25
50	8.57	50	-4.67
60	7.50	60	-3.90
70	6.10	70	-3.05
80	4.41	80	-2.15
90	2.45	90	-1.17
95	1.34	95	-0.68
100	(0.16)	100	(-0.16)
100	....	100	0

L.E. radius: 2.48
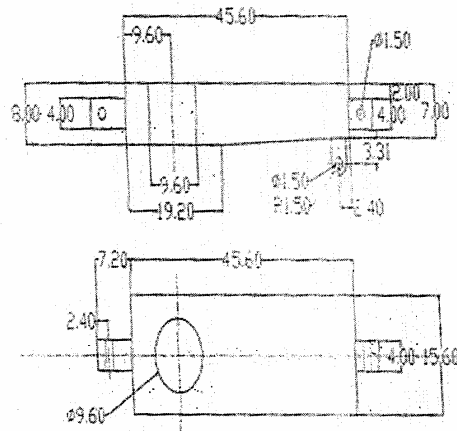Slope of radius through L.E.:0.10

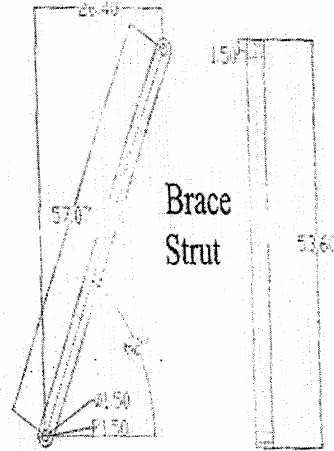## PART-B   (40Marks)

1.   Figure gives the part drawings of single wheel landing gear. Assemble all the parts
      and draw the following assembled views.
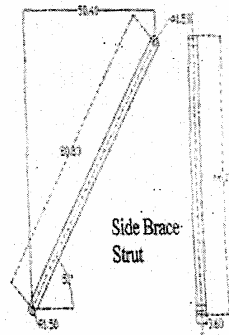   a)   Front view
      b)   Side view
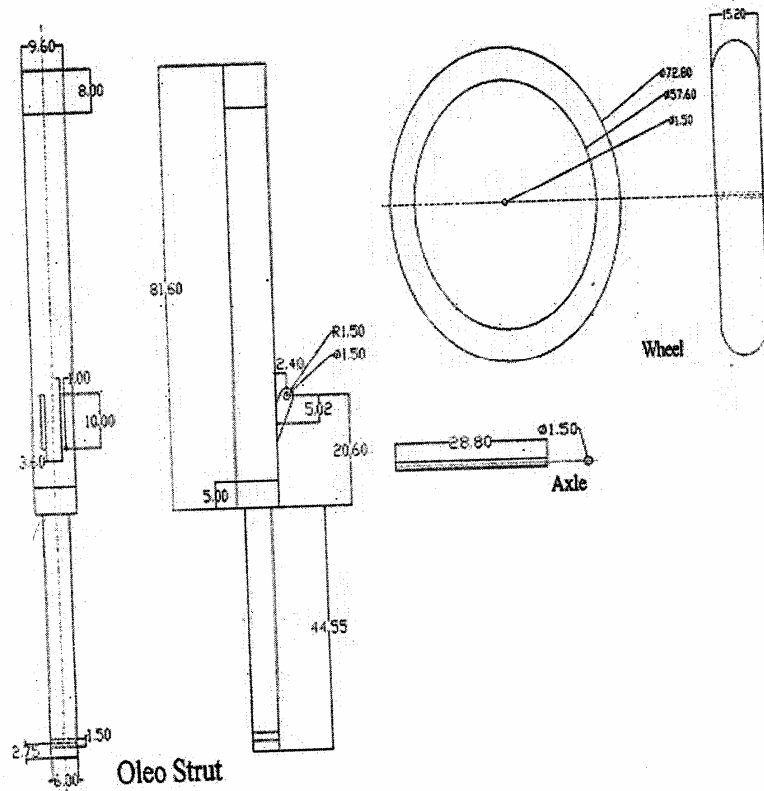
Brace Strut

Supporting Frame

Side Brace Strut

SI NO.	PART NAME	QTY
1	Supporting Frame	1
2	Oleo Strut	1
3	Side Brace Strut	1
4	Brace Strut	1
5	Axle	1
6	Wheel	1

PART LIST

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(AERONAUTICAL ENGINEERING)

Time: 3hours   Max.Marks:80

Answer any two questions from
<u>Part A and Part B is compulsory.</u>

- - -
PART-A   **(2X20= 40Marks)**

1a)   Draw thread profiles of square thread, buttress thread, sharp V thread.
 b)   Draw the two views of taper sunk key positioned in a shaft of diameter 25 mm and
       Hub of diameter and mark dimensions on it.

2.   Draw the top view and sectional front view of a single riveted lap joint. Take
       Thickness of plate as 12 mm.

3.   Draw a 2-d sectional profile of NACA 2410 from the data given below. Take
   Airfoil chord of 25 mm for your workout.

