KERALA AGRICULTURAL UNIVERSITY
B. Tech. (Agrl. Engg.) 2022 & Previous Admissions
IV Semester Final Examination – July 2024

Fpme.2207   Thermodynamics and Automotive Engines (2+1)   Marks: 50
Time: 2 hours

(10x1=10)

I   **Answer the following**
1. Third law of thermodynamics provides a method to evaluate which property?
2. Which of the following is an intensive property?
3. Which thermodynamic function accounts automatically for enthalpy and entropy both?

Fill in the blanks
4. The volume of gas is reduced to half of its original volume. The specific heat will be ……..
5. Thermodynamics is not concerned about…………….

State True or False
6. The portion of a crankshaft which rests on cylinder block is called main journal.
7. A baffle plate is fitted inside the oil pan to prevent the oil from splashing when it is subjected to vibration and other movement during vehicle operation.
8. The motion of the cam is transferred to the valves through pistons.
9. If the engine coolant leaks into the engine oil, then engine oil turns black.
10. The function of an alternator in an automobile is to continually recharge the battery.

II   **Write short notes on ANY FIVE of the following**   (5x2=10)
1. What is Gasoline Direct Injection?
2. Define common rail direct injection system.
3. What are the functions of generator and starting motor?
4. What are the chemicals used in battery?
5. What is a reversed heat engine?
6. Define second law efficiency.
7. State Clausius Statement of Second law of thermodynamics.

III   **Answer ANY FIVE of the following**   (5x4=20)
1. List the limitation of first law of thermodynamics.
2. Explain about Thermodynamic Equilibrium.
3. Define extensive property.
4. Explain Turbocharger.
5. Explain the working of engine governing system.
6. Explain valve timing diagram.
7. Discuss engine performance curve.

IV   **Write an essay on ANY ONE of the following**   (1x10=10)
1. Explain the need of cooling system in automobiles. Mention its types.
2. Discuss the working of ignition system used in cars.

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