Question Bank

Automotive Electrical & Electronics

2033504

1. Define Electrical current.

### Part A -(2-Marks Q/A) Unit-1

The flow of free electrons or the chargers, in the conductor is called as electrical current.The unit of electrical current is ampere.

1. Define Electric voltage.

The force which tends to move the free electrons in a conductor or circuit from one place to another place is called as voltage.

1. Define Electric resistance.

The property of material to oppose the flow of electric current is called resistance.

1. State ohm‘s Law.

A constant temperature, the current flowing through a conducctor is directly proportional to the applied voltage across the conductor.

1. Define magnetic flux.

The total number of lines existing in amagnetic field is called magnetic flux.

1. Define frequency.

The number of cycles completed by the AC quantity in one second the frequency.

1. Define power factor

The power factor is the consine of the phase angle between the applied voltage and the current.

1. What is a motor?

DC motor converts electrical energy in to the mechanical output

1. Why electricity is needed in an automobile.

The electricity is generally needed for operating self starter, putting on light and sounding horn in motor vehicle .Besides this electric sparks is also used to ignite the compressed mixture in the SI Engine.

1. What are the various electrical systems in an automobile?

Charging, statigng, ingnition, lighting and other accessories like wind screen wiper and horn etc.,

### Unit-2

1. Define Battery.
   * The battery is the heart of the electrical system in the automobile
   * The batteries are used to supply the electric current.
2. Write the few purpose of battery.
   * To store electrical energy in chemical form
   * To provide current for operating the crancking motor and other electrical units
3. List the few types of battery.

Lead acid battery, alkaline battery and Zinc battery

1. Define battery efficiency

It is the ability of abattery to deliver current .it depends on temperature and rate of discharge.

1. Define battery Voltage.

The voltage is not affected by the numbers and Size of the plates .The open circuit votageof fully chargeed cell is roughly 2.1 volts.

1. Name the diseases of lead acid battery.

Sulphation, Bulking of container, Internal short circuiting, Run down and overcharging.

1. Name the two methods of chargin the battery Slow charging- Constant current and voltage

Quick charging.

1. What is an Electrolite?

The electrolite is a solution of concentrated sulphuric acid in distilled water is one part of acid in three part of water by volume.

1. What is sulpahtion?

This is the formation of lead sulphate salt on the surface of body the positive and negative plates and is the result of normal discharge actions of the cell.

1. What is the use of hydro meter test?

The hydro meter is used to check the specific gravit y of the electrolite.

**Unit-3**

1. What is the function of dynamo and alternator?

With the help of dynamo and alternator the battery in the vehicles is always kept chargeed and ignition , lighting and all accories are operated.

1. What is the main function of Vehicle generator?

Generator is a device which converts mechanical energy into electrical energy.When it is rotated , it supplies electricity to the vehicle.

1. Mention the application of series motor.

DC series motor as an inverse speed torque characteristics. This mototr is ideally suitable for traction duty in railways, cranes, trolley cranes etc.

1. What is the function of cut outs?

When the runs at a slow speed, less current is provided by the dynamo.during that period inorder to stop the current from going back in thto the dynamo a cuout is used.

1. What is starting motor

The internal engine is not capable of self starting .Automotive engines are cranked by a powerful electric motor .This motor is known as starting or cranking motor.

1. What does generator and motor

The generator converts mechanical energy into electrical energy whereas the motor conversts electrical energy into mechanical energy.

1. What are the functions of the solenoid switch?

A solenoid performs two functions in the cranking circuit-it closes the circuit between the battery and the motor, and additional the solenoid plunger shifts the motor drive mechanism into mesh with the ring gear.

1. What are the advantages of solenoid switch?

The driver has to operate key or push button, which carries a normal amount of current only. The switch is only of light duty type.For heavy current, winding length is reduced.

1. What is mean by iginition timing?

## Unit -4

The setting done to ensure that fuel mixture of air and petrol in a petrol engine ignites at a fixed time or intervel, is known as iginition timing.

1. What is the function of the ignition system?

The function of an ignition system in a petrol engine application is to fire each spark plug in the right order at the right time.

1. What are the different ignintion systems?
   * Battery coil ignintion system- conventional type, Transistorized type.
   * Magnetto igninition system-High tension and low tension
   * Electronic ignition system
2. What is cam angle or dwell andgle.

The cam angle is the number o fdegrees of cam rotation during which the distributor contact points remain closed.

1. What are the functionof CB points?

These points make or break the primary circuit and dby this process low voltage is converted into high voltage.

1. What is the reason for more cam angle?

When the contact point gap is less, the cam angle is increased.

1. What is condensor and their functions.
   * To mininmise the arching and pitting.
   * To intensify the spark.
2. What are the main requirements of good contact breaker?
   * The contact must open and close at the correct time.
   * The contact must close without closing

## Unit-5

1. What is the main purpose of lighting in automobile?

Lighting are used in motor vehicle for a veriety of purpose. The vehicle is driven in night will not have visibilty on road.so lighting is neede to improve visibility of driver.

1. What are the components of lighting system?

Head lamp, parking lamp, Sto p light, rear lamp, reverse indicator roof light door lamp battery ikndicator etc.

1. What is the main pupose of dip switch?

Nowadays dazzling of light is more due to high intensity of light.If dazzling occurs, The light rays will collapse. Together to form a layer. This can be avoided only with the help os dip switch

1. What is halogen head light bulb?

Halogen bulb has ahigher light intensity than normal bulb and obtained by burning the incandesent element at the higher temperature.

1. What is the use of oil pressure guage?

The gauges is used to show the pressure of oil used for lubricating purpose in the vehicle and these gauges acts as awarning device against any likely damage to engine parts due to insufficient lubricating oil.

1. What are the properties of electrical cable?

It should have least electric resistance .efective insulation through outlist olife, it should have high flexibility.

1. What is the use ofo FUSES

They are use d for protecting the electrical equipments and circuits against the effects of excessive current.

### Part B – 16 MARKS

1. With a neat sketch, explain the construction of a lead acid battery.
2. Discuss briefly about how batteries are rated.
3. Explain in detail various tests done on a lead acid battery.
4. Explain constant current method of charging a lead acid battery.
5. Explain constant voltage method of charging a lead acid battery.
6. With neat sketch explain any two types of headlamp.
7. What do you mean by head light dazzling? How can it be prevented?
8. With neat sketch explain the working of any two types of horns.
9. With neat sketch explain the working of wiper system of an automobile.
10. With neat sketch explain the working of trafficators of an automobile
11. Explain the construction and working of three phase induction motor
12. Explain the features and benefits of PLC
13. Explain the constructional details of Lead acid battery
14. Describe the constant current and voltage regulator with a sketch
15. Explain the constructional details of starter motor
16. Describe the overrunning clutch type driving mechanism in detail.
17. Describe the working of battery coil ignition system in detail.
18. Explain the electronic ignition system with a sketch
19. Explain the construction of head lamp.
20. Describe head lamp beam setting and adjustments.
21. Describe the construction and working of oil pressure gauge and fuel gauge.
22. Give the definition for the bellows i) Resistance ii) Magnetic fluxe & Magnetic flux density iii) Reluctance iv) Frequency v) Power factor.
23. Construction and working of D.C generator.
24. Explain the constructional details of Lead – acid Battery.
25. Explain the Axial starter motor showing the first and second contact points with neat sketch.
26. Explain the principle of operations, constructions and working of starting Motor. 27 Explain the ignition advance Mechanism used in petrol Engines.

28 Explain the Electronic ignition system with a sketch.

29. Explain with diagram setting and adjustment of sealed beam head lamp assembly.