

# **SRM VALLIAMMAI ENGINEERING COLLEGE**

(An Autonomous Institution)

SRM Nagar, Kattankulathur– 603203.

## **DEPARTMENT OF MECHANICAL ENGINEERING**

### **QUESTIONBANK**



### **VII SEMESTER**

**1909707 AUTOMOBILE ENGINEERING**

**Regulation–2019**

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*Prepared by*

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## DEPARTMENT OF MECHANICAL ENGINEERING 1909707 AUTOMOBILE ENGINEERING QUESTION BANK

### UNIT-I VEHICLE STRUCTURE AND ENGINES

Types of automobiles vehicle construction and different layouts, chassis, frame and body, Vehicle aerodynamics (various resistances and moments involved), IC engines –components-functions and materials, variable valve timing (VVT).

#### PART-A (2 Marks)

Q.No.	Questions	BT Level	Competence
1.	Define Automobile. Give the typical specifications of an automobile.	BT-1	Remembering
2.	How automobile is classified on the basis of type of wheel drive?	BT-2	Understanding
3.	List out the main components of automobiles.	BT-2	Understanding
4.	Difference between Diesel engine and Petrol engine.	BT-2	Understanding
5.	How crankshafts usually made?	BT-2	Understanding
6.	Define chassis, frame, body and suspension.	BT-1	Remembering
7.	List out the functions of a frame.	BT-1	Remembering
8.	Identify the types of sections used to make the frames.	BT-1	Remembering
9.	List of the forces acting on a chassis frame.	BT-1	Remembering
10.	What are the advantages of diesel engines in cars?	BT-1	Remembering
11.	What is chassis? How its design is related to vehicle aerodynamics?	BT-2	Understanding
12.	Why petrol engines are preferred for two wheelers?	BT-2	Understanding
13.	State the advantage of Uni body construction over Body on frame.	BT-2	Understanding
14.	Why are rings provided on piston?	BT-1	Remembering
15.	List out the methods of cooling in IC engines.	BT- 1	Remembering
16.	What is meant by lubrication?	BT-1	Remembering
17.	State the requirements of bodies for various types of vehicles.	BT-1	Remembering

18.	What is the material used for construction of piston and piston-ring?	BT-1	Remembering
19.	What is referred as variable valve timing?	BT-1	Remembering
20.	Point out the different methods of variable valve timing.	BT-1	Remembering
21.	State the difference between carburetor and fuel injector	BT-2	Understanding
22.	What is the need for gearbox in an automobile?	BT-2	Understanding
23.	State the factors that affect the rolling resistance of a vehicle.	BT-1	Remembering
24.	Name the different kind of resistances to vehicle motion.	BT-2	Understanding
25.	Differentiate between Coupe and Sedan car body types.	BT-2	Understanding

<b>PART-B (13 Marks)</b>				
<b>Q.No</b>	<b>Questions</b>	<b>Marks</b>	<b>BT Level</b>	<b>Competence</b>
<b>1</b>	Discuss the factors that affect the resistances to vehicle motion.	13	BT-1	Remembering
<b>2</b>	What are the main components of an automobile? Describe all of them briefly.	13	BT-2	Understanding
<b>3</b>	Explain integral and semi-integral type vehicle body construction.	13	BT-2	Understanding
<b>4</b>	Draw the layout of four-wheel drive and list its advantages and disadvantages.	13	BT-2	Understanding
<b>5</b>	Explain briefly the various types of chassis construction with the help of suitable diagram.	13	BT-2	Understanding
<b>6</b>	Explain briefly about vehicle aerodynamics.	13	BT-2	Understanding
<b>7</b>	Explain with suitable sketches: valve timing diagrams for Otto and Diesel engines.	13	BT-2	Understanding
<b>8</b>	a) Write short notes about sub frames and defect in frames.	6	BT-2	Understanding
	b) Draw and explain about frameless construction.	7	BT-2	Understanding
<b>9</b>	Draw schematic diagrams showing the layout of the transmission system of a rear wheel driven car and also of a four wheel drive vehicle.	13	BT-2	Understanding
<b>10</b>	a) What are the normal frame defects?	6	BT-2	Understanding
	b) List the various requirements of automobile body.	7	BT-2	Understanding

