



Paper id: 250619

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Subject Code: BAU061

Roll No:

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**BTECH**  
**(SEM VI) THEORY EXAMINATION 2024-25**  
**AUTOMOTIVE ELECTRICAL & ELECTRONICS**

TIME: 3 HRS

M.MARKS: 70

**Note:** Attempt all Sections. In case of any missing data; choose suitably.**SECTION A****1. Attempt all questions in brief.****02 x 7 = 14**

Q no.	Question	CO	Level
a.	Define Ohm's Law and Kirchhoff's Law.	1	K1
b.	List any four types of automotive batteries.	1	K1
c.	State the main function of a starter motor.	2	K1
d.	Differentiate between D.C. and A.C. generator.	2	K1
e.	What is a spark plug and its role in ignition?	3	K1
f.	Write any two advantages of CAN bus system.	4	K1
g.	List any two types of automotive sensors.	5	K1

**SECTION B****2. Attempt any three of the following:****07 x 3 = 21**

a.	Explain the construction and working of a Lead Acid Battery.	1	K1,K2
b.	Describe the construction and types of starter motors used in vehicles.	2	K1,K2
c.	Discuss the role and working of alternators in charging systems.	2	K1,K2
d.	Explain the working principle of distributor-less ignition system	3	K1,K2
e.	Describe the architecture and functions of automotive electronic systems.	4	K1,K2

**SECTION C****3. Attempt any one part of the following:****07 x 1 = 07**

a.	Explain battery charging techniques and tests conducted on automotive batteries.	1	K1,K2
b.	Discuss the maintenance of different types of automotive batteries.	1	K1,K2

**4. Attempt any one part of the following:****07 x 1 = 07**

a.	Explain with diagram the starter drive mechanism and its components	2	K1,K2
b.	Describe voltage and current regulation in automotive charging systems.	2	K1,K2

**5. Attempt any one part of the following:****07 x 1 = 07**

a.	Explain various ignition triggering devices used in modern vehicles.	3	K1,K2
b.	Describe the centrifugal and vacuum advance mechanisms in ignition systems.	3	K1,K2

**6. Attempt any one part of the following:****07 x 1 = 07**

a.	Explain various bus systems used in automotive electronics with suitable examples.	4	K1,K2
b.	Describe the working and applications of ABS and ECM control units	4	K1,K2

**7. Attempt any one part of the following:****07 x 1 = 07**

a.	Explain in brief about different types of sensors used in driver assistance systems.	5	K1,K2
b.	Describe working principles of LIDAR and Radar sensors in automotive systems.	5	K1,K2