Roll No: ----------

UNIVERSITY OF PETROLEUM & ENERGY STUDIES

DEHRADUN

END Semester Examination – December, 2017

Program/course: B.TECH- FIRE SAFETY ENGG. **Semester – III**

Subject: ELEMENTS OF MACHINE DRAWING **Max. Marks : 100**

Code : ADEG226 **Duration : 3 Hrs**

No. of page/s: 3

SECTION A (4X5=20 Marks)

1. Sketch the difference between single lead and double lead threads.
2. Draw the symbol of representation of Machining and grinding surface finish.
3. Differentiate UNI and BI lateral dimensioning system.
4. Sketch the terms related to THREAD structure.

SECTION B (4X10=40 Marks)

5. Draw neat sketches detail the types of screws.
    a. Round or cap headed
    b. Cylindrical or cheese headed
    c. Socket headed
    d. Countersunk headed
6. Draw the position of LEWIS and CURVED foundation bolts.
7. Draw neat sketches detail the types of thread
    a. BA thread
    b. BSW thread
    c. ACME thread
    d. Buttress thread
8. On a hole and shaft assembly, the dimensions are as given below Hole = 60H9; Shaft = 60h6 Find: i. Tolerance of shaft ii. Tolerance on hole iii. Minimum Clearance iv. Maximum Clearance v. Type of Fit obtained vi. Sketch the assembly

