

**III B. Tech II Semester Supplementary Examinations, February-2022**  
**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)

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|----|----|---------------------------------------------------------------------|------|
| 1. | a) | Draw the charge and discharge characteristics of lead acid battery. | [2M] |
|    | b) | What is the function of ignition system?                            | [2M] |
|    | c) | Classify different types alternators used in automobiles.           | [2M] |
|    | d) | Write the function of fuse in automobiles.                          | [3M] |
|    | e) | Explain the working of odometer.                                    | [3M] |
|    | f) | Draw the logic diagram of the exclusive-OR gate.                    | [2M] |

**PART -B**

(56 Marks)

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|----|----|------------------------------------------------------------------------------|------|
| 2. | a) | Explain the selection procedure for a battery in automobile system.          | [7M] |
|    | b) | Write the advantages and disadvantages of lead acid battery.                 | [7M] |
| 3. | a) | Explain the working of electronic ignition system.                           | [7M] |
|    | b) | Write the testing procedure for ignition system.                             | [7M] |
| 4. | a) | Explain the working of full rectifier with circuit diagram.                  | [7M] |
|    | b) | Explain the construction and working of salient pole rotor alternator.       | [7M] |
| 5. | a) | Draw the wiring diagram used in typical automobiles.                         | [7M] |
|    | b) | Write the different types of fuses used in automobiles.                      | [7M] |
| 6. | a) | Explain the working of poly-ellipsoidal headlight system.                    | [7M] |
|    | b) | Write the difference parabolic reflector and bifocal reflector.              | [7M] |
| 7. | a) | Explain the operation of half subtractor with logic diagram and truth table. | [7M] |
|    | b) | Explain the operation of different types of shift registers.                 | [7M] |

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