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BME-061

01467

DIPLOMA IN MECHANICAL ENGINEERING (DME)

Term-End Examination

June, 2013

BME-061 : AUTOMOBILE ENGINEERING

Time : 2 Hours *Maximum Marks : 70*

Note : *Answer **any five** questions. Q. No. **1** is **compulsory**. Use of scientific calculator is permitted.*

1. Choose the correct answer : **7x2=14**

(a) A Tyre is Specified as $8.25 \times 30 \times 6$ PR, in which *8.25* represents _____.

(i) Diameter of bead circle

(ii) Width of tyre

(iii) Ply rating

(iv) Thickness of tyre from shoulder to shoulder.

(b) In 4 stroke diesel engine, during compression stroke _____.

(i) the piston moves from TDC to BDC

(ii) the piston moves from BDC to TDC

(iii) the crank rotates by 90°

(iv) the crank rotates by 270°

(c) Bleeding is the process of _____.

(i) removal of oil from engine

(ii) removal of exhaust from cylinder

(iii) removal of air from braking system

(iv) all the above

(d) Speed ratio of a pair of gears _____.

(i) $\frac{N_1}{N_2} = \frac{T_1}{T_2}$ (ii) $\frac{N_2}{N_1} = \frac{T_1}{T_2}$

(iii) $\frac{N_1}{N_2} = \frac{T_2}{T_1}$ (iv) all the above

(e) Fuel injector is used in _____.

(i) Petrol engine (ii) LPG engine

(iii) Diesel engine (iv) all the above

(f) One of the following is not a 'selective type gear' box.

(i) sliding mesh gear box

(ii) constant mesh gear box

(iii) progressive gear box

(iv) synchromesh gear box

(g) 2 stroke petrol engines are preferred because _____.

(i) the cost is less

(ii) maintenance is low

(iii) weight of flywheel is less

(iv) all the above

2. What are the different types of Ignition systems ? Describe any one of them with the help of a neat sketch diagram. 14

3. What are the major components of an automobile ? Explain about the transmission system. 14

4. Explain the working of differential axle system and its necessacity. 14

5. Describe working of 4 stroke petrol engine with the help of a neat diagram. 14

6. Describe the construction and working of mechanical Brakes. 14

7. A simple gear train consists of 3 gears, each mounted on a separate shaft. All the three shafts are parallel. Gear 1 is the driver which has 30 teeth and a speed of 600 rpm. The number of teeth of gears 2 and 3 are 60 and 90 respectively. Determine : 14

   (a) The speed ratio of gear train and

   (b) Direction of rotation and speed of follower if driver rotates in clock wise-direction.