11	What is meant by variable valve timing? Discuss on the technologies in use.	13	BT-1	Remembering
12	Compare Spark Ignition engine and Compression Ignition engine.	13	BT-2	Understanding
13	Explain about all wheel drive with suitable sketch	13	BT-2	Understanding
14	Draw a neat diagram of an IC engine and explain some important parts.	13	BT-2	Understanding
15	Explain the construction of various frames used in automobiles with neat sketch.	13	BT-2	Understanding
16	Explain vehicle experiences different resistance in its motion.	13	BT-2	Understanding
17	List the engine parts with their functions, materials and method of its manufacture with neat sketch.	13	BT-2	Understanding
18	Draw a simple sketch of a solid frame with front engine and rear drive. Locate major components of the engine on the frame.	13	BT-2	Understanding

<b>PART-c (15 Marks)</b>				
<b>S.No</b>	<b>Questions</b>	<b>Marks</b>	<b>BT Level</b>	<b>Competence</b>
1	How do you check the alignment of chassis frame? Explain clearly.	15	BT-4	Analyzing
2	With neat diagram explain components and drive system in an automobile chassis.	15	BT-4	Analyzing
3	Explain about the various aerodynamics forces and its influenced moments acting on a fast-moving passenger car.	15	BT-4	Analyzing
4	List out at least six IC engine components and mention their functioning, material they are made up of and a schematic of the same.	15	BT-4	Analyzing
5	Give reasons (i) For using single cylinder two stroke petrol engines on two wheelers. (ii) For using multi cylinder diesel engines in commercial vehicles.	15	BT-4	Analyzing

## UNIT-II ENGINE AUXILIARY SYSTEMS

Electronically controlled gasoline injection system for SI engines, Electronically controlled diesel injection system (Unit injector system, Rotary distributor type and common rail direct injection system), Electronic ignition system (Transistorized coil ignition system, capacitive discharge ignition system), Turbo chargers (WGT, VGT), Engine emission control by three way catalytic converter system, Emission norms (Euro and BS).

### PART-A (2 Marks)

Q.No.	Questions	BT Level	Competence
1.	What is Gasoline direct injection?	BT-2	Understanding
2.	Define common rail direct injection system.	BT-2	Understanding
3.	Summarize the function of fuel supply system.	BT-2	Understanding
4.	Define electronic ignition system.	BT-2	Understanding
5.	Write the functions of Turbo chargers.	BT-2	Understanding
6.	List out the advantages of petrol injection.	BT-1	Remembering
7.	Define super charging.	BT-2	Understanding
8.	What is meant by carburetion in IC engine?	BT-1	Remembering
9.	List out the components of Multi point fuel injection system.	BT-1	Remembering
10.	State the advantages of electronic ignition system using contact breaker.	BT-2	Understanding
11.	Summarize the main pollutants from diesel engine.	BT-2	Understanding
12.	Why the engine emissions to be controlled?	BT-2	Understanding
13.	Name four major parts that forms as exhaust system in an automobile system.	BT-2	Understanding
14.	Mention the methods controlling smoke from diesel engine.	BT-2	Understanding
15.	What is known as smog in an automobile?	BT-2	Understanding
16.	Express the methods to clean the exhaust gas.	BT-2	Understanding
17.	Write the purpose of catalytic converter.	BT-1	Remembering
18.	Point out the basic requirements of a catalytic converter.	BT-1	Remembering
19.	What happens in a catalytic converter?	BT-2	Understanding
20.	What is known as 'EURO NORMS'?	BT-1	Remembering
21.	Why do we need to use superchargers in engines?		

