

THEORY 1 st - IN-SEM EXAMINATION			
SESSION: 2022-23 (SUMMER SEMESTER)			
B.Voc/M.Voc	B.Voc	Semester	1st
Course name / Module	Basics of Automobile		
Course code	AUT1115 (OPEN ELECTIVE)		
Date			
Name of the Student		Reg. No.	

INSTRUCTIONS

- Maximum Marks: **20**
- Duration of Examination: **01 Hour**
- Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)

05×1 = 05

- Piston's bottom most position during the piston movement inside the cylinder block is called _____
 - BDC
 - Bore
 - TDC
 - Stroke
- Horse power is _____
 - Ability of horse to run
 - Unit of Power
 - Unit of Torque
 - None of above
- Which of the following does not relate to spark ignition engine:
 - Spark plug
 - Carburetor
 - Fuel Injector
 - Ignition coil
- Gasoline engines are.....than diesel engines. and Petrol engine can be classified under which following category:
 - Lighter
 - unpredictable
 - heavier
 - none of the mentioned
- Diesel engine are mostly found in applications where high engine:
 - Torque is required
 - Power is required
 - Both
 - None of the above

2. Section B (03 short answer type questions, each question carries 02 marks)

03×02 = 06

Q6 Write application/function of crankshaft and camshaft in IC Engine.

Q7. Write different types of engine cooling system.

Q8. What are the differences Between 4 stroke and 2 stroke Engines.

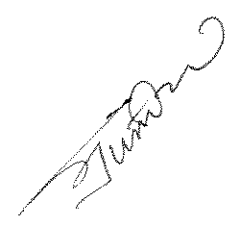
3. Section C (03 long type questions, each question carries 03 marks)

03×03 = 09

Q9. Explain the working of four stroke Diesel engine used in Automobiles.

Q10. Write down the types of Automobile based on application.

Q11. Differentiate between front engine front drive and rear engine rear drive with diagram?



THEORY 1 st - IN-SEM EXAMINATION			
SESSION: 2022-23 (SUMMER SEMESTER)			
B.Voc/M.Voc	B.Voc	Semester	1st
Course name / Module	Basics of Automobile		
Course code	AUT1115 (OPEN ELECTIVE)		
Date			
Name of the Student		Reg. No.	

INSTRUCTIONS
<ul style="list-style-type: none"> • Maximum Marks: 20 • Duration of Examination: 01 Hour • Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)	05×1 = 05
--	------------------

- Piston's bottom most position during the piston movement inside the cylinder block is called _____
 - BDC
 - Bore
 - TDC
 - Stroke
- Horse power is _____
 - Ability of horse to run
 - Unit of Power
 - Unit of Torque
 - None of above
- Which of the following does not relate to spark ignition engine:
 - Spark plug
 - Carburetor
 - Fuel Injector
 - Ignition coil
- Gasoline engines are.....than diesel engines. and Petrol engine can be classified under which following category:
 - Lighter
 - unpredictable
 - heavier
 - none of the mentioned
- Diesel engine are mostly found in applications where high engine:
 - Torque is required
 - Power is required
 - Both
 - None of the above

2. Section B (03 short answer type questions, each question carries 02 marks)	03×02 = 06
--	-------------------

Q6 Write application/function of crankshaft and camshaft in IC Engine.

Ans: A camshaft uses egg-shaped "cams" to open and close engine valves (one cam per valve), while a crankshaft converts "cranks" (the up/down motion of the pistons) to rotational motion

Q7. Write different types of engine cooling system.

Ans: Air cooling and water cooling system

Q8. Difference Between 4 stroke and 2 stroke Engine.

Two Strokes	Four Strokes
It has one revolution of the crankshaft during one power stroke	It has two revolutions of the crankshaft during one power stroke
It generates high torque	It generates less torque
Its uses port for fuel's outlet and inlet	It uses valves for outlet and inlet of a fuel
Its engines result in lesser thermal efficiency	Its engines result in higher thermal efficiency
It has a larger ratio in terms of power to weight	It has a lesser ratio in terms of power to weight
It generates more smoke and shows less efficiency	It generates less smoke and shows more efficiency
Requires more lubricating oil as some oil burns with the fuel	Requires less lubricating oil
Due to poor lubrication, more wear and tear occurs	Less wear and tear occurs
Engines are cheaper and are simple for manufacturing	Engines are expensive due to lubrication and valves and are tough to manufacture
Engines are basically lighter and are noisy	Engines are basically heavier because its flywheel is heavy and are less noisy

3. Section C (03 long type questions, each question carries 03 marks)

03×03 = 09

Q9. Explain the working of four stroke Diesel engine used in Automobiles

Ans: **Working principle of IC engine:**

1. Suction stroke: During this stroke, the inlet valve is open and the exhaust valve is closed. Only air is sucked into the cylinder during this stroke. The piston moves from TDC to BDC and the crankshaft rotates through 180° .
2. Compression Stroke: The air inducted in the cylinder is compressed to the clearance volume. Both valves are closed during this stroke. The piston moves from BDC to TDC and the crankshaft rotates through 360° .
3. Power stroke or Working stroke: At the end of the compression stroke the fuel (diesel) is injected into the hot compressed air. The rate of injection is such that pressure remains constant instead of the change in the piston position. After injection of the fuel is complete the hot gases expand. The piston moves from TDC to BDC position and the crankshaft rotates through 540° .

4. Exhaust Stroke: The inlet valve remains closed and the exhaust valve opens. The piston moves from BDC to TDC position which pushes the burnt gases outside the combustion chamber. The crankshaft rotates by two complete revolutions through 720° .

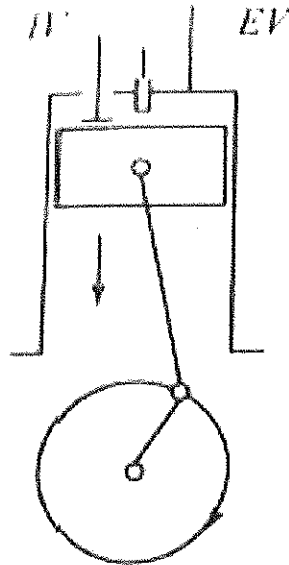


Figure: Working principle of four – stroke C. I. engine

Q10. Write down the types of Automobile based on application.

Ans: Automobiles can be classified in several ways based on their nature, behaviour, load capacity, design, and more. I have mentioned below some the most important categorization of Automobile.

Based on the purpose of the vehicle.: Automobiles are categorized based on the purpose of the vehicle as if an automobile is used for good carrier or passenger carrier or used for any special usage.

For example, we can say the bus, mini-bus, car, etc. falls under the category of **passenger carrier**. Truck, Pick-up van, trailer, etc. falls under **goods carrier**, and fire brigade, school bus, police vehicle, ambulance, etc. falls under **special usages vehicle**.

Based on the load capacity of the vehicle.: Light-duty vehicles, medium-duty vehicles, and heavy-duty vehicle are falls under this category.

Examples of light-duty vehicles such as private cars like Nano, Alto, Scorpio etc. or commercial vehicle like pick-up van, taxi, etc even scooter and motorcycle. **Examples of medium-duty vehicles** are mini bus, school bus, etc. And the **examples of heavy-duty vehicles** are Volvo Bus, Truck, Tractor, etc.

Based on the fuel used by the vehicle: Automobile vehicles can be categorized as the fuel used for vehicles like **Petrol, Diesel, Electric, CNG, Solar, and Hybrid vehicles**.

For example, petrol used as a fuel in general private vehicle like cars, two-wheelers, even light-weight commercial vehicles as well.

Based on the number of wheels the vehicle has: Automobiles can be classified as the number of wheels an automobile vehicle has, for example:

Two Wheeler Vehicle (Motor Cycle, Scooty), Three Wheeler Vehicle (Auto, Toto, etc.), Four Wheeler Vehicle (Cars, Bus, Truck, Tractor, etc.), Six Wheeler vehicle (Bus, Trucks, etc.), Eight Wheeler Vehicle (Bus, Trucks, etc.), Even more than Eight Wheeler Vehicle (Trucks, Trailer, etc.).

Based on the suspension system of the vehicle.: Based on the suspension system automobile can be classified as follows:

- Independent Suspension System.
- Non-Independent or Rigid Suspension System.
- Air Suspension System.
- Hydro-Electric Suspension System.

Based on the driving end of the vehicle: If we consider the driving end then an automobile vehicle will be classified into two types:

- Right Side Drive (Countries like Belgium, Ethiopia, etc. use right-side drive vehicles.)
- Left Side Drive (Countries like India, Bangladesh, Australia, etc. use left-side drive vehicles.)

Based on the engine location.: If we consider engine then automobile can be categorized as:

- Front Engine Front Wheel
- Front Engine Rear Wheel
- Rear Engine Front Wheel
- Rear Engine Rear Wheel Drive
- Front Engine All Wheel Drive

Based on the transmission system of the vehicle.: Based on the transmission system automobile classified into three types:

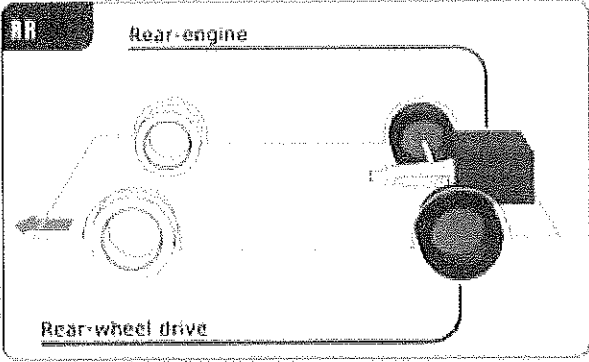
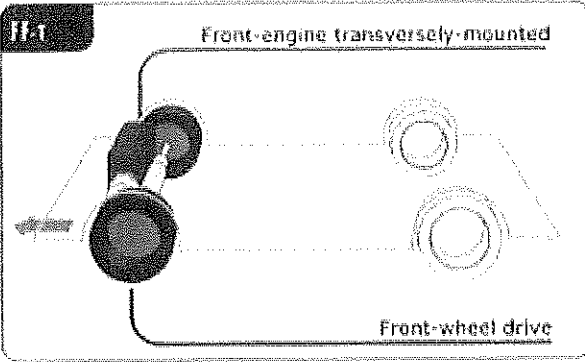
- Manual Transmission System
- Automatic Transmission System

Semi-automatic and dual-clutch Transmissions System

Based on the body system of the vehicle: This type of vehicle is categorized as several types such as:

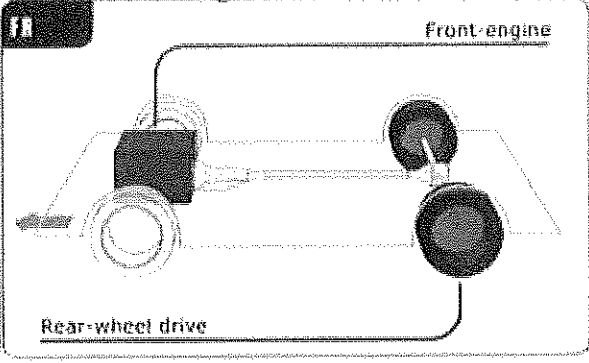
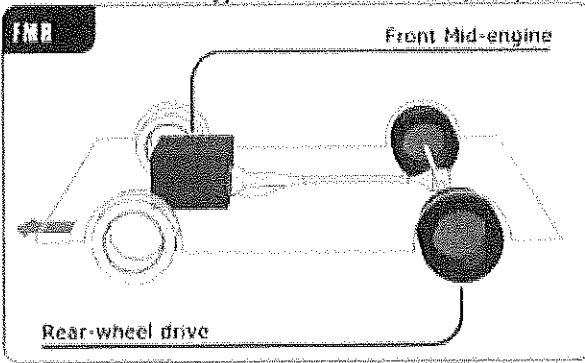
- Two-door sedan (This type of vehicles has two doors, and a sporty look.)
- Hardtop (It has a rigid rooftop, maybe detach or may not).
- Four-door sedan (This type of vehicles has four doors).
- Station wagon (Here the roof of the vehicle is extended rearward).
- Convertible (Can have a roof or no roof).
- Van (It is generally used to transport of goods).

