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**BME-061**

# DIPLOMA IN MECHANICAL ENGINEERING (DME)

## Term-End Examination

00483

**December, 2016**

## BME-061 : AUTOMOBILE ENGINEERING

*Time : 2 hours* *Maximum Marks : 70*

***Note :*** *Question no. 1 is* ***compulsory****. Answer* ***four*** *more questions from questions no. 2 to 7. Use of scientific calculator is permitted.*

**1.** From the following multiple choice questions, choose the correct answer : *7×2=14*

(a) The part which allows the driver to couple or decouple the engine and transmission is

(i) Brake

(ii) Flywheel

(iii) Clutch

(iv) Engine drive

(b) Initially, when the piston is at TDC, the exhaust valve is

(i) Opened

(ii) Closed

(iii) Partially opened

(iv) Partially closed

(c) The ignition system should be capable of producing voltage up to

(i) 15,000 volts

(ii) 20,000 volts

(iii) 25,000 volts

(iv) 30,000 volts

(d) _____ is the part which sends the high voltage current generated in the secondary winding to the spark plug, at proper time.

(i) Condenser

(ii) Carburettor

(iii) Distributor

(iv) Battery

(e) _____ is the replacement of Battery for ignition.

(i) Spark plug

(ii) Starter

(iii) Condenser

(iv) Magneto

(f) Train value of gear train is

(i) Velocity Ratio

(ii) 1 / Velocity Ratio

(iii) Speed Ratio

(iv) V.R. / S.R.

(g) Parking Brakes are

(i) Hydraulic Brakes

(ii) Pneumatic Brakes

(iii) Mechanical Brakes

(iv) Electrical Brakes

2. What are the different types of gear trains ? Explain at least two of them with neat diagrams. *14*

3. Explain the working principle of multi-plate clutch with neat sketch. *14*

4. What are the requirements of an Ignition system ? Explain Magneto Ignition system with neat sketch. *14*

5. Explain the types of tyres with the advantages of each type. Also explain how a tyre is specified. What are the remedies for reducing tyre wear ? *14*

6. What is the function of steering ? Explain Ackerman's steering with neat diagram. *14*

7. (a) Define speed ratio of a gear train.

(b) A simple gear train has two gears which are mounted on two different shafts. Gear 1 is the driver which runs at 2000 rpm. The number of teeth on gears 1 and 2 are 30 and 60 respectively.

Determine :

(i) Speed ratio of the gear train

(ii) Train value of the gear train

(iii) Speed of the second gear *2+12*

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