22.	State the difference between turbocharger and supercharger.	BT-1	Remembering
23.	Differentiate between battery and magneto ignition system.	BT-1	Remembering
24.	What is the sequence of operation in unit injector?	BT-1	Remembering
25.	What is main purpose of fuel injection system in CI engine?	BT-1	Remembering

<b>PART-B (13 Marks)</b>				
<b>Q.No</b>	<b>Questions</b>	<b>Marks</b>	<b>BT Level</b>	<b>Competence</b>
<b>1</b>	List the various parts of the fuel feed system of a car and draw a line diagram showing these parts in respective position.	13	BT-1	Remembering
<b>2</b>	Sketch and explain the construction and operation of a simple carburettor.	13	BT-2	Understanding
<b>3</b>	Illustrate with a sketch the working of a Unit injector system.	13	BT-3	Applying
<b>4</b>	Explain in detail the working of rotary distribution type fuel injection system.	13	BT-2	Understanding
<b>5</b>	What is Common Rail Direct Ignition (CRDI) system and explain with a suitable sketch and write its advantages and disadvantages of CRDI?	13	BT-3	Applying
<b>6</b>	Explain with a suitable sketch the working of a Transistorized Coil Ignition (TCI) system and write its advantages and disadvantages of the TCI system.	13	BT-5	Evaluating
<b>7</b>	Explain with a suitable sketch the working of a Capacitor Discharge Ignition (CDI) system and write its advantages and disadvantages of the CDI system?	13	BT-2	Understanding
<b>8</b>	Explain the working of variable geometry turbocharger (VGT), with a neat sketch.	13	BT-2	Understanding
<b>9</b>	Explain the working of Waste gate turbocharger (WGT), with a neat sketch.	13	BT-2	Understanding
<b>10</b>	a) Write short notes on air pollution and its pollutants.	6	BT-2	Understanding
	b) How air pollution can be controlled?	7	BT-2	Understanding
<b>11</b>	Explain about the Engine emission control by three way catalytic converter system.	13	BT-1	Remembering
<b>12</b>	Discuss on exhaust emission control from automobiles.	13	BT-2	Understanding
<b>13</b>	What is EGR? Explain the system with suitable sketch?	13	BT-2	Understanding

<b>14</b>	What are the major pollutants in exhaust gases from automobile? Discuss in EURO III and EURO IV.	13	BT-2	Understanding
<b>15</b>	With a neat sketch explain the electronically controlled gasoline injection system for SI engine.	13	BT-2	Understanding
<b>16</b>	How electronically controlled unit diesel injector system function?	13	BT-2	Understanding
<b>17</b>	Explain engine emission control by three-way catalytic converter system.	13	BT-2	Understanding
<b>18</b>	Explain the construction and working of Turbocharger with a neat sketch.	13	BT-2	Understanding

<b>PART-C (15 Marks)</b>				
<b>S.No</b>	<b>Questions</b>	<b>Marks</b>	<b>BT Level</b>	<b>Competence</b>
<b>1</b>	Enlist the common troubles experienced in the fuel supply of an engine. Locate their possible causes and suggest measures to remedy these.	15	BT-4	Analyzing
<b>2</b>	What is the reason that use of super chargers for automotive use is not common although when supercharged, the engine gives more H.P.?	15	BT-4	Analyzing
<b>3</b>	Describe clearly any method of remote sensing emission level of a moving vehicle and write the operation of exhaust gas analyser with a suitable sketch.	15	BT-4	Analyzing
<b>4</b>	Discuss on 'EURO NORMS' and emission norms for Passenger cars.	15	BT-4	Analyzing
<b>5</b>	Discuss on 'EURO NORMS' and emission norms for Two / Three Wheelers.	15	BT-4	Analyzing

### UNIT-III TRANSMISSION SYSTEMS

Clutch-types and construction, gear boxes- manual and automatic, gear shift mechanisms, Over drive, transfer box, fluid flywheel, torque converter, propeller shaft, slip joints, universal joints, Differential and rear axle, Hotchkiss Drive and Torque Tube Drive.

