

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION MAY 2026
(Sixth Semester)**

Branch - **ELECTRONICS**

MAJOR ELECTIVE COURSE - II AUTOMOTIVE ELECTRONICS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which battery is commonly used in automobiles? (i) Nickel-cadmium battery (ii) Lead acid battery (iii) Lithium-ion battery (iv) Zinc-carbon battery	K1	CO1
	2	The main purpose of a voltage regulator in the charging system is to _____. (i) Increase battery voltage (ii) Control charging current (iii) Maintain constant output voltage (iv) Reduce battery size	K2	CO1
2	3	Which component produces high voltage for spark generation? (i) Distributor (ii) Ignition coil (iii) Battery (iv) Condenser	K1	CO2
	4	Which ignition system eliminates mechanical contact breaker points? (i) Battery ignition system (ii) Magneto ignition system (iii) Electronic ignition system (iv) Coil ignition system	K2	CO2
3	5	Which sensor measures engine coolant temperature? (i) MAP sensor (ii) TPS sensor (iii) CTS sensor (iv) Oxygen sensor	K1	CO2
	6	Which actuator is used to control air intake in idle speed control? (i) Relay (ii) Solenoid (iii) Stepper motor (iv) DC motor	K2	CO2
4	7	Which system controls fuel injection and ignition timing electronically? (i) ECU (ii) ECM (iii) PCM (iv) ABS	K1	CO4
	8	Which fuel injection system injects fuel directly into combustion chamber? (i) MPFI (ii) TBI (iii) GDI (iv) CRDI	K2	CO4
5	9	Which lighting system consumes less power and gives high brightness? (i) Halogen lamp (ii) LED lamp (iii) Tungsten lamp (iv) Fluorescent lamp	K1	CO3
	10	Which device protects electrical circuits from overload? (i) Relay (ii) Switch (iii) Fuse (iv) Connector	K2	CO3

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Define battery rating. Explain different battery ratings used in automobiles.	K1	CO1
		(OR)		
	11.b.	List the types of automobile batteries and explain any one.		
2	12.a.	Explain the working principle of magneto ignition system with neat diagram.	K2	CO2
		(OR)		
	12.b.	Describe the construction and operation of transistor ignition system.		
3	13.a.	Explain the working of oxygen sensor and analyze its role in emission control.	K3	CO2
		(OR)		
	13.b.	Differentiate between solenoid and stepper motor used in automotive actuators.		
4	14.a.	Analyze the working of electronic fuel injection system and justify its advantages over carburetor.	K4	CO4
		(OR)		
	14.b.	Examine the role of engine control module (ECM) in modern vehicles.		
5	15.a.	Evaluate the advantages of LED lighting system over conventional lighting systems.	K4	CO3
		(OR)		
	15.b.	Analyze the importance of multiplexing in automotive electrical systems.		

SECTION - C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Describe the principle, construction and operation of alternator charging system.	K3	CO1
2	17	Analyze the advantages and limitations of distributor less ignition system.	K4	CO2
3	18	Propose a suitable sensor configuration for monitoring engine parameters and explain its operation.	K5	CO2
4	19	Examine the operation of common rail direct injection (CRDI) system and its benefits.	K4	CO4
5	20	Describe the construction and operation of wiper and horn system.	K3	CO3

Z-Z-Z END