



KERALA AGRICULTURAL UNIVERSITY

B. Tech.(Agri. Engg) 2016 Admission

IV Semester Final Examination-July 2018

Fpme. 2207

Thermodynamics and Automotive Engines (2+1)

Marks: 50

Time: 2 hours

I Fill in the blanks. (10x1=10)

- 1 A thermodynamic system is one in which there is no mass transfer, but energy transfer exists.
- 2 Work done in a free expansion process is
- 3 A reversible heat engine operating between hot and cold reservoirs delivers a work output of 54 kJ while it rejects a heat of 66 kJ. The efficiency of this engine is
- 4 The tendency of aengine to knock increases by supercharging.
- 5 A four stroke Diesel engine theoretically operates on constant cycle.
- 6 The compression ratio for a practical diesel engine usually lies in the range
- 7 The top of the piston in two-stroke engine is crown shaped to enhance
- 8 The ignition coil in a automobile acts as a step-..... transformer.
- 9 The ignition quality of a diesel engine fuel is expressed as number.
- 10 Multi Port Fuel Injection system is new technology for engines.

II Write short notes/answers etc on ANY FIVE (5x2=10)

- 1 Draw diesel cycle on P-V and T-S diagrams.
- 2 What do you understand by 'Scavenging'?
- 3 Draw a typical valve timing diagram for a four stroke petrol engine.
- 4 What do you understand by 'Stoichiometric mixture'?
- 5 Governing of IC engines.
- 6 List important properties of Lubricants used in IC engines.
- 7 Sketch the Magneto Ignition system used in SI engines.

P.T.O

III Answer any FIVE of the following.

(5x4=20)

- 1 Give the detailed classification of IC engines.
- 2 Derive an expression for the Air Standard efficiency of Dual Cycle.
- 3 Explain a method for measuring IHP and BHP of a Diesel Engine.
- 4 Explain the fuel metering system used for speed control in Petrol engines.
- 5 What is the need of Governing an IC engine? List various types of governors.
- 6 State the importance of 'firing order' in multi-cylinder four stroke engines. What is the preferred firing order in a Four cylinder engine?
- 7 What are the different stages of combustion in diesel engine?

IV Answer any ONE of the following

(1x10=10)

- 1 Explain various fuel supply systems used in Diesel engines stating their advantages and demerits.
- 2 Sketch and explain the Cooling systems of IC engines. What are the different additives used in cooling media of IC engines?