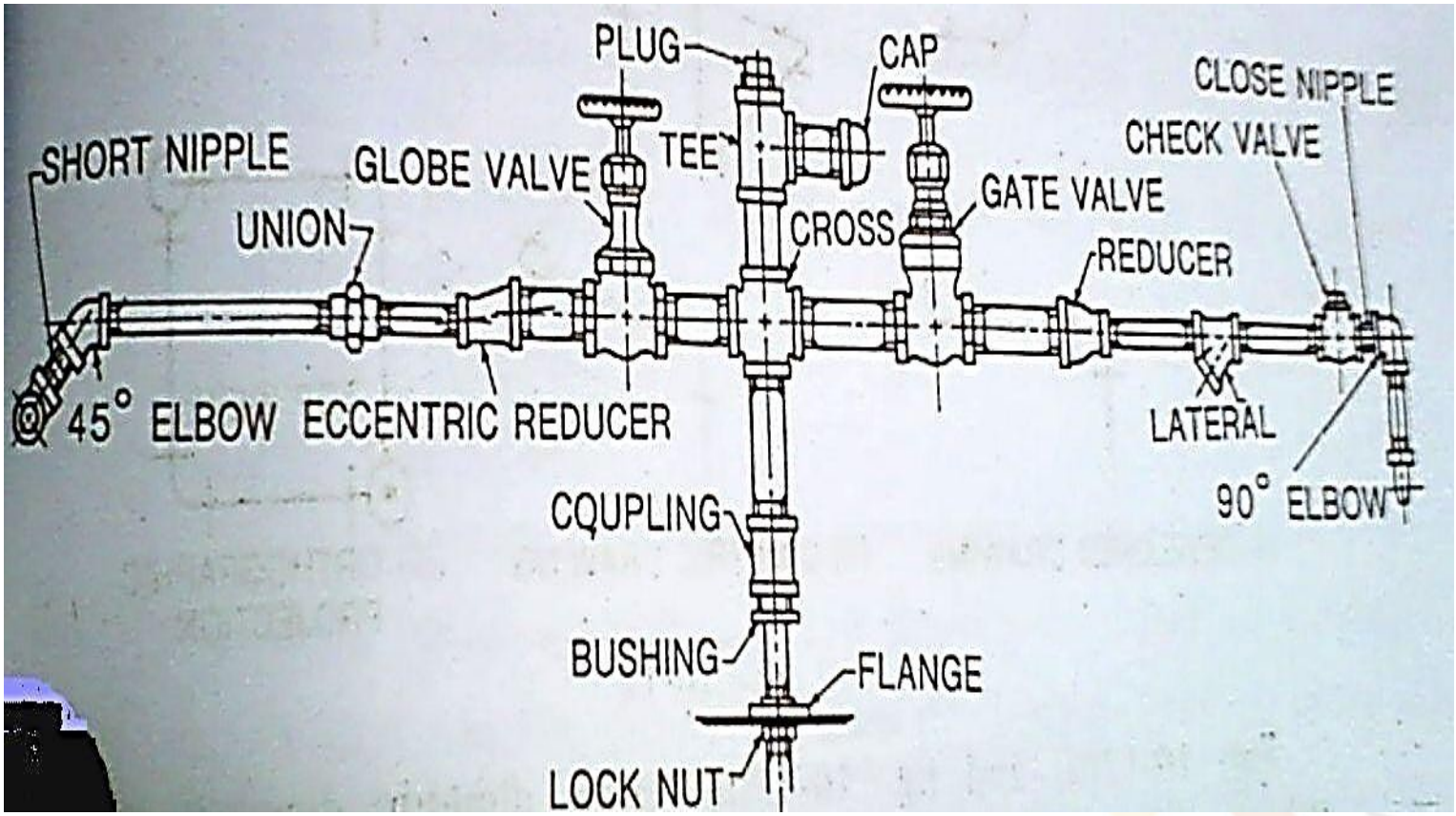
OR

On a hole and shaft assembly, the dimensions are as given below Hole = 80H7 ; Shaft = 80u6 Find: i. Tolerance of shaft ii. Tolerance on hole iii. Minimum Clearance iv. Maximum Clearance v. Type of Fit obtained vi. Sketch the assembly

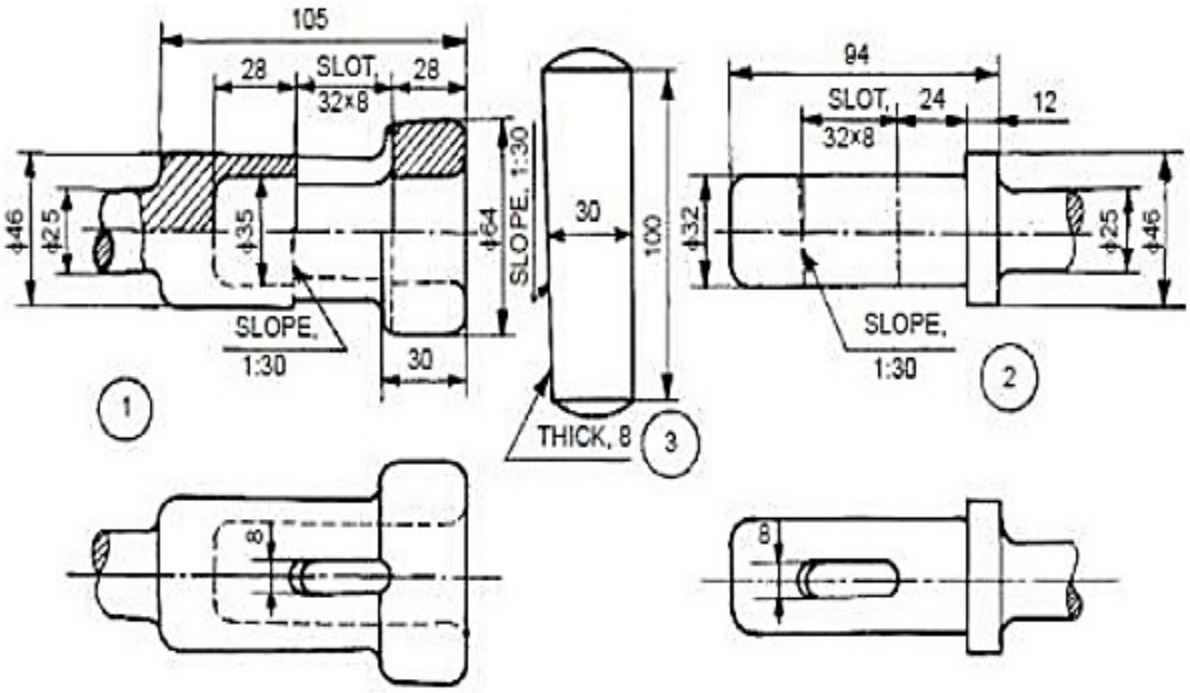
SECTION B(2X20=40)