#### PART-A (2 Marks)

Q.No.	Questions	BT Level	Competence
1.	List out the various components in transmission system.	BT-1	Remembering
2.	Express the functions of transmission system.	BT-1	Remembering
3.	Define clutch.	BT-2	Understanding
4.	What are the types of clutch?	BT-2	Understanding
5.	State the requirements of an automotive clutch.	BT-2	Understanding
6.	Identify the need of gear box in automobile.	BT-1	Remembering
7.	Define tractive effort.	BT-2	Understanding
8.	What is an over drive?	BT-1	Remembering
9.	What is a universal joint and write its types?	BT-1	Remembering
10.	Express the clutch slippage.	BT-2	Understanding
11.	Define cone clutch.	BT-3	Applying
12.	List out the advantages of diaphragm clutch.	BT-3	Applying
13.	How is reverse gear obtained in the normal type of gear box?	BT-2	Understanding
14.	What is the principle of a “synchromesh” gear box?	BT-5	Evaluating
15.	Summarize the function of the free wheel in over drive.	BT-2	Understanding
16.	List out the various universal joints in use.	BT-2	Understanding
17.	What is trunion?	BT-1	Remembering
18.	Identify the specific purpose of Hotchkiss and torque tube drive.	BT-1	Remembering
19.	What will happen if differential is not used?	BT-2	Understanding
20.	List out the functions of front axle.	BT-1	Remembering



21.	State the forces act on the rear axle.	BT-2	Understanding
22.	What is the use of torque convertor?	BT-2	Understanding
23.	What is the function of a propeller shaft?	BT-2	Understanding
24.	State the functions of slip joint.	BT-2	Understanding
25.	What is a fluid coupling?	BT-2	Understanding

<b>PART-B (13 Marks)</b>				
<b>Q.No</b>	<b>Questions</b>	<b>Marks</b>	<b>BT Level</b>	<b>Competence</b>
<b>1</b>	Explain clearly the necessity of a transmission in a vehicle.	13	BT-1	Remembering
<b>2</b>	Describe the working of a “single plate clutch” with a neat sketch and write its advantages and disadvantages.	13	BT-2	Understanding
<b>3</b>	Describe the construction and working of the following: <ul style="list-style-type: none"> <li>• Cone clutch</li> <li>• Multi plate clutch</li> </ul>	13	BT-3	Applying
<b>4</b>	Describe the following clutch operation with a neat sketch <ul style="list-style-type: none"> <li>• Mechanical operation clutches</li> <li>• Vacuum operated clutch</li> </ul>	13	BT-2	Understanding
<b>5</b>	With the help of a neat sketch, explain the construction and operation of a sliding mesh gearbox.	13	BT-3	Applying
<b>6</b>	With the help of a neat sketch, explain the construction and operation of a constant mesh gearbox.	13	BT-3	Applying
<b>7</b>	Briefly describe the construction and working of a fluid coupling.	13	BT-2	Understanding
<b>8</b>	a) Write overdrive troubles and their causes.	6	BT-3	Applying
	b) Comparison between the fluid fly wheel and torque converter.	7	BT-2	Understanding
<b>9</b>	Explain the construction and working principle of propeller shaft.	13	BT-5	Evaluating
<b>10</b>	Explain the construction and working of a differential with a neat sketch	13	BT-2	Understanding
<b>11</b>	What is universal joint? And explain the different types of universal joints with a neat sketch.	13	BT-1	Remembering

<b>12</b>	What is a CVT? Describe? Describe its principle of working in detail with the help of simple diagrams; discuss also its main advantages and limitations.	13	BT-1	Remembering
<b>13</b>	Explain briefly, with neat sketches of the following: <ul style="list-style-type: none"> <li>• Torque tube drive</li> <li>• Hotchkiss drive</li> </ul>	6 7	BT-2	Understanding
<b>14</b>	Explain the Half floating rear axle with neat sketches.	13	BT-2	Understanding
<b>15</b>	Explain the semi centrifugal clutch with neat sketch.	13	BT-2	Understanding
<b>16</b>	Explain the Fully floating rear axle with neat sketches.	13	BT-2	Understanding
<b>17</b>	Explain the Three-quarter floating rear axle with neat sketches.	13	BT-2	Understanding
<b>18</b>	Explain the working principle of hotch kiss drive with neat sketch.	13	BT-2	Understanding

