

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
M.Tech. Summer 2018 - 19 Examination

Semester: 2**Subject Code: 203206184****Subject Name: Experimental Techniques in Automobile Engineering****Date: 13/05/2019****Time: 10:30am To 01:00pm****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 A) Describe balancing type fuel guage or thermostatic type fuel guage. **(05)**

B) Explain hot wire anemometer with Wheatstone bridge circuit. **(05)**

C) Explain in brief various resistive sensors. **(05)**

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

A) What is controller area network system (CAN-BUS) and discuss its application to automobiles.

B) Describe how a throttle valve operates. Explain the working of a rotary throttle position sensor.

C) Explain clearly the terms (any three)

a) Threshold and resolution

b) Hysteresis

c) Drift

d) Sensitivity

D) Explain in detail double diaphragm electric horn.

Q.3 A) With the help of a neat sketch explain the working of a solenoid operated EGR valve. **(07)**

B) A 1.5 mm diameter spring steel rod is used to measure vibration frequency. The length of the rod may be varied from 25 mm to 100 mm. The density of the material is 7800 kg/m^3 and modulus of elasticity is 200 GN/m^2 . Calculate the range of frequencies that may be measured with this device. **(08)**

OR

B) Explain in detail automatic speed breaker working and brake actuation system for automobiles. **(08)**

Q.4 A) Describe direct or indirect measurement of air flow coolant temperature sensor. **(07)**

OR

A) Explain oxygen sensor zirconia or Titania. **(07)**

B) Discuss the temperature warning system or oil warning system **(08)**