Note : Answer any two Questions

9. Convert the orthographic layout given in figure to single line representation using standard symbols for the pipe specials



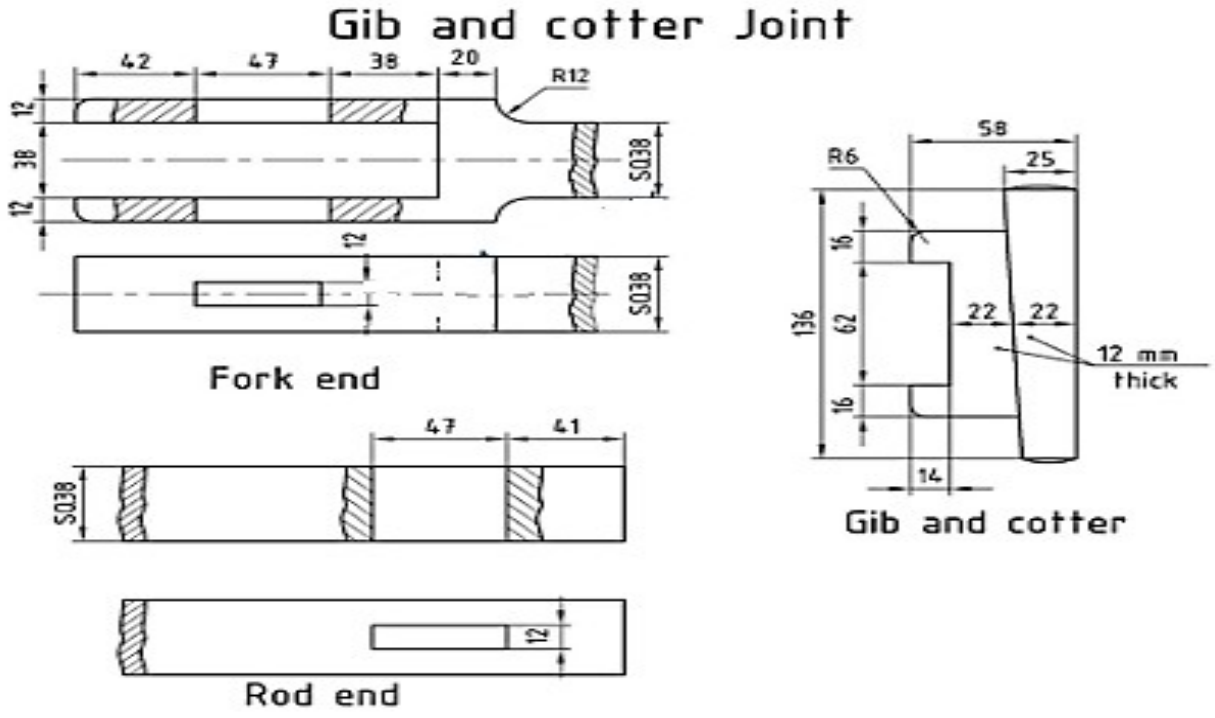
10. Draw the views of the basic assembly of Spigot cotter joint.
    a. Sectional front view(15) b. Side view(5)



OR

Draw the views of the basic assembly of Gibb cotter joint.

a. Sectional front view(15) b.Side view(5)



CLASSES OF FITS (Clearance fits)

Dimensions are in millimeters.