Q11. Differentiate between front engine front drive and rear engine rear drive with diagram?



Front Engine Front Drive (FF)

Front Engine Rear Drive (FR)



Midship Engine Rear Drive (MR)

Rear Engine Rear Drive (RR)



THEORY 1 st - IN-SEM EXAMINATION			
SESSION: 2022-23(SUMMER SEMESTER)			
B.Voc/M.Voc	B.Voc.	Semester	1 st
Course name / Module	Automotive Power Train-I		
Course code	AUT1101		
Date			
Name of the Student		Reg. No.	

INSTRUCTIONS
<ul style="list-style-type: none"> • Maximum Marks: 20 • Duration of Examination: 01 Hour • Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)	05×1 = 05
--	------------------

Q1. Piston's top most position during the piston movement inside the cylinder block is called _____

- a. BDC
- b. Bore
- c. TDC
- d. Stroke

Q2. Horse power is _____

- a) Ability of horse to run
- b) Unit of Power
- c) Unit of Torque
- d) None of above

Q3. Correct sequence for engine four stroke cycle is:

- a) Power > Compression > Intake > Exhaust
- b) Intake > Power > Compression > Exhaust
- c) Compression > Intake > Exhaust > Power
- d) Intake > Compression > Power > Exhaust

Q4. Diesel engine and Petrol engine can be classified under which following category:

- a) Layout
- b) Fuel
- c) Fuel injection system
- d) Based on stroke

Q5. Petrol engine are mostly found in applications where high engine:

- a) Torque is required
- b) Power is required
- c) Both
- d) None of the above

2. Section B (03 short answer type questions, each question carries 02 marks)	03×02 = 06
--	-------------------

Q6. What do you understand by Stroke and Swept Volume related to IC Engine

Q7. List the various components of the IC Engine

Q8. Write the various safety devices used in Automobile Workshop

3. Section C (03 long type questions, each question carries 03 marks)	03×03 = 09
--	-------------------

Q9. Explain the working of four-stroke engines used in Automobiles

Q10. Draw the layout of the Automobile chassis (Automobile Anatomy) showing different components.

Q11. Explain the role of Automotive Technician.



THEORY 1 st - IN-SEM EXAMINATION			
SESSION: 2022-23(SUMMER SEMESTER)			
B.Voc/M.Voc	B.Voc.	Semester	1 st
Course name / Module	Automotive Power Train-I		
Course code	AUT1101		
Date			
Name of the Student		Reg. No.	

INSTRUCTIONS
<ul style="list-style-type: none"> • Maximum Marks: 20 • Duration of Examination: 01 Hour • Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)	05×1 = 05
--	------------------

Q1. Piston's top most position during the piston movement inside the cylinder block is called _____

- BDC
- Bore
- TDC
- Stroke

Q2. Horse power is _____

- Ability of horse to run
- Unit of Power
- Unit of Torque
- None of above

Q3. Correct sequence for engine four stroke cycle is:

- Power > Compression > Intake > Exhaust
- Intake > Power > Compression > Exhaust
- Compression > Intake > Exhaust > Power
- Intake > Compression > Power > Exhaust

Q4. Diesel engine and Petrol engine can be classified under which following category:

- Layout
- Fuel
- Fuel injection system
- Based on stroke

Q5. Petrol engine are mostly found in applications where high engine:

- Torque is required
- Power is required
- Both
- None of the above

2. Section B (03 short answer type questions, each question carries 02 marks)
--

03×02 = 06

Q6. What do you understand by Stroke and Swept Volume related to IC Engine

Ans: Stroke : This is the distance travelled by the piston when it travels from top dead center (TDC) to the bottom dead center (BDC).

Swept volume Piston Displacement: It is the volume swept by the piston in moving from top dead center to bottom dead center. It is also called Piston Displacement.

Q7. List the various components of IC Engine

Ans: Major Components of IC Engine:

- Cylinder
- Cylinder head
- Piston
- Piston rings
- Gudgeon pin
- Connecting Rod
- Crankshaft
- Crankcase

Q8. Write the various safety devices used in Automobile Workshop

Ans: These are the following safety equipment's which are used in Automotive Mechanical Department:

1. Safety Goggle: It is used to protect eyes from dust and chemicals while repairing vehicles.
2. Safety shoe: It is used to protect legs from sudden fall of heavy parts.
3. Helmet: It is used to protect the head while working under vehicles.
4. Gloves: It is used to prevent our hand from heated engine.
5. Mechanics Apron: It helps to cover the body of mechanics.

3. Section C (03 long type questions, each question carries 03 marks)
--

03×03 = 09

Q9. Explain the working of four stroke engine used in Automobiles

Ans: Working principle of IC engine:

1. Suction stroke: During this stroke, the inlet valve is open and the exhaust valve is closed. Only air is sucked into the cylinder during this stroke. The piston moves from TDC to BDC and the crankshaft rotates through 180°.
2. Compression Stroke: The air inducted in the cylinder is compressed to the clearance volume. Both valves are closed during this stroke. The piston moves from BDC to TDC and the crankshaft rotates through 360°.
3. Power stroke or Working stroke: At the end of the compression stroke the fuel (diesel) is injected into the hot compressed air. The rate of injection is such that pressure remains constant instead of

the change in the piston position. After injection of the fuel is complete the hot gases expand. The piston moves from TDC to BDC position and the crankshaft rotates through 540° .

4. Exhaust Stroke: The inlet valve remains closed and the exhaust valve opens. The piston moves from BDC to TDC position which pushes the burnt gases outside the combustion chamber. The crankshaft rotates by two complete revolutions through 720° .

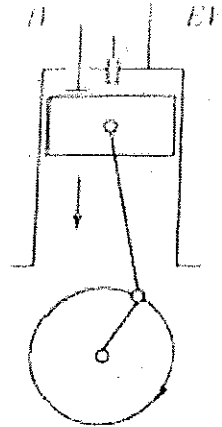
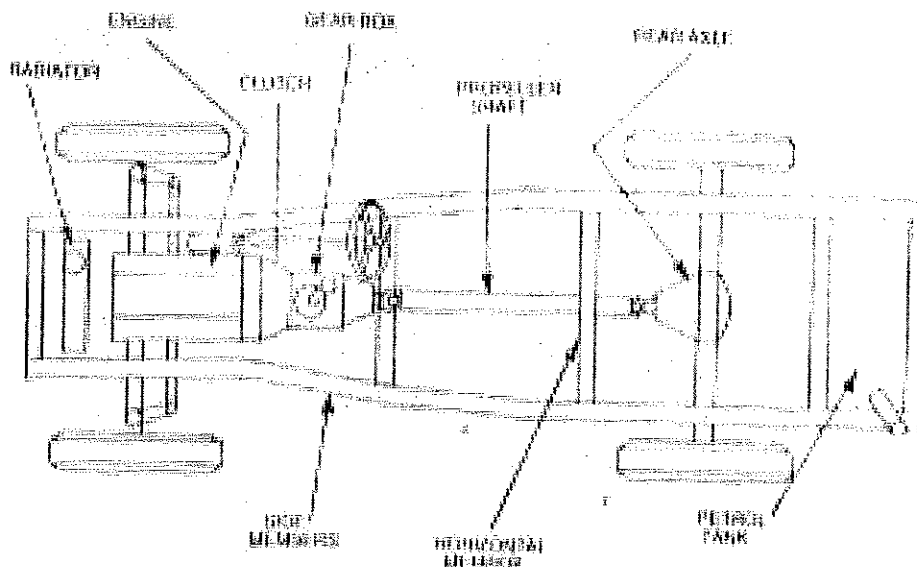


Figure: Working principle of four – stroke C. I. engine

Q10. Draw the layout of Automobile chassis(Automobile Anatomy) showing different components.

Ans: Following is the anatomy of Automobile showing the various componets involved in it

Major Component of Automobile



Q11. Explain the role of Automotive Technician.

Ans: Automotive service technicians and mechanics typically do the following:

- Identify mechanical problems, often by using computerized diagnostic equipment.
- Test parts and systems to ensure that they are working properly.

- Follow checklists to ensure that all critical parts are examined.
- Perform basic care and maintenance, including changing oil, checking fluid levels, and rotating tires.
- Repair or replace worn parts, such as brake pads and wheel bearings.
- Disassemble and reassemble parts of Automotive Vehicles.
- Use testing equipment to ensure that repairs and maintenance are effective
- Explain to clients their automotive problems and the repairs done on their vehicles

S.no.	Registration number	Name	No dues
1	190411S001	Aman sharma	Done
2	190411S002	Avneet	Done
3	190411S003	Dinesh kumar	Done
4	190411S004	Mohd. Nazim	Done
5	190411S006	Rahul sharma	Done
6	190411S007	Ravi yadav	Done
7	190411S012	Bhavin singh	Done
8	190411S013	Harsh jatwa	Done
9	190411S014	Jitesh kumawat	Done
11	190411S018	Shubham jangid	Done
12	190411S019	Sukh singh	Done
13	190411S023	Tanishq joshi	Done
14	190411S024	Kamlesh sharma	Done
15	190411S025	Kalim ashraf	Done



THEORY 1 st - IN-SEM EXAMINATION			
SESSION: 2022-23(SUMMER SEMESTER)			
B. Voc.	Semester	1 st	
Course Name / Module	Automotive Wheel Care & Steering System		
Course Code	AUT1102		
Date			
Name of the Student		Reg. No.	