NACA - 2410

Upper Surface		Lower Surface	
Station	Ordinate	Station	Ordinate
0	0	0	0
1.098	1.694	1.402	-1.448
2.297	2.411	2.703	-1.927
4.742	3.420	5.258	-2.482
7.217	4.169	7.783	-2.809
9.710	4.766	10.290	-3.016
14.722	5.665	15.278	-3.227
19.761	6.276	20.239	-3.276
24.814	6.668	25.186	-3.230
29.875	6.875	30.125	-3.125
40.000	6.837	40.000	-2.837
50.049	6.356	49.951	-2.468
60.085	5.580	59.915	-2.024
70.102	4.551	69.898	-1.551
80.097	3.296	79.903	-1.074
90.067	1.816	89.933	-0.594
95.067	0.990	94.959	-0.352
100.000	0.105	100.000	-0.150

L.E radius : 1.10
Slope of radius through L.E: 0.1

PART-B (40Marks)

1. Figure fives the part drawings of old hen coupling. Assemble all the parts and draw the following assembled views.
   a) Sectional front view b) Side view

KEY WAY,
10x4
φ30
φ100
φ50
φ100
10
30 20
12

KEY WAY:
10 x 4
φ30
50
10
10
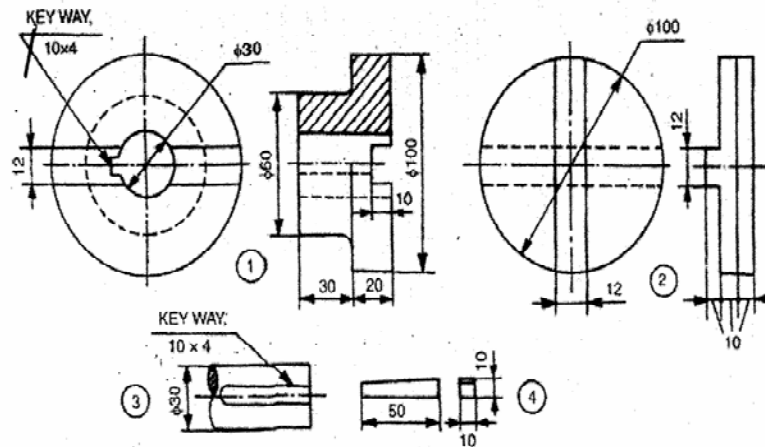
Parts list

Sl. No.	Name	Matl.	Qty.
1	Flange	MS	2
2	Disc	MS	1
3	Shaft	MS	2
4	Key	MS	2

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SET-4

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
II.B.TECH - I SEMESTER REGULAR EXAMINATIONS NOVEMBER, 2009
AIRCRAFT ENGINEERING DRAWING
(AERONAUTICAL ENGINEERING)

Time: 3hours   **Max.Marks:80**

Answer any two questions from
Part A and Part B is compulsory.

- - -
PART-A   **(2X20= 40Marks)**

1. Draw the two views of socket and spigot pipe joint to connect two pipes of Diameter 20 mm.

2. Draw sunk key and wood ruff key with proportions.

3. Draw 2-d airfoil of NACA 0009. Using the following data.
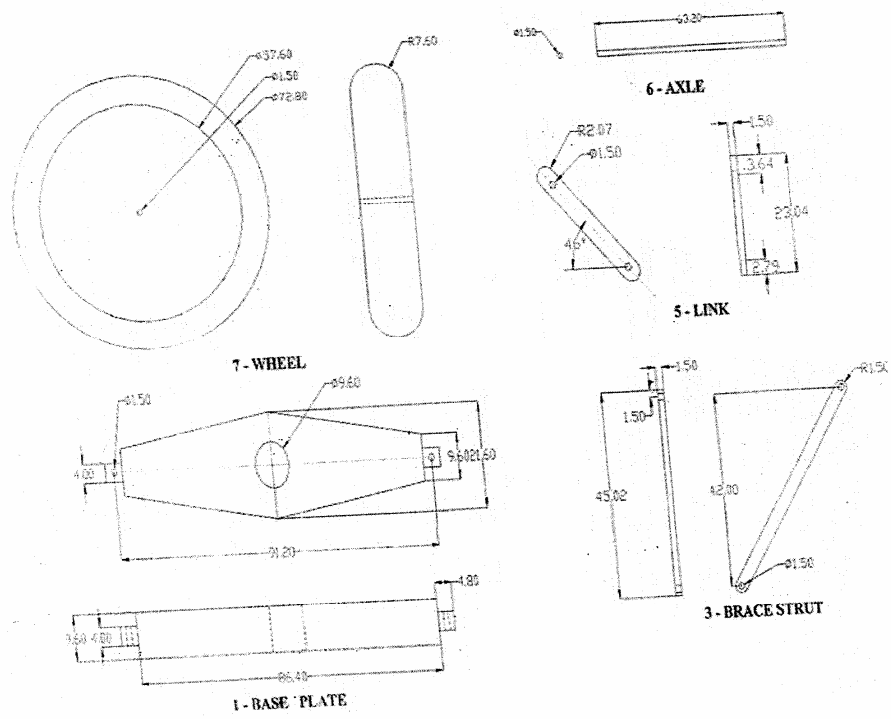
NACA – 0009.

Distance from L.E, %chord	Upper and lower surfaces % chord
0	0
1.25	1.42
2.5	1.96
5.0	2.67
7.5	3.15
10	3.51
15	4.01
20	4.31
30	4.50
40	4.35
50	3.98
60	3.50
70	2.75
80	1.97
90	1.09
95	0.61
100	0

PART-B   **(40Marks)**

1. Figure gives the part drawing of double wheel lending gear. Assemble all the parts and draw the following assembled views.
   a) Front view
   b) Side view

7 - WHEEL

6 - AXLE

5 - LINK

1 - BASE PLATE

3 - BRACE STRUT