

Scheme – G

Sample Test Paper-I

Course Name : Diploma in Automobile Engineering

Course Code : AE

Semester : Fifth

Subject Title : Hydraulics & Pneumatics

Marks : 25

17522

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

Q1. Attempt any THREE.

09 Marks

- a) What is priming? How it is done? Why it is necessary in Centrifugal pump.
- b) Define steady flow, rotational flow and laminar flow
- c) Define positive and negative slip.
- d) Define atmospheric pressure, gauge pressure and absolute pressure.

Q2. Attempt any TWO.

08 Marks

- a) Write four parameters for selection of centrifugal pump.
- b) With neat sketch, describe the construction of inverted U tube manometer.
- c) Define steady, rotational, laminar and uniform flow.

Q3. Attempt any ONE.

08 Marks

- a) A oil of specific gravity 0.8 is flowing through Venturimeter having inlet diameter 20 cm and throat diameter is 10 cm. the differential manometer shows reading of 25 cm. calculate the discharge of oil through venturimeter. (take $C_d = 0.98$).
- b) Explain construction and working of Double acting reciprocating pump with neat sketch.

Sample Test Paper-II

Course Name : Diploma in Automobile Engineering

Course Code : AE

Semester : Fifth

Subject Title : Hydraulics & Pneumatics

Marks : 25

17522

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 THREE.

09 Marks

- a) Draw neat sketch of swash type pump and label it.
- b) Explain construction and working of telescopic type hydraulic cylinder.
- c) Compare filter and strainer any 3 points.
- d) Write the type of hydraulic or pneumatic circuit used in following applications
 - i) Shaper machine ii) Latest Truck iii) Cars (Any System)

Q 2. Attempt any TWO.

08 Marks

- a) Draw symbols used in hydraulic circuit of pressure relief valve, unidirectional pump, 2/3 directional control valve, flow control valve.
- b) Explain with neat sketch the principle on which hydraulic ram works.
- c) Explain construction and working of piston type hydraulic motor.

Q 3. Attempt any ONE.

08 Marks

- a) Draw sequencing circuit for clamping and drilling operation.
- b) i) Explain construction of any two types of connectors used pneumatic system with neat sketch.
ii) Give classification of valves.

Sample Question Paper

Course Name : Diploma in Automobile Engineering

Course Code : AE

Semester : Fifth

Subject Title : Hydraulics & Pneumatics

Marks : 100

17522

Time:3 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 A) Attempt any THREE of the following:

12 Marks

- a) Define surface tension and capillarity.
- b) Give classification of pneumatic valves.
- c) Give classification of hydraulic actuators.
- d) Write the function of flexible hose, Gaskets & filters, lubricator.

Q.1 B) Attempt any ONE of the following:

06 Marks

- a) Describe with neat sketch Bourdon Tube pressure gauge.
- b) Write construction and working of Double Acting Cylinder with neat sketch.

Q.2 Attempt any FOUR of the following:

16 Marks

- a) Define all hydraulic coefficients.
- b) State any two faults of centrifugal pump. Write two causes and two remedies of each.
- c) Give any four reasons for cavitation in centrifugal pump.
- d) Explain construction and working of Hydraulic jack with neat sketch.
- e) Draw a neat labeled sketch of vane type pump.

Q.3 Attempt any FOUR of the following:

16 Marks

- a) Compare gear pump and vane pump on the basis of construction, pressure, maintenance, cost
- b) Explain construction and working of sliding spool type 3/2 direction control valve
- c) Give the classification of valves.
- d) State two locations each, where seals and gaskets are used in hydraulic system.

- e) Explain construction and working of proportional type filter with sketch.

Q.4 A) Attempt any THREE of the following:

12Marks

- a) What is the Pascal's Law? State its applications..
- b) Explain construction and working of gear type air motor.
- c) Draw neat sketch of quick action coupling and write its construction.
- d) Draw a symbol for 4/3 direction control valve & FRL unit.

B) Attempt any ONE of the following:

06 Marks

- a) Draw layout of air brake system. Explain its working.
- b) Compare hydraulic and pneumatic circuit on the basis of - Fluid used, Ease of operation, noise, speed, cost, application.

Q.5 Attempt any TWO of the following:

16 Marks

- a) Derive an expression of discharge through venturimeter.
- b) Compare reciprocating pump and centrifugal pump on the basis of construction, speed, discharge, pressure, efficiency, maintenance, cost, application.
- c) Draw hydraulic circuit for milling machine and Explain its working. State the type of circuit used.

Q.6 Attempt any TWO of the following:

16 Marks

- a) A oil of specific gravity 0.8 is flowing through Venturimeter having inlet diameter 20 cm and throat diameter is 10 cm. the differential manometer shows reading of 25 cm. calculate the discharge of oil through venturimeter. (take $C_d = 0.98$).
- b) Explain construction and working of centrifugal pump with neat sketch. Give its two applications.
- c) Given hydraulic circuit is meter out type. Write the four corrections needed and reproduce the figure with all corrections incorporated. Label the figure & write the working of circuit.

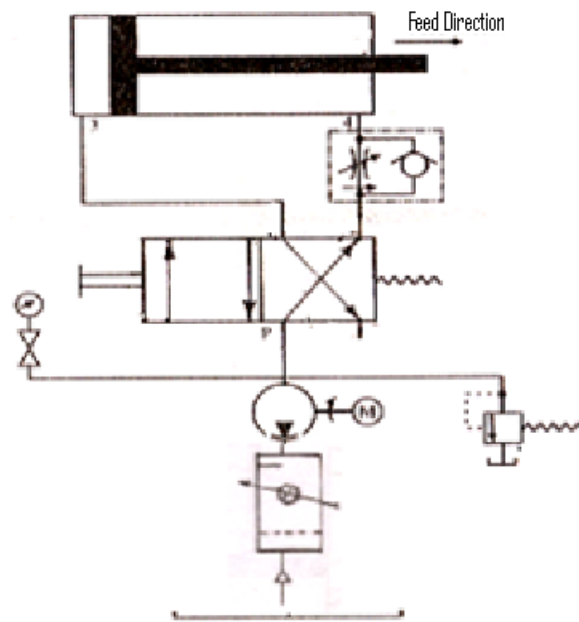


Figure 1