INSTRUCTIONS

- Maximum Marks: **20**
- Duration of Examination: **01 Hour**
- Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)

05×1 = 05

- What is the main principle of wheel balancing?
 - To balance the wheel anyway.
 - To optimize and minimize the weight on wheel.
 - To rotate the wheel unbalanced.
 - All of the above.
- The hand tool required to pinch, cut or pull an object is known as:
 - Nose Plier.
 - Wire Cutter.
 - Weight Plier.
 - Pincers.
- The machine used to help technicians to dismount and to mount tires with automobile wheels is:
 - Wheel Aligner.
 - Wheel Changer.
 - Tyre Changer.
 - Tyre Balancer.
- Weight Positioning Measurement (WPM) is associated with which of the following:
 - Wheel Alignment.
 - Tyre Changer.
 - Wheel Balancing.
 - Tyre Balancing.
- Allen Wrench are available in:
 - L- Shape.
 - T- Shape.
 - Both L & T Shape.
 - Neither L nor T Shape.

2. Section B (03 short answer type questions, each question carries 02 marks)

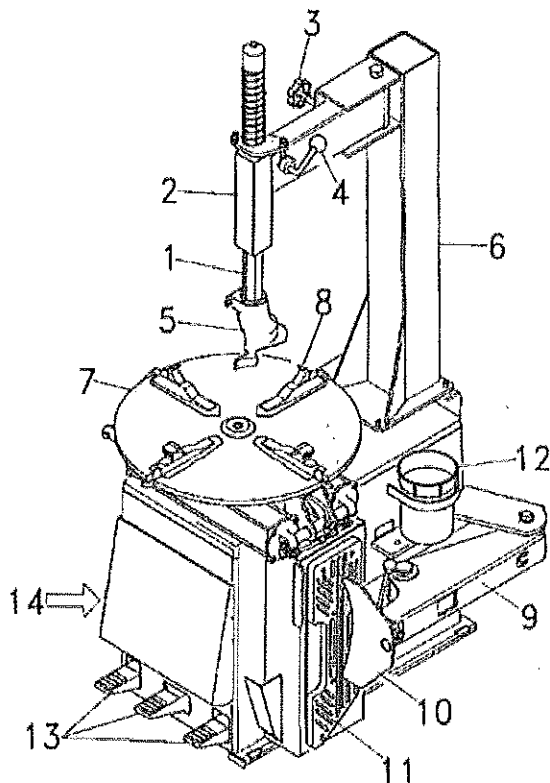
03×02 = 06

6. Define the role of a wheel care technician in the Automotive Department.
7. Name the angles which are adjusted to ensure proper wheel alignment of a vehicle.
8. Differentiate between tools and equipment with necessary examples.

3. Section C (03 long type questions, each question carries 03 marks)

03×03 = 09

9. Explain the role of an Automotive Wheel Care Section in an Automotive Workshop.
10. Explain the role of 5S in workshop and the necessary personal protective equipment (PPE's) required in the wheel care section.
11. Name the following components of a tyre changer.



[Handwritten signature]

THEORY 1 st - IN-SEM EXAMINATION			
SESSION: 2022-23(SUMMER SEMESTER)			
B. Voc.	Semester	1 st	
Course Name / Module	Automotive Wheel Care & Steering System		
Course Code	AUT1102		
Date			
Name of the Student		Reg. No.	

1. Section A (05 objective type questions, each question carries 01 mark)	05×1 = 05
--	------------------

1. What is the main principle of wheel balancing?
 - a. To balance the wheel anyway.
 - b. To optimize and minimize the weight on wheel.**
 - c. To rotate the wheel unbalanced.
 - d. All of the above.
2. The hand tool required to pinch, cut or pull an object is known as:
 - a. Nose Plier.
 - b. Wire Cutter.
 - c. Weight Plier.
 - d. Pincers.**
3. The machine used to help technicians to dismount and to mount tires with automobile wheels is:
 - a. Wheel Aligner.
 - b. Wheel Changer.
 - c. Tyre Changer.**
 - d. Tyre Balancer.
4. Weight Positioning Measurement (WPM) is associated with which of the following:
 - a. Wheel Alignment.
 - b. Tyre Changer.
 - c. Wheel Balancing.**
 - d. Tyre Balancing.
5. Allen Wrench are available in:
 - a. L- Shape.
 - b. T- Shape.
 - c. Both L & T Shape.**
 - d. Neither L nor T Shape.

2. Section B (03 short answer type questions, each question carries 02 marks)	03×02 = 06
--	-------------------

6. Define the role of a wheel care technician in the Automotive Department.

Answer:

- An automotive service technician (or auto mechanic) is someone who inspects, maintains, repair and replace like tyre brake etc.
- Test parts and systems to ensure they are working properly.
- Identify mechanical problems, often by using computerized diagnostic equipment.
- Follow checklists to ensure that all critical parts are examined.

- Perform basic care of tyre rotations.
- Repair or replace worn parts, such as brake pads and wheel bearings.
- Disassemble and reassemble parts.
- Use testing equipment to ensure that repairs and maintenance are effective.
- Explain clients about their automotive problems and the repairs done on their vehicles.

7. Name the angles which are adjusted to ensure proper wheel alignment of a vehicle.

Answer:

- a. Caster Positive & Caster Negative.
- b. Camber Positive & Camber Negative.
- c. Toe-in & Toe-out.

8. Differentiate between tools and equipment with necessary examples.

Answer:

Sr. No.	Tools	Equipment
1	A tool can be any item that is used to achieve a goal	Equipment usually denotes a set of tools that are used to achieve a specific objective
2	A tool can be non-mechanical device	A equipment is a mechanical device
3	The usage of tools among human beings runs back to millions of years	The use of equipment is more of a recent development.
4	Tools are often seen to be used by animals	Equipment is only used by human beings.
5	Tools are usually multipurpose.	Equipment is designed for a specific task.

3. Section C (03 long type questions, each question carries 03 marks)	03×03 = 09
--	-------------------

9. Explain the role of an Automotive Wheel Care Section in an Automotive Workshop.

Answer:

An Automotive wheel care section is required to deal with wheels related issues which includes mis-alignment, tyre changing, wheel balancing, wheel bearing replacement, steering repair, braking parts repair or replacement, tyre rotation, etc.

Thus this section is well defined by the term Automotive Wheel Care and ensures proper treatment towards wheel of the vehicle to ensure smooth running and less deflections.

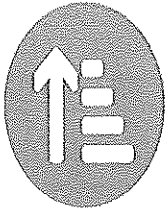
10. Explain the role of 5S in workshop and the necessary personal protective equipment (PPE's) required in the wheel care section.

Answer: PPE's:

1. Safety Shoes.
2. Safety Goggles.
3. Safety Industrial Helmet.
4. Safety Gloves (Cotton & PU).
5. Safety Apron.

5S

5S is a five-step organization technique to create and maintain an intuitive workspace.



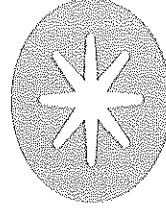
Sort

Keep only necessary items in the workplace.



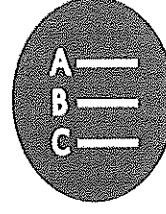
Set In Order

Arrange items to promote efficient workflow.



Shine

Clean the work area so it is neat and tidy.



Standardize

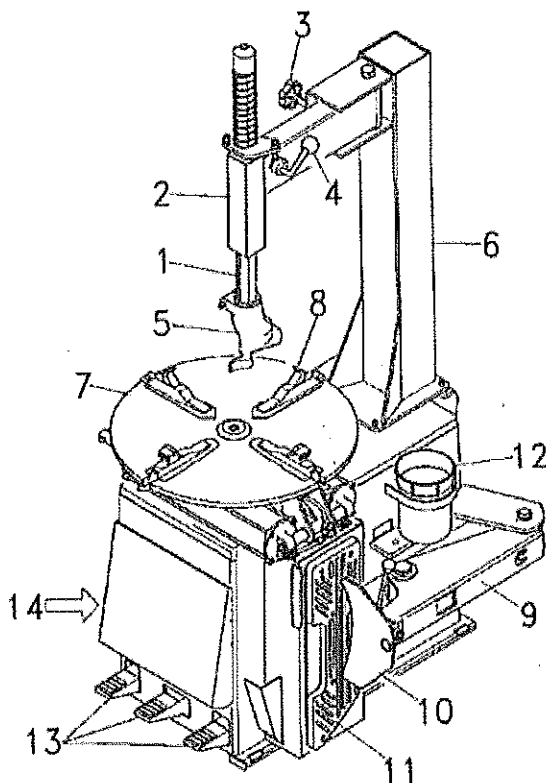
Set standards for a consistently organized workplace.



Sustain

Maintain and review standards.

11. Name the following components of a tyre changer.



Answer:

1. Vertical slide.
2. Swing arm.
3. Adjustable knob.
4. Lock lever.
5. Mount / demount head.
6. Tower or column.
7. Turntable.
8. Jaw or clamp.
9. Bead breaker arm.
10. Bead breaker blade.
11. Bead breaker pads.
12. Lube pail.
13. Foot pedal controls.
14. Bead seater/ inflator pedal.





THEORY 1 st - IN-SEM EXAMINATION		
SESSION: 2022-23(SUMMER SEMESTER)		
B.Voc	Semester	1 st
Course name / Module	Automotive Body Repairs	
Course code	AUT1103	
Date		
Name of the Student	Reg. No.	

INSTRUCTIONS

- Maximum Marks: **20**
- Duration of Examination: **01 Hour**
- Attempt all questions.
- Any other instruction may be included, If required.

1. Section A (05 objective type questions, each question carries 01 mark)**05×1 = 05**

Q1. For GMAW welding..... electrode is used.

- a) Consumable
b) Non-consumable
c) filler
d) None of the above

Q2. Mid - section of a car body also called:

- a) Doghouse
b) Cathouse
c) Greenhouse
d) None of the above

Q3. A structure design in which the frame and body are built as a single integrated structure is called.....

- a) Backbone
b) Ladder
c) Monocoque
d) All of the above

Q4. How many panels are there in a car body?

- a) 13
b) 15
c) 06
d) 12

Q5. Plasma is a state of matter consisting of..... gas.

- a) Hydrogen
b) Carbon dioxide
c) Nitrogen
d) Ionized

2. Section B (03 short answer type questions, each question carries 02 marks)

03×02 = 06

Q6. Name tools and safety equipment's used in automotive body repair

Q7. What are the different types of weld joint?

