

Production Engineering Department
College of Engineering, Pune
End–Semester Examination (2011-12)
B. Tech (4th Semester/Summer)
Fluid Power

Max Mark-50

Question one is compulsory

Time -180 minutes

Solve any three Questions from Question no 2,3,4,5,

Que-1(a)	The ram and plunger of a hydraulic press 150mm and 25mm in diameter respectively. With a plunger stroke of 30cm, the press is able to lift a load of 1 tonne through 1.5 meter in time of 25 minutes. What is (1) the load on the plunger (ii) power required to drive the plunger and (iii) no of stroke done by plunger	4
Que-1(b)	An accumulator is loaded with 50 tonnes weight. The ram has a diameter of 30cm and stroke 6m. Its friction may be taken as 3% it takes 120 second to fall through its full stroke. Find the total work supplied and power delivered to the hydraulic appliance by the accumulator, when 7.5 liters /min is being delivered by pump, while the accumulator descends with stated velocity.	4
Que-1(c)	Calculate the capillary effect in millimeters in a glass of 4mm diameter when immersed in (i) water (ii) in mercury. The temperature of liquid is 20° C and the values of surface tension of water and mercury at 20° C in contact with air are 0.0075kg/m and 0.052kg/m respectively. The contact angle for water =0° and for mercury is 130°	3
Que-1(d)	A hydraulic crane uses 400liters of water under a pressure of 50kg/cm ² in lifting a weight of 15 tones through height of 10meters. Find its efficiency	3
Que-2(a)	Explain the meter in, meter out circuit	6
Que-2(b)	Explain the hydraulic circuit of grinding machine with neat sketch	6
Que-3(a)	Compare various of pump casing with each other with sketch	4
Que-3(b)	Compare hydraulic circuit with pneumatic circuit	4
Que-3(c)	Compare with various types of rotary positive displacement pump	4
Que-4(a)	“How carburetor is one of the form of jet pump “ Justify with neat sketch	5
Que-4(b)	Explain the cushioning of Hydraulic cylinder with neat sketch	5
Que-4(c)	Explain the various properties of seal material	2
Que-5(a)	Explain the counter balancing operation with neat sketch.	6
Que-5(b)	Explain the FRL unit used in pneumatic circuit	6