<b>PART-C (15 Marks)</b>				
<b>S.No</b>	<b>Questions</b>	<b>Marks</b>	<b>BT Level</b>	<b>Competence</b>
<b>1</b>	What is the necessity of a gear box at all in the automobile when the engine speed can be varied by means of accelerator?	15	BT-4	Analyzing
<b>2</b>	A sliding mesh type of gear box with forward speeds only is to be designed. The gear box should have the following gear ratios available approximately: 1.0, 1.5, 2.5 and 3.9. the centre distance between the layshaft and the main shaft is 78 mm and the smallest gear is to have at least 16 teeth with a diametral pitch of 3.25 mm. calculate the number of teeth of the various gears and the exact gear ratios thus available.	15	BT-4	Analyzing
<b>3</b>	Explain the common troubles encountered in gear boxes and suggest suitable remedies.	15	BT-4	Analyzing
<b>4</b>	Write a comprehensive note on 'zero shift' transmission technology.	15	BT-4	Analyzing
<b>5</b>	Make a detailed comparison of various types of automotive transmissions.	15	BT-4	Analyzing

## UNIT-IV STEERING, BRAKES AND SUSPENSION SYSTEMS

Steering geometry and types of steering gear box-Power Steering, Types of Front Axle, Types of Suspension Systems, Pneumatic and Hydraulic Braking Systems, Antilock Braking System (ABS), electronic brake force distribution (EBD) and Traction Control.

### PART-A (2 Marks)

Q.No.	Questions	BT Level	Competence
1.	What is meant by centre point steering?	BT-2	Understanding
2.	Why is camber angle provided?	BT-2	Understanding
3.	Express the purpose of steering linkage.	BT-2	Understanding
4.	Define power steering.	BT-2	Understanding
5.	List out the function of a braking system.	BT-2	Understanding
6.	Identify the functions of brake lining.	BT-1	Remembering
7.	List out the advantages of disc brake.	BT-2	Understanding
8.	What is pitching in the suspension system?	BT-1	Remembering
9.	Define wishbone.	BT-1	Remembering
10.	Express the causes of poor brakes.	BT-2	Understanding
11.	Point out the functions of break shoe.	BT-3	Applying
12.	What do you mean by “Independent suspension”?	BT-3	Applying
13.	What is bouncing in the suspension system?	BT-2	Understanding
14.	How are leaf spring lubricated?	BT-1	Remembering
15.	How is shock absorber fitted in the vehicle?	BT-2	Understanding
16.	List out the functions of the shock absorber.	BT-1	Remembering
17.	What is a slave cylinder?	BT-1	Remembering
18.	Point out the main parts of the air braking system.	BT-1	Remembering
19.	Summarize about anti-lock system in brakes.	BT-1	Remembering
20.	Mention the benefits of anti-lock brake system.	BT-1	Remembering

21.	Define caster and camber.	BT-1	Remembering
22.	Define king pin inclination.	BT-1	Remembering
23.	What is the purpose of Toe -in and Toe-out?	BT-1	Remembering
24.	What is meant by bleeding of brakes?	BT-1	Remembering
25.	What do you understand by Traction control?	BT-1	Remembering

