Scheme – I

Sample Question Paper

Programme Name : Diploma in Production Engineering / Production Technology
Program Code : PT
Semester : Third
Course Title : Industrial Fluid Power
Marks : 70

22345

Time: 3 Hrs.

Instructions:

(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1) A) Attempt any FIVE of the following. 10 Marks

(a) Define bulk modulus.
(b) Define Compressibility.
(c) State the types of fluid flow.
(d) State any four physical properties of hydraulic oil.
(e) State the function of centrifugal pump.
(f) Define priming.
(g) State the function of FRL unit.

Q.2) Attempt any THREE of the following. 12 Marks

(a) Describe the working of Venturimeter with suitable sketch.
(b) Differentiate between hydraulic and pneumatic system.
(c) Describe the construction and working of vane type air motor.
(d) Differentiate between dynamic viscosity and kinematic viscosity.

Q.3) Attempt any THREE of the following. 12 Marks

(a) Describe the construction and working of vane type pump.
(b) Describe simple oil hydraulic circuit with neat sketch and state the function of each component used in it.

(c) Explain the property surface tension with suitable sketch.

(d) Describe the working of Pitot tube with suitable sketch.

Q.4) Attempt any THREE of the following. 12 Marks

(a)Describe the hydraulic system with suitable sketch.

(b)Describe the construction and working of external gear type air motor.

(c)Describe working of bleed-off hydraulic circuit with neat sketch.

(d)Differentiate between pressure relief valve and pressure reducing valve.

(e) Differentiate between gauge pressure and vacuum pressure.

Q.5) Attempt any TWO of the following. 12 Marks

(a) An orifice meter with orifice diameter 10 cm is inserted in a pipe of 20 cm diameter. The pressure gauges fitted upstream and downstream of the orifice meter show readings 19.62 N/cm2 and 9.81 N/cm2 respectively. The coefficient of discharge for meter is 0.6. Find the discharge of water through pipe.

(b) Write any eight industrial applications of pneumatic system.

(c) State any four materials for pipes and hoses in pneumatic system.

(d)

Q.6) Attempt any TWO of the following. 12 Marks

(a) Draw hydraulic symbols for

(1) Hydraulic pump (2) Hydraulic filter

(3) Pressure relief valve (4) Pressure reducing valve

(5) 4/2 way direction control valve (6) Double acting cylinder.

(b) State any six criteria's of selection for positive displacement pump.

(c) State applications of seals and gasket.

Scheme – I

Sample Test Paper - I

Programme Name : **Diploma in Production Engineering / Production Technology**
Program Code : **PT**
Semester : **Third**
Course Title : **Industrial Fluid Power**
Marks : **20**

22345

Time: 1 Hour

Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1) Attempt any FOUR of the following. **08 Marks**

a) State any four properties of fluid.
b) Define the following fluid properties (a) Dynamic viscosity (b) kinematic viscosity.
c) Define Newtonian and non-Newtonian fluid.
d) Define Reynolds's number.
e) State Bernoulli's theorem.

Q.2) Attempt any THREE of the following. **12 Marks**

a) Describe any four minor losses in fittings and valves.
b) Determine the rate of flow of water through a pipe of diameter 20 cm and length 50 m when one end of the pipe is connected to a tank and other end of pipe is open to the atmosphere. The pipe is horizontal and the height of water in the tank is 4m above the centre of the pipe. Neglect the minor losses and take f = 0.009.
c) Describe any four minor losses in fittings and valves
d) An isosceles triangular plate base 1.2 m and height 3 m is immersed vertically in such a way that the apex is in the downward direction and the side of base is parallel and 40 cm below free water surface level. Determine the total pressure and centre of pressure
e) Describe the property surface tension with suitable sketch.

Scheme – I

Sample Test Paper - II

Programme Name : Diploma in Production Engineering / Production Technology
Program Code : PT
Semester : Third
Course Title : Industrial Fluid Power
Marks : 20

22345

Time: 1 Hour

Instructions:

(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1) Attempt any FOUR of the following. 08 Marks

a) State any two functions of hydraulic oil.
b) Define Cavitation.
c) State the importance of Air receiver in pneumatic system.
d) Define the sequencing in hydraulic circuit.
e) Define the term Contamination of oil.

Q.2) Attempt any THREE of the following. 12 Marks

a) Draw following pneumatic symbols (1) Air filter (2) Bidirectional air motor (3) air compressor (4) flow control valve
b) Describe reciprocating compressor used in pneumatic system.
c) Describe the construction and working of external gear type air motor with suitable sketch.
d) Describe with suitable sketch the working of hydraulic circuit for shaping machine.