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DIPLOMA IN MECHANICAL ENGINEERING/ ADVANCED LEVEL CERTIFICATE IN MECHANICAL ENGINEERING (DMEVI/ACMEVI)

Term-End Examination

December, 2011

BME-033 : HEAT POWER TECHNOLOGY

Time : 2 hours *Maximum Marks : 70*

Note : *Answer **FIVE** questions in in all. Question No. 1 is **compulsory**. Answer **four** more questions from the remaining questions.*

1. (a) The following is C.I engine : **7x2=14**

(i) Diesel engine

(ii) Petrol engine

(iii) Gas engine

(iv) None of the above

(b) The ratio of brake power to indicated power of an I.C. engine is called :

(i) Thermal efficiency

(ii) Volumetric efficiency

(iii) Mechanical efficiency

(iv) Relative efficiency

(c) The possible sequence of firing order in four stroke four cylinder engine is _____.

(i) 1 – 2 – 3 – 4 (ii) 4 – 3 – 2 – 1

(iii) 1 – 4 – 3 – 2 (iv) 1 – 3 – 4 – 2

(d) Velocity ratio is defined as :

(i) Speed of driver/ Speed of follower

(ii) Speed of follower/ Speed of driver

(iii) Speed of pulley/ Speed of belt

(iv) Speed of belt/ Speed of pulley

(e) A spark plug gap is kept from :

(i) 0.3 to 0.7 mm (ii) 0.2 to 0.8 mm

(iii) 0.4 to 0.9 mm (iv) 0.6 to 1.0 mm.

(f) _____ Lubrication system is used for two - stroke cycle engine.

(i) Mist lubrication system

(ii) Wet sump lubrication system

(iii) Dry sump lubrication system

(iv) None of the above.

(g) The combustion process in a C.I engine starts with the help of _____.

(i) Spark

(ii) Volume

(iii) Pressure

(iv) All of the above

2. (a) Describe a supercharged engine and a turbocharged engine. **7x2 =14**

(b) With a neat sketch, explain the working of a four stroke compression Ignition engine.

3. (a) Discuss the relative merits of air cooling and water cooling of I.C engines. What is the function of anti-freezing solution ? **7x2 =14**

(b) With a neat diagram, explain briefly the dry sump lubrication system of a 4 - stroke SI engine.

4. (a) What is Kinematic pair ? How are Kinematic pairs classified ? Explain briefly different types of Kinematic pairs according to the type of contact. **7x2 =14**

(b) Derive an expression for velocity ratio of a compound belt drive.

5. (a) What is a slip gauge ? How are the slip gauges classified for their guaranteed accuracy and grades ? **7x2 =14**

(b) What are the two basic systems of giving tolerance of the shaft and hole ?

6. (a) Why should we use a power transmission system ? What are the characteristics of power transmission system ? Explain. **7x2 =14**

(b) What is elastic creep of belt ? Which one of the flat and V-belt will have higher elastic creep and why ?