Q8. Explain 5S technique

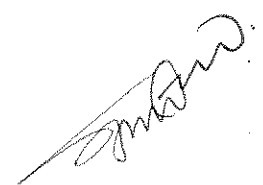
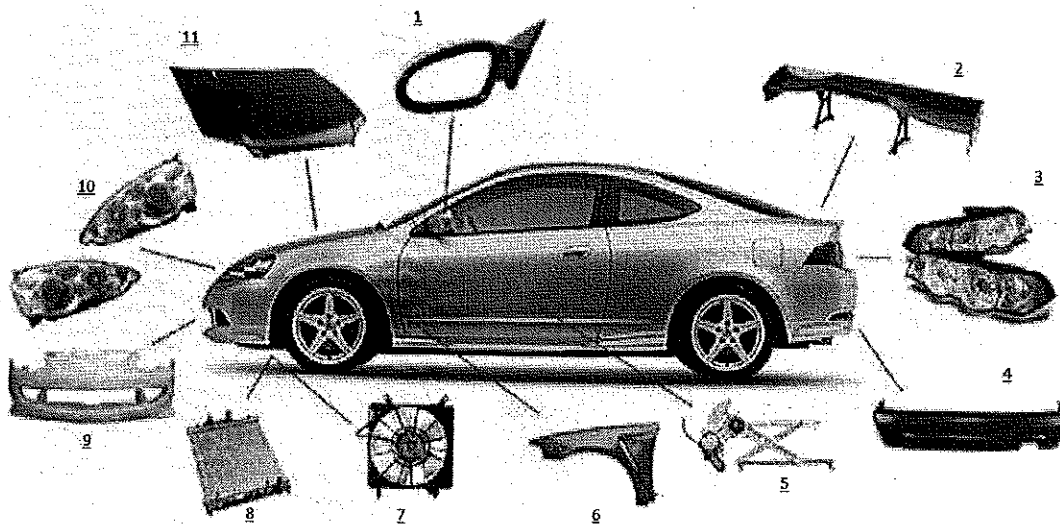
3. Section C (03 long type questions, each question carries 03 marks)

03×03 = 09

Q9. Specify different types of car bodies with example.

Q10. Describe the MIG/MAG welding.

Q11. Name the parts of car body given in diagram -





THEORY 1 st - IN-SEM EXAMINATION		
SESSION: 2022-23(SUMMER SEMESTER)		
B.Voc	Semester	1 st
Course name / Module	Automotive Body Repairs	
Course code	AUT1103	
Date		
Name of the Student	Reg. No.	

INSTRUCTIONS
<ul style="list-style-type: none">• Maximum Marks: 20• Duration of Examination: 01 Hour• Attempt all questions.• Any other instruction may be included, If required.

Answer sheet

1. Section A (05 objective type questions, each question carries 01 mark)	05×1 = 05
--	------------------

Q1. For GMAW welding..... electrode is used.

- a) **Consumable**
- b) Non-consumable
- c) filler
- d) None of the above

Q2. Mid - section of a car body also called

- a) Doghouse
- b) Cathouse
- c) **Greenhouse**
- d) None of the above

Q3. A structure design in which the frame and body are built as a single integrated structure is called.....

- a) Backbone
- b) Ladder
- c) **Monocoque**
- d) All of the above

Q4. How many panels are there in a car body?

- a) **13**
- b) 15
- c) 06
- d) 12

Q5. Plasma is a state of matter consisting of..... gas.

- a) Hydrogen
- b) Carbon dioxide
- c) Nitrogen
- d) **Ionized**

2. Section B (03 short answer type questions, each question carries 02 marks) **03×02 = 06**

Q6. Name tools and safety equipment's used in automotive body repair

Ans. The following tools and equipment are used in Body Repair Shop:

- Pneumatic tools
- Dent puller
- Grinder
- Metal-cutting guns
- Plasma cutters
- Heavy-duty hydraulic jacks
- Hammers & Mallet
- Files, pliers, wrenches, and screwdrivers.

The major safety equipments are;

- Helmet
- Safety goggles
- Safety shoes
- Nose masks
- Gloves
- Ear plug(while grinding)

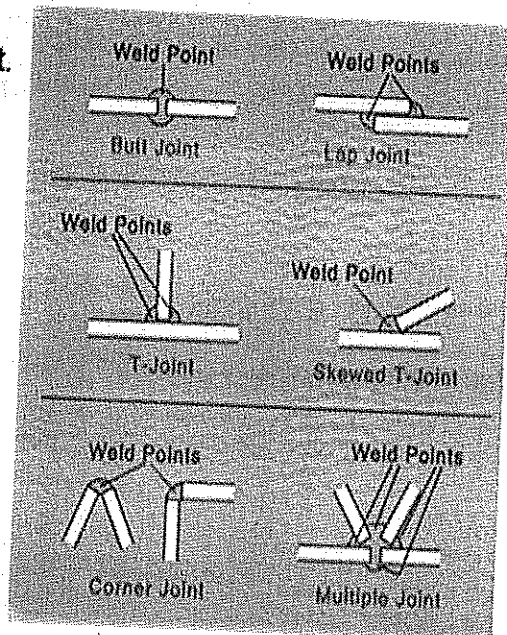
Q7. What are the different types of weld joint?

Ans.

➤ The area in which the work pieces are welded together is referred to as a joint.

➤ Depending on the position of the parts relative to one other, weld joint are identified as:

- Butt joint
- Lap joint
- T-Joint
- Skewed T-Joint
- Corner Joint
- Multiple Joint



Q8. Explain 5S technique

Ans.

5S

5S is a five-step organization technique to create and maintain an intuitive workspace.

				
Sort	Set In Order	Shine	Standardize	Sustain
Keep only necessary items in the workplace.	Arrange items to promote efficient workflow.	Clean the work area so it is neat and tidy.	Set standards for a consistently organized workplace.	Maintain and review standards.

3. Section C (03 long type questions, each question carries 03 marks)	03×03 = 09
--	-------------------

Q9. Specify different types of car bodies with example.

Ans

Hatchback

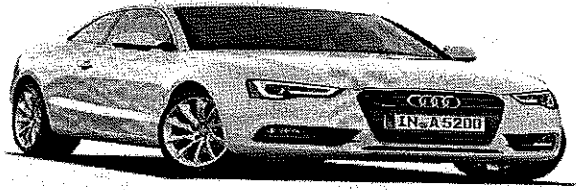
A hatchback is a car with a sloping back and a hinged rear door that opens upwards. These cars differ from SUVs, MPVs or vans in that they are usually much more compact. Hatchbacks usually have seating for four-five people. It is almost always a tight squeeze. An example of a hatchback is the Maruti Suzuki Swift.

Sedan

A sedan, also called a saloon, is a passenger car with a bonnet covering the engine and a separate boot for luggage at the rear. This is one of the most popular body styles of cars today, with seating for at least four people. A sedan design is also known as a 'three-box' design. An example of a sedan is the Honda City.

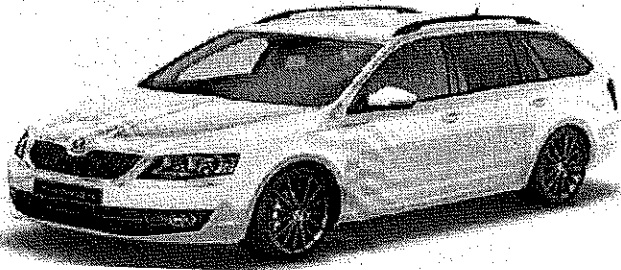
Coupe

Coupes are often the sporty variants of saloon cars, with doors reduced from 4 to 2. However, the coupe body style varies from carmaker to carmaker, and now there are even four-door coupes like the Mercedes-Benz CLS-Class. The name 'coupe' comes from the French verb 'Couper', which means 'to cut'. An example of a two-door coupe is the Audi A5.



Estate

Estates, or station wagons, have a body style similar to a sedan, but with an extended rear luggage or cargo area. These cars have a two-box design with the passenger compartment extending over where the boot would have been in a saloon. They are usually based on sedans and often share the same frontal design. Estates are not very common in India, but an example is the Skoda Octavia Combi.



SUV

An SUV, or Sports Utility Vehicle, is similar to an estate, but usually bigger and higher off the ground. SUVs are often offered with four-wheel-drive and are designed for both on- and off-road use. Some have the towing capacity of a pickup, and offer the passenger carrying capacity of a minivan or large sedan. An example of an SUV is the Ford Endeavour.

MPV

MPVs, or Multi-Purpose Vehicles, feature a one- or two-box design and are taller than station wagons. They often see estate-like interior appointments and are also called people-carriers, people-movers, minivans, or MUVs (Multi-Utility Vehicles). They are designed to be spacious and usually get three rows of seats with seating for 7 or more. An example of an MPV is the Toyota Innova.

Crossover

A crossover is a vehicle built on a car platform but often with features of an SUV like increased ground clearance and a higher seating position. Crossovers are typically designed only for light off-roading. An example of a crossover is the recently-launched Fiat Aventura.

Pickup

A pickup is a light motor vehicle with an open rear cargo area known as a 'bed'. These are extremely popular in the US, and feature factory-built integrated beds. The term also applies to coupe utility vehicles, where they are based on a car chassis or a dedicated platform. Pickups are called 'utes' in Australia and New Zealand. They are often available with two or four doors for the passenger compartment, and are called single-cab

pickups and double-cab pickups respectively. An example of a pickup is the Tata Xenon, which features a double-cab design.

Q10. Describe the MIG/MAG welding.

Ans.

MIG Welding

Metal inert gas welding takes its name from the use of inert gases such as argon, helium and mixture of the two gases.

MIG welding is an arc welding process in which a continuous solid wire electrode is fed through a welding gun and into the weld pool, joining two base material together

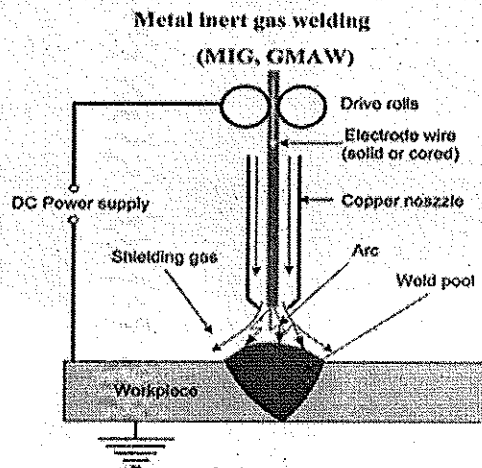
The process is semi- automatic because the electrode and gas are automatically fed through a welding the gun at a user defined speed when the operator pulls down the trigger.

