

Code No: **R1632243**

**R16**

SET - 1

**III B. Tech II Semester Regular/Supplementary Examinations, August-2021**  
**AUTOMOTIVE ELECTRICAL AND ELECTRONICS**

(Automobile Engineering)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)

2. Answer **ALL** the question in **Part-A**

3. Answer any **FOUR** Questions from **Part-B**

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**PART -A**

**(14 Marks)**

1. a) Write the different types of batteries used for storage. [2M]
- b) Write the function of ignition coil. [2M]
- c) Draw the circuit diagram of a full wave rectifier. [2M]
- d) Classify different types fuses. [3M]
- e) What is the function of head lights? [3M]
- f) Write 9's and 10's complement of the following numbers: [2M]  
i) 909; ii) 123.

**PART -B**

**(56 Marks)**

2. a) Explain why the 'energy density' of a battery is important? [7M]
- b) Describe different tests performed on the battery. [7M]
3. a) Draw a block diagram of a fuel injection system and explain the purpose of each component. [7M]
- b) Draw the Ignition calculation flow diagram. [7M]
4. a) Explain the operation of an alternator. [7M]
- b) Explain the operation of full wave rectifier. [7M]
5. a) Explain the importance of electrical systems in an automobile. [7M]
- b) Explain the working of fusible link with the help of suitable diagram. [7M]
6. a) Explain the working of the following: [7M]  
i) Fog lamp; ii) LED Lamp.
- b) Describe the different electrical accessories present in a vehicle. [7M]
7. a) Convert the following numbers as indicated: [7M]  
i)  $(11111.010)_2 = (?)_{10}$ ; ii)  $(258.45)_{10} = (?)_2$ .
- b) Explain the operation of JK flip-flop. [7M]

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