Basic Size		Loose Running			Free Running			Close Running			Sliding			Locational Clearance		
		Hole H11	Shaft c11	Fit	Hole H9	Shaft d9	Fit	Hole H8	Shaft f7	Fit	Hole H7	Shaft g6	Fit	Hole H7	Shaft h6	Fit
40	Max	40.160	39.880	0.440	40.062	39.920	0.204	40.039	39.975	0.089	40.025	39.991	0.050	40.025	40.000	0.041
	Min	40.000	39.720	0.120	40.000	39.858	0.080	40.000	39.950	0.025	40.000	39.975	0.009	40.000	39.984	0.000
50	Max	50.160	49.870	0.450	50.062	49.920	0.204	50.039	49.975	0.089	50.025	49.991	0.050	50.025	50.000	0.041
	Min	50.000	49.710	0.130	50.000	49.858	0.080	50.000	49.950	0.025	50.000	49.975	0.009	50.000	49.984	0.000
60	Max	60.190	59.860	0.520	60.074	59.900	0.248	60.046	59.970	0.106	60.030	59.990	0.059	60.030	60.000	0.049
	Min	60.000	59.670	0.140	60.000	59.826	0.100	60.000	59.940	0.030	60.000	59.971	0.010	60.000	59.981	0.000
80	Max	80.190	79.950	0.530	80.074	79.900	0.248	80.046	79.970	0.106	80.030	79.990	0.059	80.030	80.000	0.049
	Min	80.000	79.660	0.150	80.000	79.826	0.100	80.000	79.940	0.030	80.000	79.971	0.010	80.000	79.981	0.000
100	Max	100.220	99.830	0.610	100.087	99.880	0.294	100.054	99.964	0.125	100.035	99.988	0.069	100.035	100.000	0.057
	Min	100.000	99.610	0.170	100.000	99.793	0.120	100.000	99.929	0.036	100.000	99.966	0.012	100.000	99.978	0.000

CLASSES OF FITS (Transition & Interference Fits)

Dimensions are in millimeters.

Basic Size		Locational Transn.			Locational Transn.			Locational Interf.			Medium Drive			Force		
		Hole H7	Shaft k6	Fit	Hole H7	Shaft n6	Fit	Hole H7	Shaft p6	Fit	Hole H7	Shaft s6	Fit	Hole H7	Shaft u6	Fit
40	Max	40.025	40.018	0.023	40.025	40.033	0.08	40.025	40.042	−0.001	40.025	40.059	−0.018	40.025	40.076	−0.035
	Min	40.000	40.002	−0.018	40.000	40.017	−0.033	40.000	40.026	−0.042	40.000	40.043	−0.059	40.000	40.060	−0.076
50	Max	50.025	50.018	0.023	50.025	50.033	0.008	50.025	50.042	−0.001	50.025	50.059	−0.018	50.025	50.086	−0.045
	Min	50.000	50.002	−0.018	50.000	50.017	−0.033	50.000	50.026	−0.042	50.000	50.043	−0.059	50.000	50.070	−0.086
60	Max	60.030	60.021	0.028	60.030	60.039	0.010	60.030	60.051	−0.002	60.030	60.072	−0.023	60.030	60.106	−0.057
	Min	60.000	60.002	−0.021	60.000	60.020	−0.039	60.000	60.032	−0.051	60.000	60.053	−0.072	60.000	60.087	−0.106
80	Max	80.030	80.021	0.028	80.030	80.039	0.010	80.030	80.051	−0.002	80.030	80.078	−0.029	80.030	80.121	−0.072
	Min	80.000	80.002	−0.021	80.000	80.020	−0.039	80.000	80.032	−0.051	80.000	80.059	−0.078	80.000	80.102	−0.121
100	Max	100.035	100.025	0.032	100.035	100.045	0.012	100.035	100.059	−0.002	100.035	100.093	−0.036	100.035	100.146	−0.089
	Min	100.000	100.003	−0.025	100.000	100.023	−0.045	100.000	100.037	−0.059	100.000	100.071	−0.093	100.000	100.124	−0.146