<b>PART-B (13 Marks)</b>				
<b>Q.No</b>	<b>Questions</b>	<b>Marks</b>	<b>BT Level</b>	<b>Competence</b>
<b>1</b>	Sketch and explain the layout of steering system.	13	BT-1	Remembering
<b>2</b>	Explain the Ackermann steering mechanism and Davis steering mechanism with a neat sketch.	13	BT-2	Understanding
<b>3</b>	Define and explain the following front wheel alignment factors: <ul style="list-style-type: none"> <li>• Camber</li> <li>• Caster</li> <li>• King-pin inclination</li> </ul>	13	BT-3	Applying
<b>4</b>	Describe the construction and operation of power steering.	13	BT-2	Understanding
<b>5</b>	What is front axle? Write its functions and explain the types of front axles.	13	BT-3	Applying
<b>6</b>	Explain the construction and working of mechanical brakes with a neat sketch.	13	BT-5	Evaluating
<b>7</b>	What is anti-lock braking system and explain the need and functioning of ABS with a neat sketch.	13	BT-2	Understanding
<b>8</b>	Write the principle of Braking and coefficient of friction.		BT-3	Applying
	Describe the following: <ul style="list-style-type: none"> <li>• Stopping distance</li> <li>• Braking performance</li> <li>• Braking efficiency.</li> </ul>	13	BT-2	Understanding
<b>9</b>	Explain hydraulic brake with a neat sketch and write its advantages.	13	BT-2	Understanding
<b>10</b>	a) What is the necessity of a braking system?	6	BT-2	Understanding
	b) Explain the function of master cylinder in hydraulic brakes?	7	BT-4	Analyzing

<b>11</b>	Sketch and explain the working of telescopic hydraulic shock absorber and point out the effect does their action have on the working of springs?	13	BT-1	Remembering
<b>12</b>	Explain the functions of rear wheel suspension system.	13	BT-1	Remembering
<b>13</b>	State the advantages and disadvantages of independent suspension over rigid axle type suspension.	13	BT-2	Understanding
<b>14</b>	Describe the Macpherson strut assembly of independent suspension system with a neat sketch.	13	BT-2	Understanding
<b>15</b>	Explain the working of rear independent suspension system with neat sketch.	13	BT-2	Understanding
<b>16</b>	Explain with the help of simple diagram the different types of stub axles.	13	BT-2	Understanding
<b>17</b>	What are the objectives and components of suspension system?	13	BT-2	Understanding
<b>18</b>	Explain the steering geometry with neat sketch.	13	BT-2	Understanding

<b>PART-C (15 Marks)</b>				
<b>S.No</b>	<b>Questions</b>	<b>Marks</b>	<b>BT Level</b>	<b>Competence</b>
<b>1</b>	Explain the probable causes of various steering troubles and suggest suitable remedies.	15	BT-4	Analyzing
<b>2</b>	Discuss thoroughly the procedure for bleeding of hydraulic brakes.	15	BT-4	Analyzing
<b>3</b>	Discuss how various defects are caused in the braking system of automobiles. Suggest also suitable remedies.	15	BT-4	Analyzing
<b>4</b>	Why springs are provided in automobile transmission? And explain briefly the following springs: <ul style="list-style-type: none"> <li>• Leaf springs</li> <li>• Coil springs</li> <li>• Rubber springs</li> </ul>	15	BT-4	Analyzing
<b>5</b>	Explain the Ackerman principle of steering with neat sketch.	15	BT-2	Understanding

**UNIT-V ELECTRICAL AND ELECTRONIC SYSTEMS**

Introduction to Battery, Alternator, and Starter Motor systems, working principle, and circuitry, Safety systems - seat belts, air-bag, ABS, Modern electronic features in vehicles like tyre pressure monitoring, ESP, EBD, Automatic headlamp ON, Rain sensing wipers, speed sensing auto locking, OBD. HVAC system.

