Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

B.Tech. Summer 2018- 19 Examinations

Semester: 1/2 **Date: 16/05/2019**
Subject Code: 03109102 **Time: 02:00pm to 04:30pm**
Subject Name: Element of mechanical engineering **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions. (Each of one mark) **(15)**

1. A perfect gas obeys
(A) Boyle's law (B) Charles's law (C) Joule's law (D) Both (A) & (B)
2. Polytropic process of a gas is given by
(A) PV= C (B) $PV^0 = C$ (C) $PV^{\gamma} = C$ (D) $PV^n = C$
3.Petrol Engine is
(A) Compression ignition (B) Spark ignition (C) mixed ignition (D) all of the above
4.Potential Energy is depends on
(A) Gravitational Force (B)Velocity of the object (C)Heat energy (D) None of the above
5. Thermometer is used to measure.
(A) Pressure (B) Temperature (C) Electric energy (D) Force
6. The ratio of brake power to indicated power is called as_____.
7. Value of Dryness fraction of dry steam is _____.
8. One bar = _____ N/m^2
9. Give any one example of water tube boiler_____.
10. Constant pressure process is also known as _____process.
11. Define Pump.
12. Define compressor.
13. What is Priming in Pump.
14. Define coupling.
15. Define Brake.

Q.2 Answer the following questions. (Attempt any three) **(15)**

A) Explain steam formation at constant pressure with neat sketch.
B) Prove that Cp-Cv = R
C) Show that law of adiabatic process is $PV^{\gamma} = C$
D) Classify coupling and Sketch any one of them.

Q.3 A) Define Prime mover and Explain in details different source of energy used by them. **(07)**
B) What is Fuel and Explain in details about solid fuels. **(08)**

OR

B) Classify pumps and explain volute, vortex and diffuser type of centrifugal pump. **(08)**

Q.4 A) List out different mounting and Explain with sketch any one of them. **(07)**

OR

A) Explain with Sketch Four stroke diesel Engine. **(07)**
B) Describe the working of Cochran boiler with Sketch. **(08)**