MAG Welding

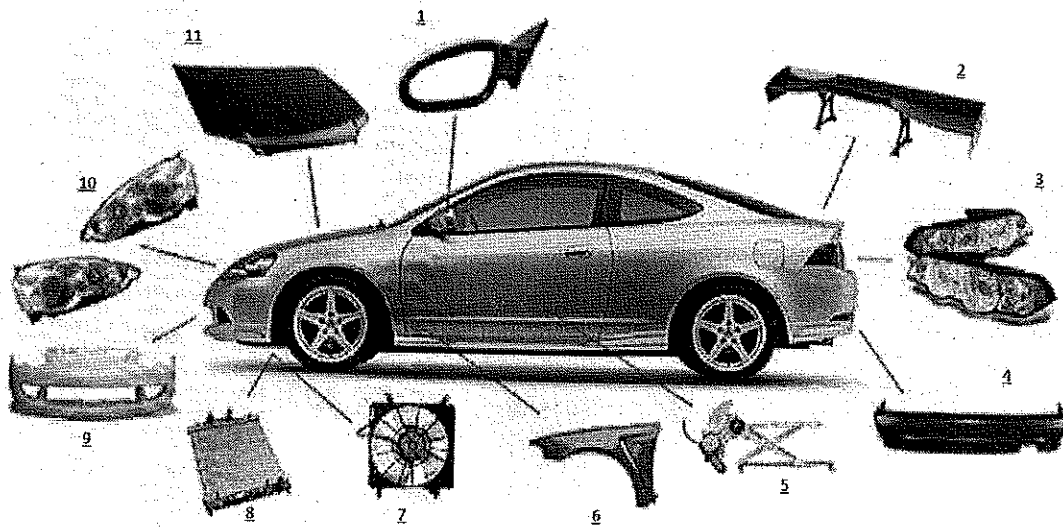
Metal active gas welding takes its name from the active welding gas used (CO_2 or gas mixture (argon containing active gas, two or three components)).

Long and short arc are used during MAG welding.

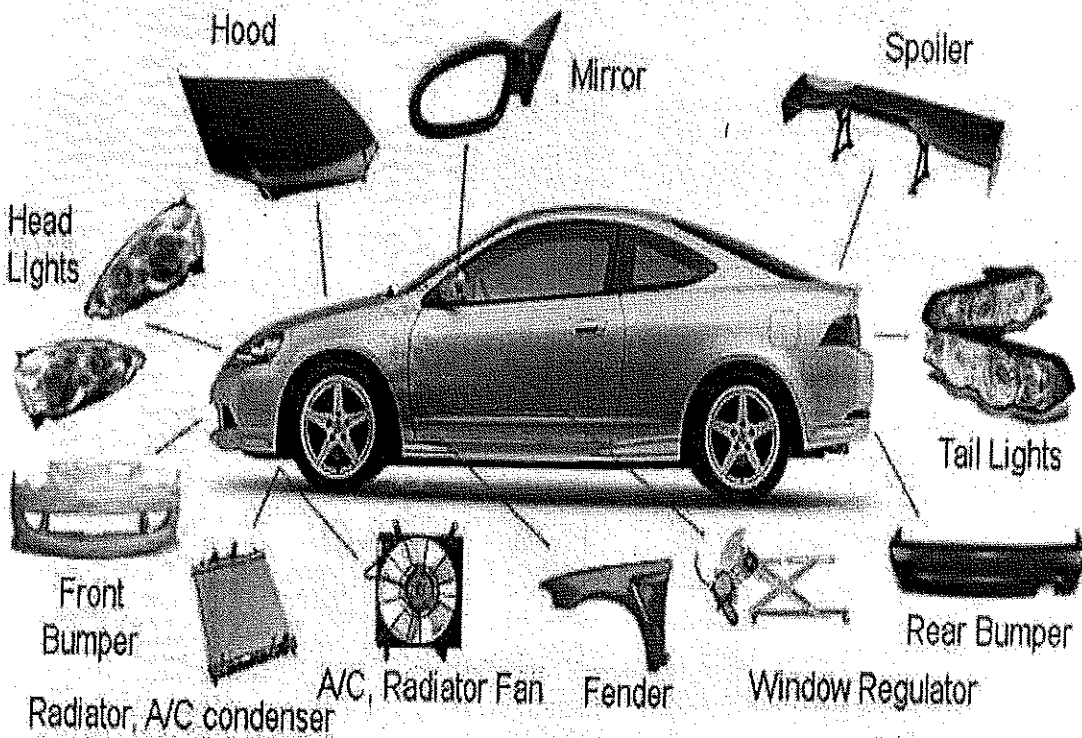
MAG welding is a steel welding process.



Q11. Name the parts of car body given in diagram -



Ans.



THEORY 1 st - IN-SEM EXAMINATION			
SESSION: 2022-23(SUMMER SEMESTER)			
B.Voc		Semester	1 st
Course name / Module	Automotive Spray Painting		
Course code	AUT1104		
Date			
Name of the Student		Reg. No.	

INSTRUCTIONS
<ul style="list-style-type: none"> • Maximum Marks: 20 • Duration of Examination: 01 Hour • Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)	05×1 = 05
--	------------------

Q1. Nozzle size for primer gun should be:

- a) 0.8mm
- b) 1.8mm
- c) 1.3mm
- d) 2.4mm

Q2. The most important PPE to be worn while painting in Paint-booth is:

- a) Ear plugs
- b) Welding goggles
- c) Respirator
- d) Cotton gloves

Q3 Non-ducted Paint booth is best suitable for automobile refinish painting.

- a) True
- b) False

Q4. With the increase in the number of auxiliary orifice in a paint gun, the atomization will be:

- a) Good
- b) Bad
- c) Not affected
- d) None of the above

Q5. Surfacers are sandable.

- a) True
- b) False

2. Section B (03 short answer type questions, each question carries 02 marks)	03×02 = 06
--	-------------------

Q5 Explain, what do you understand by infrared dryer.

Q6 What are the possible health effects and their causes, that can be seen in a person working with less or no PPE, in a paint shop?

Q7 Write the procedure for paint gun cleaning process.

3. Section C (03 long type questions, each question carries 03 marks)	03×03 = 09
--	-------------------

Q8 Explain various hazards associated to paint shop.

Q9 What do you understand by HVLP guns and also explain what is atomization?

Q10 Explain any 5 PPE used in automotive paint shop.



THEORY 1 st - IN-SEM EXAMINATION			
SESSION: 2022-23(SUMMER SEMESTER)			
B.Voc	Semester	1 st	
Course name / Module	Automotive Spray Painting		
Course code	AUT1104		
Date			
Name of the Student		Reg. No.	

INSTRUCTIONS
<ul style="list-style-type: none"> • Maximum Marks: 20 • Duration of Examination: 01 Hour • Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)	05×1 = 05
--	------------------

Q1. Nozzle size for primer gun should be:

- a) 0.8mm
- b) 1.8mm
- c) 1.3mm
- d) 2.4mm

Q2. The most important PPE to be worn while painting in Paint-booth is:

- a) Ear plugs
- b) Welding goggles
- c) Respirator
- d) Cotton gloves

Q3 Non-ducted Paint booth is best suitable for automobile refinish painting.

- a) True
- b) False

Q4. With the increase in the number of auxiliary orifice in a paint gun , the atomization will be:

- a) Good
- b) Bad
- c) Not affected
- d) None of the above

Q5. Surfacer is sandable.

- a) True
- b) False

2. Section B (03 short answer type questions, each question carries 02 marks)

03×02 = 06

Q5 Explain, what do you understand by infrared dryer.

Ans: It is a machine used for drying purpose in a paint shop. It uses radiant energy/ electromagnetic radiation like X-rays and UV rays for drying action.

It involves a heat transfer by radiation between a hot element and a material at lower temperature.

The heat energy is directly transferred from the infrared source without the need of an intermediate such as air or water.

It is divided into three parts: -

1. Short wave: - less than 2 microns.
2. Medium wave: - between 2 and 4 microns.
3. Long wave: - above 4 microns.

Q6 What are the possible health effects and their causes, that can be seen in a person working with less or no PPE, in a paint shop?

Ans: Overexposure to a substance like primer or paint when spraying them means that too much has been breathed in, swallowed or absorbed.

The possible health effects of overexposure to these products can vary depending on the chemicals they contain.

The main health effects from exposure to these solvents can include:

1. Eye and skin irritation
2. Respiratory tract irritation;
3. Dermatitis/Skin diseases
4. Drowsiness
5. Vomiting

Q7 Write the procedure for paint gun cleaning process.

Ans: Paint gun cleaning process:

- First remove paint needle
- Followed by the cap
- After this unscrew the Fluid tip
- Clean all parts of the nozzle set
- Clean the material Passage
- Clean Gun Body
- Drying

3. Section C (03 long type questions, each question carries 03 marks)

03×03 = 09

Q8 Explain various hazards associated to paint shop.

Ans: Painting Safety Hazards:

1. Inadequate ventilation: Inadequate ventilation is the first and foremost hazard when painting indoors. It can cause suffocation, Drowsiness, Vomiting etc.
2. Fire and explosion Hazards: One of the major safety concerns associated with spray application is the combustible, flammable vapours and mists. It is important to ensure that all potential sources of ignition have been removed prior to spraying flammable and combustible products.

Potential sources of ignition include:

- a) Open flames (work space heating units)
- b) Cutting and welding torches
- c) Gas fired heaters
- d) Electrical outlets and lighting
- e) Static electricity
- f) Smoking

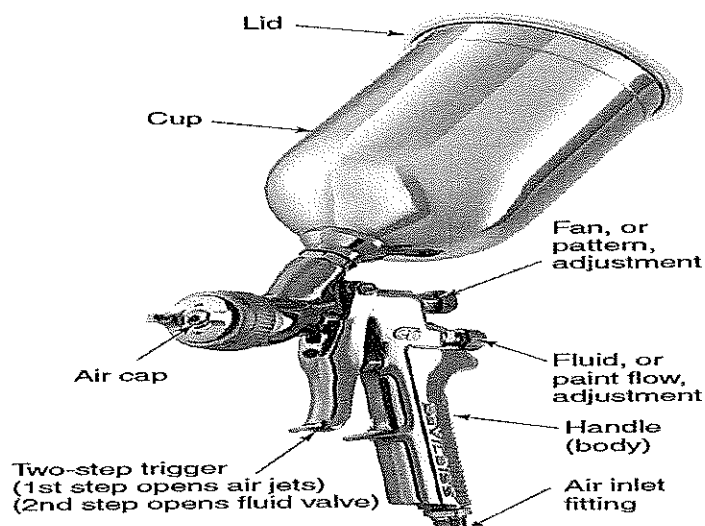
3. Health Hazard: The possible health effects of overexposure to these products can vary depending on the chemicals they contain.