**PART-A (2 Marks)**

<b>Q.No.</b>	<b>Questions</b>	<b>BT Level</b>	<b>Competence</b>
1.	Define Battery.	BT-1	Remembering
2.	Write the few purposes of battery.	BT-1	Remembering
3.	List the few types of battery.	BT-1	Remembering
4.	Define battery efficiency	BT-2	Understanding
5.	Define battery Voltage.	BT-2	Understanding
6.	Name the diseases of lead acid battery.	BT-1	Remembering
7.	Name the two methods of charging the battery	BT-2	Understanding
8.	What is an Electrolyte?	BT-1	Remembering
9.	What is the use of hydrometer test?	BT-1	Remembering
10.	What is the function of dynamo and alternator?	BT-2	Understanding
11.	What is the main function of Vehicle generator?	BT-3	Applying
12.	Mention the application of series motor.	BT-3	Applying
13.	What are the functions of the solenoid switch?	BT-2	Understanding
14.	What is the main purpose of lighting in automobile?	BT-2	Understanding
15.	What are the components of lighting system?	BT-2	Understanding
16.	What is halogen head light bulb?	BT-2	Understanding
17.	What is the main purpose of dip switch?	BT-1	Remembering
18.	What is the use of oil pressure gauge?	BT-1	Remembering
19.	What are the properties of electrical cable?	BT-2	Understanding
20.	What is the use of FUSES?	BT-1	Remembering
21.	Define Electric voltage.	BT-1	Remembering

22.	Define Electric resistance	BT-1	Remembering
23.	Define magnetic flux.	BT-1	Remembering
24.	What is a motor?	BT-1	Remembering
25.	Why electricity is needed in an automobile.	BT-1	Remembering

<b>PART-B (13 Marks)</b>				
<b>Q.No</b>	<b>Questions</b>	<b>Marks</b>	<b>BT Level</b>	<b>Competence</b>
<b>1</b>	With a neat sketch, explain the construction of a lead acid battery.	13	BT-1	Remembering
<b>2</b>	Discuss briefly about how batteries are rated.	13	BT-2	Understanding
<b>3</b>	Explain in detail various tests done on a lead acid battery.	13	BT-3	Applying
<b>4</b>	Explain constant current method of charging a lead acid battery.	13	BT-2	Understanding
<b>5</b>	Explain constant voltage method of charging a lead acid battery.	13	BT-3	Applying
<b>6</b>	With neat sketch explain any two types of headlamps.	13	BT-5	Evaluating
<b>7</b>	What do you mean by head light dazzling? How can it be prevented?	13	BT-2	Understanding
<b>8</b>	With neat sketch explain the working of any two types of horns.	13	BT-3	Applying
<b>9</b>	With neat sketch explain the working of wiper system of an automobile.	13	BT-2	Understanding
<b>10</b>	With neat sketch explain the working of trafficators of an automobile.	13	BT-2	Understanding
<b>11</b>	Explain the construction and working of three phase induction motor.	13	BT-1	Remembering
<b>12</b>	Describe the constant current and voltage regulator with a sketch.	13	BT-1	Remembering
<b>13</b>	Explain the constructional details of starter motor.	13	BT-2	Understanding
<b>14</b>	Explain the construction of head lamp.	13	BT-2	Understanding
<b>15</b>	Describe head lamp beam setting and adjustments.	13	BT-2	Understanding
<b>16</b>	Construction and working of D.C generator.	13	BT-2	Understanding

<b>17</b>	Explain the Axial starter motor showing the first and second contact points with neat sketch.	13	BT-2	Understanding
<b>18</b>	Explain the principle of operations, constructions and working of starting Motor.	13	BT-2	Understanding
<b>PART-C (15 Marks)</b>				
<b>S.No</b>	<b>Questions</b>	<b>Marks</b>	<b>BT Level</b>	<b>Competence</b>
<b>1</b>	Draw a simplified circuit of a lighting system showing the side- and headlight bulbs, light switch, dip switch and main beam warning light.	15	BT-4	Analyzing
<b>2</b>	Explain why EMC is such an important issue for automotive electronic system designers.	15	BT-4	Analyzing
<b>3</b>	Give the definition for the bellows i) Resistance ii) Magnetic flux & Magnetic flux density iii) Reluctance iv) Frequency v) Power factor.	15	BT-4	Analyzing
<b>4</b>	Describe the construction and working of oil pressure gauge and fuel gauge.	15	BT-4	Analyzing
<b>5</b>	Explain the reason why headlights are fused independently.	15	BT-4	Analyzing

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