

# **32144 - AUTOTRONICS**

## **1. BASIC ELECTRICITY AND MAGNETISM**

### **Part – A & Part - B**

1. State Ohm's law?
2. Define current, charge, EMF?
3. Define electric resistance?
4. Explain short circuit & open circuit?
5. Define electromagnetism, voltage, potential difference?
6. Define electrical permeability, electrical resistance?
7. State Faraday's law?
8. State Kirchoff's law?
9. State Fleming right and left hand rule?
10. State electron theory of current flow?
11. State conventional theory of current flow?
12. List the properties of conductors and insulators?
13. Define Power factor, semiconductor?
14. Define frequency, electricity?
15. Define RMS value?
16. Define wavelength, amplitude, and time period?
17. Define electromagnetic induction?

### **Part –C**

1. Explain about Fleming's left and right hand rule?
2. Explain about parallel and series circuits with load and source?
3. Write short notes on Peak average, RMS value, frequency and power factor?
4. Explain the application of electromagnetism in an automobile?
5. Explain the theory of current flow with circuit diagram?
6. Explain about importance of earthings on chassis in automotive wiring?
7. Discuss resistance and resistivity of conductors?

## **2. BATTERY AND IGNITION SYSTEM**

### **Part – A & Part - B**

1. Define battery?
2. Explain about lead acid battery?
3. Explain about battery rating, battery testing?
4. Define battery charging explain the methods of charging?
5. What are the types of ignition system?
6. What are the difference between main battery coil and magnetic coil ignition system?
7. Explain about spark plug and its types?

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8. What is the importance of ignition timing?
9. What is the setting of ignition timing?
10. Mention the types of ignition advance mechanism?
11. Mention the main parts of generator?
12. What is an alternator generator?
13. Explain vacuum advance mechanism?

### **Part –B**

1. Mention various battery charging methods and explain any two?
2. Explain the working of electronic ignition system?
3. Explain about Magneto coil ignition system centre?
4. Explain any two types of battery testing method?
5. Explain the construction of lead acid battery and its working?
6. Explain about automobile electrical system?
  1. Starting system
  2. Ignition system
  3. Lighting system
  4. Charging system.

### **3. ELECTRICAL MACHINES**

#### **Part – A & Part – B**

1. What is generator explain its purpose?
2. What is field winding and what is armature winding?
3. Define armature brushes, brush bedding?
4. Explain spring tension undercutting skimming commutator?
5. What is alternator explain its purpose?
6. What is stator winding rotor winding?
7. List the advantages of alternator troubleshooting in alternator and armature?
8. What is regulator explain its needs?
9. Explain about cut out or reverse cutout relay?
10. What is compensated voltage regulator?
11. Explained troubleshooting in regulator?
12. Define dynamo and its principle?
13. Define starter motor and its needs principle of working?
14. What is bendix drive?
15. What is overrunning clutch, coaxial drive?
16. Explain the troubleshooting in electric starting circuit?

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### **Part – C**

1. What are the difference between generator and alternator?
2. Illustrate the electric starting circuit for two wheelers?
3. Explain the construction of generator and its working?
4. Explain about construction and working of alternator?
5. Explain about starting motor?
6. Explain about troubles in alternator and it's causes and remedies?
7. Explain about trouble scene regulator and its causes and remedies?
8. Explain about troubles, causes & remedies of starting motor?

### **4. LIGHTING, LAMP, HORN, GAUGE, WIRING**

#### **Part – A & Part – B**

1. What is lighting system and its purpose?
2. Define main head lamp, halogen lamp, sealed beam, dip switch?
3. Define beam indicator, traffic indicators?
4. What is horn, hum relay horror tuning?
5. List trouble in foreign?
6. What is oil pressure cooling water ii temperature cards feel chords?
7. What is radio interference suppresses?
8. Explain about audio system windscreen wiper?
9. Explain about troubleshooting in pneumatic type windscreen wipers?
10. What is single pole, double pole, fuses?
11. What is circuit breaker?

#### **Part – C**

1. Explain about different types of fuel gauge?
2. Explain in detail about head lamp, beam indicator?
3. Explain the electrically operated system of window glass panel?
4. Describe the construction and working of horn?
5. Explain about the method of head lamp setting and adjusting?
6. Explain the construction and working of fuel gauge?

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### **5. ENGINE BASIC ELECTRONICS AND COMPUTER APPLICATION MAIN IN AUTOMOBILE**

#### **Part – A & Part - B**

1. What is semiconductor and its materials?
2. Define p-type, n-type semiconductor?
3. Define junction diode?
4. What is forward and reverse bias, knee voltage?
5. Explain about maximum forward current and reverse breakdown voltage?
6. What is zener diode transistors?
7. What is half wave & full wave rectifier?
8. Explain about logic gates?
9. What are the sensors used in automobiles?
10. Define ECU?
11. What is the concept of CPU and Computer memory used in automobiles?

#### **Part – C**

1. Draw and explain the characters of PN junction diode?
2. Explain about full wave and half wave rectifier?
3. Illustrate the uses of full flow sensor?
4. Explain the working of ECU?
5. Explain the logic gates?
6. Write brief notes about sensor and its types?
7. Write brief about on board diagram system?
8. Explain about security and warning system