The main health effects from exposure to these solvents can include:

- a) Eye and skin irritation
- b) Respiratory tract irritation;
- c) Dermatitis/Skin diseases
- d) Drowsiness
- e) Vomiting

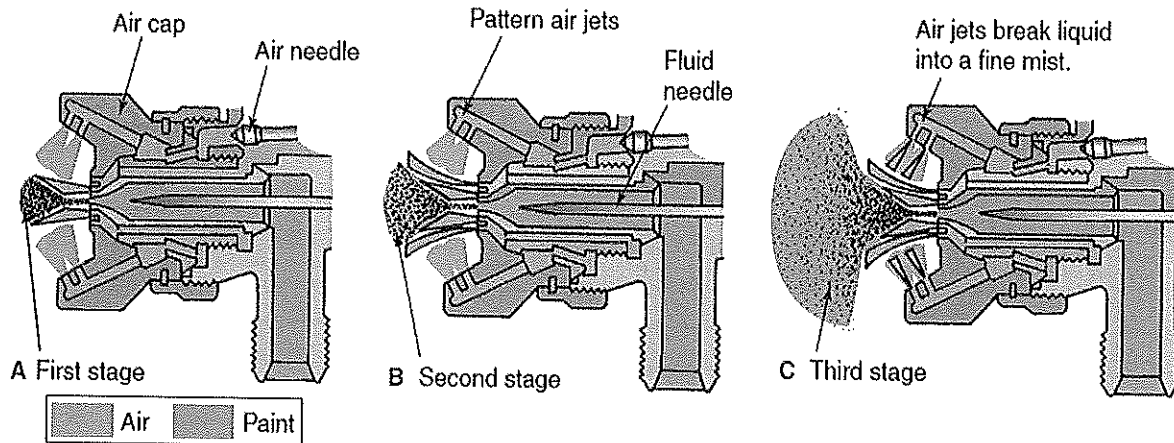
Q9 What do you understand by HVLP guns and also explain what is automization?

Ans: HVLP stands for high-volume, low-pressure. These guns use high volume of air to push the paint through the nozzle. Dilute the paint to make it thinner, and spray from a distance of five to eight inches.



Atomization breaks the liquid material into a fine mist spray of tiny, uniform droplets

1. In the first stage, the paint siphoned from the fluid tip is immediately surrounded by air streaming from the annular ring. This turbulence begins breaking up the paint.
2. The second stage of atomization occurs when the paint stream is hit with jets of air from the containment holes. These air jets keep the paint stream from getting out of control and aid in paint breakup.
3. In the third phase of atomization, the paint is struck by jets of air from the air cap horns. These airstreams hit the paint from opposite sides, causing the paint to form into a fan-shaped spray.



Q10 Explain any 5 PPE used in automotive paint shop.

Ans:

1. **Mask and respirator:** A mask is an object normally worn on the face for protection. Respirators are required to be worn in the paint booth while painting. It helps prevent the paint mixed air from getting into our lungs during breathing in paint shop.
2. **Hand Protection Gloves:** It is a protective gear for the hands, which comes in many types depending upon the threat that is to be reduced. The threats can be chemicals, contamination and infection etc.
3. **Eye Protection:** It is a protective gear (Goggles) for the eyes to prevent dust particles of any other liquid particles to enter the eye during painting.
4. **Ear Protection:** Ear plugs are worn in order to protect ear drums from excessive noises during work.
5. **Protective Clothing:** While working in a paint booth, the paint technician's body comes in contact of various chemicals that can cause irritation to the skin or can even cause skin diseases. Protective clothing prevents these chemicals from contacting paint technician's body.

THEORY 1 st - IN-SEM EXAMINATION			
SESSION: 2022-23(SUMMER SEMESTER)			
B.Voc/M.Voc	B. Voc	Semester	1 st
Course name / Module	Automotive Electrical Fundamental & AC		
Course code	AUT-1105		
Date			
Name of the Student		Reg. No.	

INSTRUCTIONS
<ul style="list-style-type: none"> • Maximum Marks: 20 • Duration of Examination: 01 Hour • Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)	05×1 = 05
--	------------------

- R134a gas used in car AC system is:
 - CFC
 - HCFC
 - HFC
 - HFO
 - In a refrigeration system, the compressor is connected between the?
 - Compressor and condenser.
 - Condenser and receiver.
 - Receiver and evaporator.
 - Evaporator and condenser.
 - During a refrigeration cycle, heat is absorbed by the refrigerant in a.....?
 - Condenser.
 - Compressor.
 - Evaporator.
 - Expansion valve.
 - In a refrigeration system, the expansion device is connected between the?
 - Compressor and condenser.
 - Condenser and receiver.
 - Receiver and evaporator.
 - Evaporator and compressor.
- Q5 During a refrigeration cycle, heat is rejected by the refrigerant in a.....?
- Condenser.

- b. Compressor.
- c. Evaporator.
- d. Expansion valve.

2. Section B (03 short answer type questions, each question carries 02 marks)	03×02 = 06
--	-------------------

1. Write different types of AC gas used in Automotive AC system.
2. Define thermodynamic system. Write different types of thermodynamics system.
3. Write the name of expansion valve used in car ac system and how heating obtained in car AC system.

3. Section C (03 long type questions, each question carries 03 marks)	03×03 = 09
--	-------------------

1. Explain ODP and GWP with neat sketch.
2. Draw VCRS cycle used in automotive car AC system with neat sketch.
3. Draw P-h chart/diagram of AC system.



THEORY 1 st - IN-SEM EXAMINATION			
SESSION: 2022-23(SUMMER SEMESTER)			
B.Voc/M.Voc	B. Voc	Semester	1 st
Course name / Module	Automotive Electrical Fundamental & AC		
Course code	AUT-1105		
Date			
Name of the Student		Reg. No.	

INSTRUCTIONS
<ul style="list-style-type: none"> • Maximum Marks: 20 • Duration of Examination: 01 Hour • Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)	05×1 = 05
--	------------------

- R134a gas used in car AC system is:
 - CFC
 - HCFC
 - HFC
 - HFO
- In a refrigeration system, the compressor is connected between the?
 - Compressor and condenser.
 - Condenser and receiver.
 - Receiver and evaporator.
 - Evaporator and condenser.
- During a refrigeration cycle, heat is absorbed by the refrigerant in a.....?
 - Condenser.
 - Compressor.
 - Evaporator.
 - Expansion valve.
- In a refrigeration system, the expansion device is connected between the?
 - Compressor and condenser.
 - Condenser and receiver.
 - Receiver and evaporator.
 - Evaporator and compressor.

Q5 During a refrigeration cycle, heat is rejected by the refrigerant in a.....?

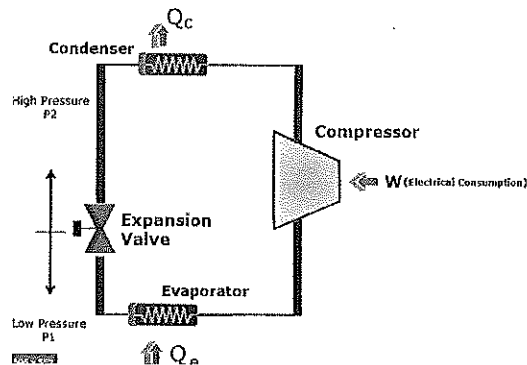
- Condenser.
- Compressor.
- Evaporator.
- Expansion valve.

2. Section B (03 short answer type questions, each question carries 02 marks) **03×02 = 06**

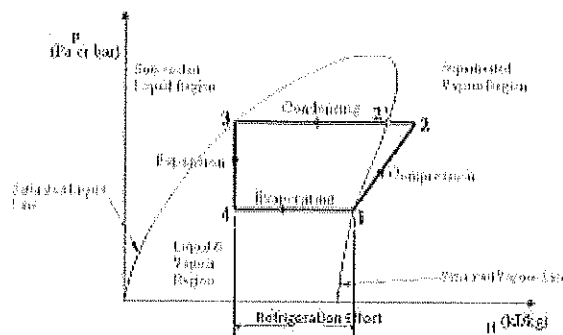
- Write different types of AC gas used in Automotive AC system.
R134a or R1234yf
- Define thermodynamic system. Write different types of thermodynamics system.
System: a quantity of matter and region in space is called system. Open close and isolated
- Write the name of expansion valve used in car ac system and how heating obtained in car AC system.
Thermostatic expansion valve from blower.

3. Section C (03 long type questions, each question carries 03 marks) **03×03 = 09**

- Explain ODP and GWP with neat sketch.
The ozone depletion potential (ODP) of a chemical compound is **the relative amount of degradation to the ozone layer it can cause**, with trichlorofluoromethane (R-11 or CFC-11) being fixed at an ODP of 1.0. Chlorodifluoromethane (R-22), for example, has an ODP of 0.05.
- Draw VCRS cycle used in automotive car AC system with neat sketch.



- Draw P-h chart/diagram of AC system.



THEORY 1 st - IN-SEM EXAMINATION			
SESSION: 2022-23 (SUMMER SEMESTER)			
B.Voc/M.Voc	B.Voc	Semester	1st
Course name / Module	Basics of Automobile		
Course code	AUT1115 (OPEN ELECTIVE)		
Date			
Name of the Student		Reg. No.	

INSTRUCTIONS

- Maximum Marks: **20**
- Duration of Examination: **01 Hour**
- Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)

05×1 = 05

- Piston's bottom most position during the piston movement inside the cylinder block is called _____
 - BDC
 - Bore
 - TDC
 - Stroke
- Horse power is _____
 - Ability of horse to run
 - Unit of Power
 - Unit of Torque
 - None of above
- Which of the following does not relate to spark ignition engine:
 - Spark plug
 - Carburetor
 - Fuel Injector
 - Ignition coil
- Gasoline engines are.....than diesel engines. and Petrol engine can be classified under which following category:
 - Lighter
 - unpredictable
 - heavier
 - none of the mentioned
- Diesel engine are mostly found in applications where high engine:
 - Torque is required
 - Power is required
 - Both
 - None of the above

2. Section B (03 short answer type questions, each question carries 02 marks)

03×02 = 06

Q6 Write application/function of crankshaft and camshaft in IC Engine.

Q7. Write different types of engine cooling system.

Q8. Difference Between 4 stroke and 2 stroke Engine.

3. Section C (03 long type questions, each question carries 03 marks)

03×03 = 09

Q9. Explain the working of four stroke Diesel engine used in Automobiles.

