

Scheme - G

Sample Test Paper - I

Course Name : Diploma in Automobile Engineering

Course Code : AE

Semester : Sixth

Subject Title : Automotive Electricals and Electronics Systems

Marks : 25

17617

Times: 1 Hour

Instructions:

1. All questions are compulsory.
2. Illustrate your answers with neat sketches wherever necessary.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.

Q1. Attempt any THREE of the following

3x3=9

- a) State the functions of following electrical components.
 - i) Relays
 - ii) solenoids
- b) List any six components of lead acid battery.
- c) State the principle of operation of alternator.
- d) Describe the construction and working of electromagnetic oil pressure gauge.

Q2. Attempt any TWO of the following

4x2=8

- a) State the purpose of fusible links and maxi fuses with neat sketch.
- b) Describe fast rate charging and trickle charging.
- c) Draw the labeled sketch of bendix drive and describe its working.

Q3. Attempt any TWO of the following

4x2=8

- a) Describe open circuit defect test with neat sketch.
- b) Describe battery drain rest with suitable sketch..
- c) How will you identify the electrical and mechanical problem in the starting motor by using free speed test.

Scheme - G

Sample Test Paper - II

Course Name : Diploma in Automobile Engineering

Course Code : AE

Semester : Sixth

Subject Title : Automotive Electricals and Electronics Systems

Marks : 25

17617

Times: 1 Hour

Instructions:

1. All questions are compulsory.
2. Illustrate your answers with neat sketches wherever necessary.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.

Q1. Attempt any THREE of the following.

3x3=9

- a) State the need of ignition system.
- b) State the use of fibre optics in automobile.
- c) Define: i. Trip ii. Drive cycle. iii. Warm up cycle.
- d) Describe the operation of electronic spark timing with block diagram.

Q2. Attempt any TWO of the following.

4x2=8

- a) Describe optical method of triggering of primary circuit with neat sketch.
- b) Describe the operation of park assist system.
- c) Describe the construction and working of oxygen sensor.

Q3. Attempt any TWO of the following.

4x2=8

- a) State functions of camshaft position sensor and cylinder identification sensor.
- b) State the importance of microprocessor in automobile.
- c) How ohmmeter test of an electronic fuel injector is done?

Scheme – G
Sample Question Paper

Course Name : Diploma in Automobile Engineering

Course Code : AE

Semester : Sixth

Subject Title : Automotive Electricals and Electronics Systems

Marks : 100

17617

Times: 3 Hours.

Instructions:

1. All questions are compulsory.
2. Illustrate your answers with neat sketches wherever necessary.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.

Q.1 A) Attempt Any THREE

12 Marks

- a) State the purposes of following electrical components.
i) Buzzers ii) Resistors
- b) Define battery ratings and state its types.
- c) State types and functions of starter drives.
- d) List four components of conventional ignition system and state their functions.

Q.1 B) Attempt Any ONE

06 Marks

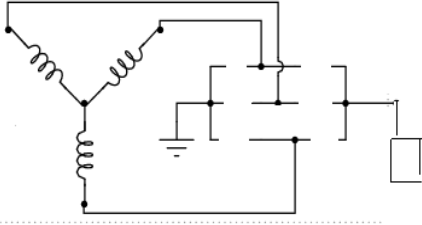
- a) Draw a neat labeled sketch of electromagnetic fuel gauge and describe its construction and working.
- b) State precautions to be taken while jump starting and describe the procedure with neat sketch.

Q.2 Attempt Any FOUR

16 Marks

- a) State the types and functions of switches.
- b) List the various circuit defects and describe working of short circuit with suitable sketch.
- c) Answer the following:
 - i) Identify the figure.

- ii) Redraw the figure with correct position of missing components
- iii) Label all the components.
- iv) Show the direction of current.



- d) Draw the wiring diagram of power window circuit and describe its working.
- e) Define relay and solenoid used in automobile. Draw neat labeled sketch of relay.
- f) Draw the block diagram of starting system and describe its working.

Q.3 Attempt Any FOUR

16 Marks

- a) List common antitheft systems used in modern automobiles. Describe any one in brief.
- b) State the purpose of OBD II. Define the terms drive cycle and trip.
- c) Describe working of automatic resetting type circuit breaker with neat sketch.
- d) State the purpose of following components used in ignition system.
 - i) Spark plug ii) distributor iii) condenser iv) ballast resistor.
- e) State the functions of i) crankshaft position sensor ii) detonation sensor.

Q.4 A) Attempt Any THREE

12 Marks

- a) Describe the operation of automatic door lock system.
- b) State the salient features of keyless entry system.
- c) Describe the construction and working of throttle position sensor.
- d) Describe DTC structure as detected by SAE J 2012.

Q.4 B) Attempt Any ONE

06 Marks

- a) Describe the operation of charge indicator light circuit with simple wiring diagram.
- b) How are the hydrometer and digital voltmeter used to check the state of charge of automotive battery?

Q.5 Attempt Any FOUR**16 Marks**

- a) Draw the block diagram of GPS and label it.
- b) Describe the operation of automatic ON/OFF head light with time delay.
- c) What are the causes and troubles from battery overcharging and undercharging?
- d) Write the procedure for sound test for testing electronic fuel injector.
- e) How alternator voltage and current output are controlled? Describe.
- f) Describe the procedure for testing alternator rotor and stator with neat sketch.

Q.6 Attempt Any FOUR**16 Marks**

- a) Describe construction and working of maintenance free batteries.
- b) How voltage drop test can help to locate starting system troubles?
- c) Differentiate between conventional and electronic ignition systems.
- d) How does Hall Effect switch operate? Describe with neat sketch.
- e) Describe operation of distributor less ignition system with block diagram.

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