

Roll No \_\_\_\_\_

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# SINDH BOARD OF TECHNICAL EDUCATION KARACHI

DIPLOMA OF ASSOCIATE ENGINEER 3rd YEAR

## MODEL PAPER

ANNUAL EXAMINATION 2021

Technologies: MECHANICAL

**SUBJECT: MT-312 HYDRAULIC & HYDRAULIC MACHINE**

**SECTION "A" OBJECTIVE**

Instructions:

- Attempt all questions.
- All questions carry equal marks.
- Question paper must be returned back to invigilator within the scheduled time.

TIME: 40 Minutes  
MAX. MARKS: 25

**Q1.(a) Fill In the Blanks**

**Max Marks 10**

1. \_\_\_\_\_ energy possessed by liquid particle by virtue of its position.
2. Venturi meter is a pipe line is used to measure \_\_\_\_\_
3. SI units stands for \_\_\_\_\_.
4. Pressure head shows in equation \_\_\_\_\_.
5. Loss of head shows in equation \_\_\_\_\_.

**Q1.(b) Encircle "T" for true and "F" for false:**

**Max Marks 07**

1. Pressure energy is possessed by a liquid due to existing pressure (T / F).
2. Bernoulli's equation is applied for Venturi meter (T / F).
3. Force of jet impinging normally on a fixed plate (T / F).
4. Can method of calculating loss of head due to friction (T / F).
5.  $Q=Av$  is a rate of discharge (T / F).
6. Hydraulic machines are associate with water machines (T / F).
7. Joule is a unit of SI-(T / F).

**Q1.(c) Multiple choice questions:**

**Max Marks 08**

1. Inlet of the Venturi meter is called.  
(a) Convergent                      (b) Throat                              (c) Divergent
2. Orifice meter is used to measure the.  
(a) Diameter of pipe      (b) Discharge through the pipe      (c) Cross sectional area of the pipe.
3. The hydraulic means depth for a circular pipe of diameter (d) is.  
(a)  $d/4$                                       (b)  $d/3$                                       (c)  $d/2$
4. Water flows through easily  
(a) stream                                      (b) nozzle                                      (c) pipe
5. Water pressure is measured with in stream.  
(a) Venturi meter                              (b) Voltmeter                              (c) Thermometer
6. Hydraulic machine can be say that.  
(a) Donkey pump                              (b) Turbine                                      (c) All
7. Hydraulic co-efficient are.  
(a)  $C_c$                                       (b)  $C_v$                                       (c) All
8. Force of Jet impinging normally on  
(a) Fixed plate                              (b) Inclined plate                              (c) All

Signature of Candidate

Seal of Examination Centre

Signature of Invigilator

Roll No \_\_\_\_\_



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DIPLOMA OF ASSOCIATE ENGINEER 3rd YEAR  
**MODEL PAPER FOR**  
ANNUAL EXAMINATION 2021  
Technologies: Mechanical

**SUBJECT: MT-312 HYDRAULIC & HYDRAULIC MACHINE**

**SECTION "B" & "C"**

**TIME: 1.20 HOURS**

**MAX. MARKS: 25**

**Section "B"**

**(Short Answer Questions)**

**Max. Marks: 15**

**Q2: Attempt any six questions from the following. All questions carry equal marks.**

1. Define pitot tube with sketches.
2. State rate of discharge.
3. Define liquid fluids.
4. Write three advantages of water turbines
5. Define the term jet of water.
6. What is meant by nozzles.
7. Define hydraulic co-efficient.
8. Explain dead weight pressure gauge
9. Explain equation of continuity.
10. Describe types of flow meters.

**Section "C"**

**(Descriptive Answer Questions)**

**Max. Marks: 10**

**Q3: Attempt all questions from the following. All questions carry equal marks.**

1. Identify various loss of heads (major & minor) of a liquid flowing in a pipe and their formulae.

OR

Explain measurement of pressure by simple manometer.

2. Explain total head of a liquid in motion.

OR

Solve procedure for determining  $C_c$ ,  $C_v$  and  $C_d$ .

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