Q10. Write down the types of Automobile based on application.

Q11. Differentiate between front engine front drive and rear engine rear drive with diagram?

THEORY 1 st - IN-SEM EXAMINATION			
SESSION: 2022-23 (SUMMER SEMESTER)			
B.Voc/M.Voc	B.Voc	Semester	1st
Course name / Module	Basics of Automobile		
Course code	AUT1115 (OPEN ELECTIVE)		
Date			
Name of the Student		Reg. No.	

INSTRUCTIONS
<ul style="list-style-type: none"> • Maximum Marks: 20 • Duration of Examination: 01 Hour • Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)	05×1 = 05
--	------------------

- Piston's bottom most position during the piston movement inside the cylinder block is called_____
 - BDC
 - Bore
 - TDC
 - Stroke
- Horse power is_____
 - Ability of horse to run
 - Unit of Power
 - Unit of Torque
 - None of above
- Which of the following does not relate to spark ignition engine:
 - Spark plug
 - Carburetor
 - Fuel Injector
 - Ignition coil
- Gasoline engines are.....than diesel engines. and Petrol engine can be classified under which following category:
 - Lighter
 - unpredictable
 - heavier
 - none of the mentioned
- Diesel engine are mostly found in applications where high engine:
 - Torque is required
 - Power is required
 - Both
 - None of the above

2. Section B (03 short answer type questions, each question carries 02 marks)	03×02 = 06
--	-------------------

Q6 Write application/function of crankshaft and camshaft in IC Engine.

Ans: A camshaft uses egg-shaped "cams" to open and close engine valves (one cam per valve), while a crankshaft converts "cranks" (the up/down motion of the pistons) to rotational motion

Q7. Write different types of engine cooling system.

Ans: Air cooling and water cooling system

Q8. Difference Between 4 stroke and 2 stroke Engine.

Two Strokes	Four Strokes
It has one revolution of the crankshaft during one power stroke	It has two revolutions of the crankshaft during one power stroke
It generates high torque	It generates less torque
Its uses port for fuel's outlet and inlet	It uses valves for outlet and inlet of a fuel
Its engines result in lesser thermal efficiency	Its engines result in higher thermal efficiency
It has a larger ratio in terms of power to weight	It has a lesser ratio in terms of power to weight
It generates more smoke and shows less efficiency	It generates less smoke and shows more efficiency
Requires more lubricating oil as some oil burns with the fuel	Requires less lubricating oil
Due to poor lubrication, more wear and tear occurs	Less wear and tear occurs
Engines are cheaper and are simple for manufacturing	Engines are expensive due to lubrication and valves and are tough to manufacture
Engines are basically lighter and are noisy	Engines are basically heavier because its flywheel is heavy and are less noisy

3. Section C (03 long type questions, each question carries 03 marks)

03×03 = 09

Q9. Explain the working of four stroke Diesel engine used in Automobiles

Ans: **Working principle of IC engine:**

1. Suction stroke: During this stroke, the inlet valve is open and the exhaust valve is closed. Only air is sucked into the cylinder during this stroke. The piston moves from TDC to BDC and the crankshaft rotates through 180°.
2. Compression Stroke: The air inducted in the cylinder is compressed to the clearance volume. Both valves are closed during this stroke. The piston moves from BDC to TDC and the crankshaft rotates through 360°.
3. Power stroke or Working stroke: At the end of the compression stroke the fuel (diesel) is injected into the hot compressed air. The rate of injection is such that pressure remains constant instead of the change in the piston position. After injection of the fuel is complete the hot gases expand. The piston moves from TDC to BDC position and the crankshaft rotates through 540°.

4. Exhaust Stroke: The inlet valve remains closed and the exhaust valve opens. The piston moves from BDC to TDC position which pushes the burnt gases outside the combustion chamber. The crankshaft rotates by two complete revolutions through 720° .

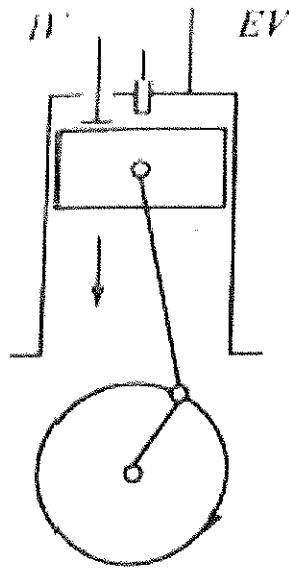


Figure: Working principle of four – stroke C. I. engine

Q10. Write down the types of Automobile based on application.

Ans: Automobiles can be classified in several ways based on their nature, behaviour, load capacity, design, and more. I have mentioned below some the most important categorization of Automobile.

Based on the purpose of the vehicle.: Automobiles are categorized based on the purpose of the vehicle as if an automobile is used for good carrier or passenger carrier or used for any special usage.

For example, we can say the bus, mini-bus, car, etc. falls under the category of **passenger carrier**. Truck, Pick-up van, trailer, etc. falls under **goods carrier**, and fire brigade, school bus, police vehicle, ambulance, etc. falls under **special usages vehicle**.

Based on the load capacity of the vehicle.: Light-duty vehicles, medium-duty vehicles, and heavy-duty vehicle are falls under this category.

Examples of light-duty vehicles such as private cars like Nano, Alto, Scorpio etc. or commercial vehicle like pick-up van, taxi, etc even scooter and motorcycle. **Examples of medium-duty vehicles** are mini bus, school bus, etc. And the **examples of heavy-duty vehicles** are Volvo Bus, Truck, Tractor, etc.

Based on the fuel used by the vehicle: Automobile vehicles can be categorized as the fuel used for vehicles like **Petrol, Diesel, Electric, CNG, Solar, and Hybrid vehicles**.

For example, petrol used as a fuel in general private vehicle like cars, two-wheelers, even light-weight commercial vehicles as well.

Based on the number of wheels the vehicle has: Automobiles can be classified as the number of wheels an automobile vehicle has, for example:

Two Wheeler Vehicle (Motor Cycle, Scooty), Three Wheeler Vehicle (Auto, Toto, etc.), Four Wheeler Vehicle (Cars, Bus, Truck, Tractor, etc.), Six Wheeler vehicle (Bus, Trucks, etc.), Eight Wheeler Vehicle (Bus, Trucks, etc.), Even more than Eight Wheeler Vehicle (Trucks, Trailer, etc.).

Based on the suspension system of the vehicle.: Based on the suspension system automobile can be classified as follows:

- Independent Suspension System.
- Non-Independent or Rigid Suspension System.
- Air Suspension System.
- Hydro-Electric Suspension System.

Based on the driving end of the vehicle: If we consider the driving end then an automobile vehicle will be classified into two types:

- Right Side Drive (Countries like Belgium, Ethiopia, etc. use right-side drive vehicles.)
- Left Side Drive (Countries like India, Bangladesh, Australia, etc. use left-side drive vehicles.)

Based on the engine location.: If we consider engine then automobile can be categorized as:

- Front Engine Front Wheel
- Front Engine Rear Wheel
- Rear Engine Front Wheel
- Rear Engine Rear Wheel Drive
 - Front Engine All Wheel Drive

Based on the transmission system of the vehicle.: Based on the transmission system automobile classified into three types:

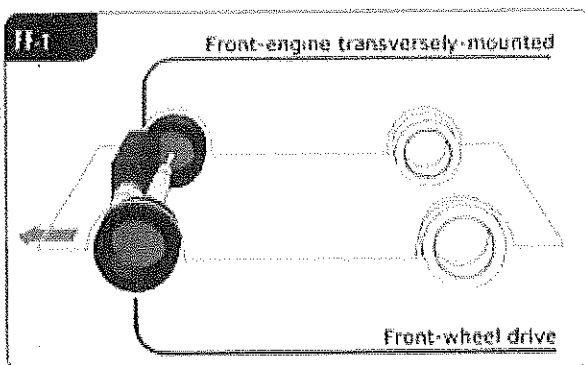
- Manual Transmission System
- Automatic Transmission System

Semi-automatic and dual-clutch Transmissions System

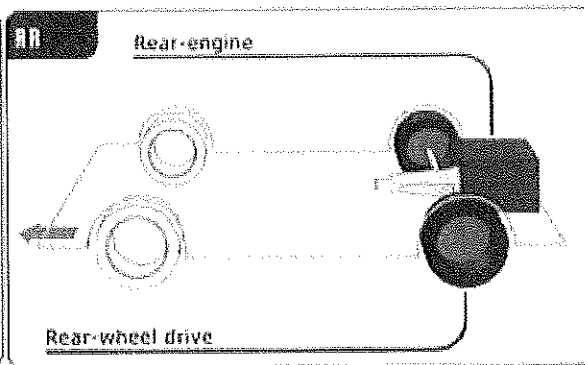
Based on the body system of the vehicle: This type of vehicle is categorized as several types such as:

- Two-door sedan (This type of vehicles has two doors, and a sporty look.)
- Hardtop (It has a rigid rooftop, maybe detach or may not).
- Four-door sedan (This type of vehicles has four doors).
- Station wagon (Here the roof of the vehicle is extended rearward).
- Convertible (Can have a roof or no roof).
- Van (It is generally used to transport of goods).

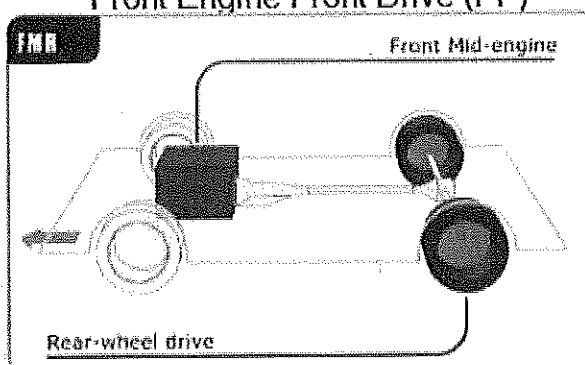
Q11. Differentiate between front engine front drive and rear engine rear drive with diagram?



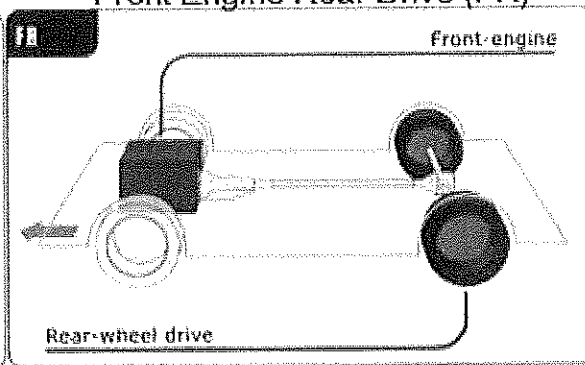
Front Engine Front Drive (FF)



Front Engine Rear Drive (FR)



Midship Engine Rear Drive (MR)



Rear Engine Rear Drive (RR)



THEORY 1 st - IN-SEM EXAMINATION		
SESSION: 2022-23(SUMMER SEMESTER)		
B.Voc	Semester	1 st
Course name / Module	Automotive Tools & Measurement	
Course code	AUT1106	
Date	_____	
Name of the Student	_____	Reg. No. _____

INSTRUCTIONS
<ul style="list-style-type: none"> • Maximum Marks: 20 • Duration of Examination: 01 Hour • Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)	05×1 = 05
--	------------------

Q. 1 Screwdriver are selected on the basis of:

- Length of blade
- width of blade
- both a & b
- Not Mentioned

Q. 2 Chisels are made of:

- Hight carbon Steel
- Low carbon Steel
- Brass
- Aluminum

Q. 3 _____ is used for hammering delevering a softer impact than convential hammers.

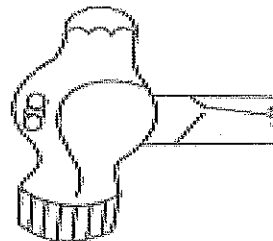
- Ball pin hammer
- Mallet
- File
- Hammer

Q. 4 Bench vice is an example of:

- Jig
- Fixture
- Locator
- Clamping device

Q. 5 Identify the hammer given Below:

- Cross peen hammer
- Side peen hammer
- Ball Peen hammer
- Straight peen hammer



2. Section B (03 short answer type questions, each question carries 02 marks)

03×02 = 06

Q.6 Write short notes on spanners.

Q.7 Brief about the following:

- a. Wise
- b. Clamp

Q.8 What is hammer? Also write name of the components.

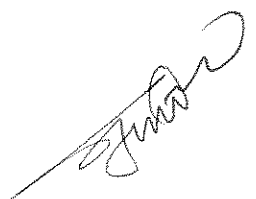
3. Section C (03 long type questions, each question carries 03 marks)

03×03 = 09

Q.9 What is chisel? Explain different types of chisel.

Q.10 Explain pliers and snips.

Q.11 Write difference between tools and equipment.



THEORY 1 ST - IN-SEM EXAMINATION		
SESSION: 2022-23(SUMMER SEMESTER)		
B.Voc	Semester	1 st
Course name / Module	Automotive Tools & Measurement	
Course code	AUT1106	
Date	_____	
Name of the Student	Reg. No.	_____

INSTRUCTIONS
<ul style="list-style-type: none"> • Maximum Marks: 20 • Duration of Examination: 01 Hour • Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)	05×1 = 05
--	------------------

Q. 1 Q. Screwdriver are selected on the basis of:

- Length of blade
- width of blade
- both a & b**
- Not Mentioned

Q. 2 Chisels are made of

- Hight carbon Steel**
- Low carbon Steel
- Brass
- Aluminum

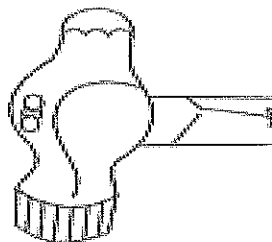
Q. 3 _____ is used for hammering delevering a softer impact than convential hammers.

- Ball pin hammer
- Mallet**
- File
- Hammer

Q. 4 Bench vice is an example of:

- Jig
- Fixture
- Locator
- Clamping device**

Q. 5 Identify the hammer given Below.



- a. Cross peen hammer
- b. Side peen hammer
- c. Ball Peen hammer**
- d. Straight peen hammer

2. Section B (03 short answer type questions, each question carries 02 marks)

03×02 = 06

Q.6 Write short notes on spanners.

Ans:

Spanners are used for operating:

- Threaded Fasteners
- Bolts
- Nuts
- Spanners are made with jaws or opening that fit square or hexagonal nuts and bolts and screw heads.
- They are made of High Tensile or alloy steel
- They are drop forged and heat treated for strength
- They are given a smooth surface finish for easy gripping

The basic types of spanners are:

- Open end spanners
- Tube or tubular box spanners
- Socket Spanners
- Ring Spanners
- The correct spanner to use is the one that fits exactly and allows room for use
- They should also permit the job to be done in shorter time

Q.7 Brief about the following:

- a. Wise
- b. Clamp

Ans:

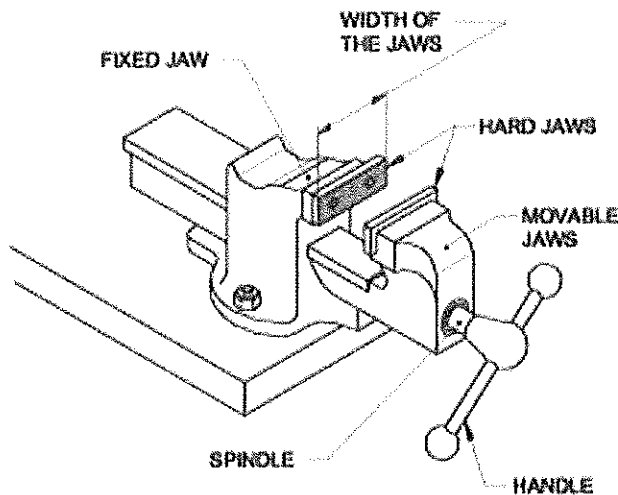
(a) Vices are used for holding work-pieces .

- The vice used for bench work is called as Bench Vice or Engineer's Vice.
- The bench vice is made of cast iron or cast steel and it is used to hold work for filing, sawing, threading and other hand operations.
- The size of the vice is stated by the width of the jaws.

The following are the part of the vice:

- Fixed jaw
- Movable jaw

- Hard jaw
- Spindle
- Handle
- Box nut
- Spring
- The vice is generally bolted and secured in a wooden work table and is used for operations like filing, chipping, hacksawing, bending sheet metal



(b)

Clamps are used for preventing the movement of work and for holding the job tight

Requirements of clamping devices

Should be able to manipulate for easy loading

Should provide the required clamping force

Should be capable of locking with minimum movement

Should accommodate a range of sizes of jobs

A typical clamping device employs a screw and nut

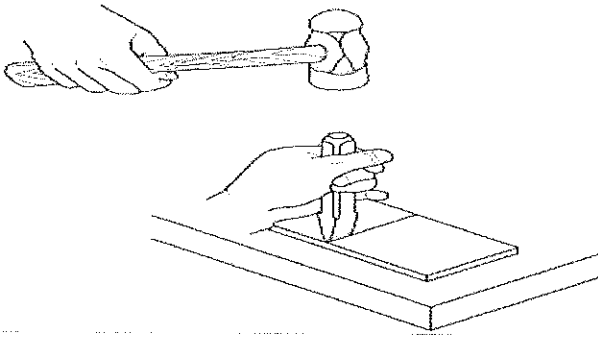
to provide the clamping force

Q.8 What is hammer? Also write name of the components.

Ans:

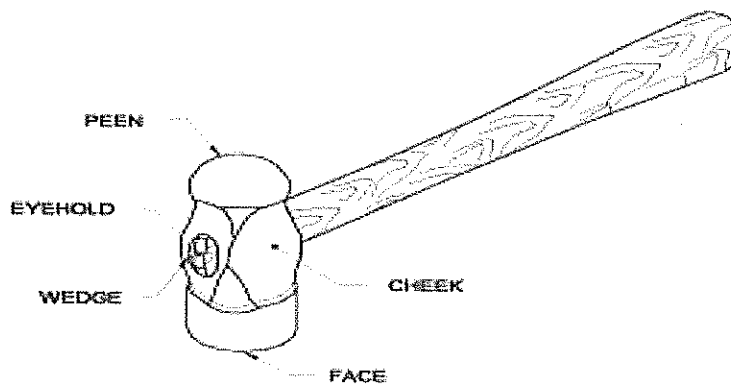
HAMMERS: -

- An engineer's hammer is a hand tool used for striking purposes while:
 - Punching
 - Bending
 - Chipping
 - Forging
 - Riveting



MAJOR PARTS OF HAMMER: -

- The major parts of hammer are hammer head and a handle
- The head is made of drop forged carbon steel, while wooden handle must be capable of absorbing shocks
- The parts of hammer head are:
 - Face
 - Peen
 - Cheek
 - Eyehole
 - Wedge



3. Section C (03 long type questions, each question carries 03 marks)

03×03 = 09

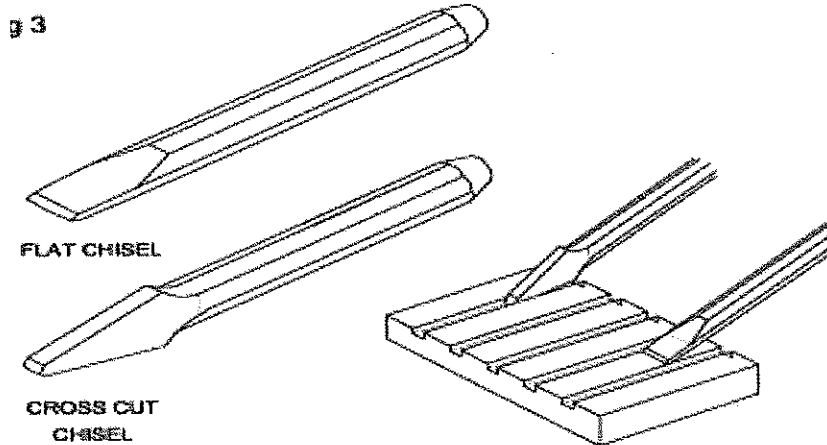
Q.9 What is chisel? Explain different types of chisel.

Ans:

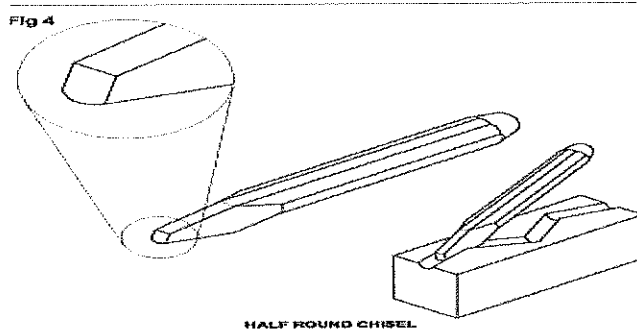
TYPES OF CHISELS:

- Common types of Chisels are:
 - Flat Chisel
 - Cross Cut or Cape Chisel
 - Half Round Nose Chisel
 - Diamond Point Chisel
 - Web or Punching Chisel

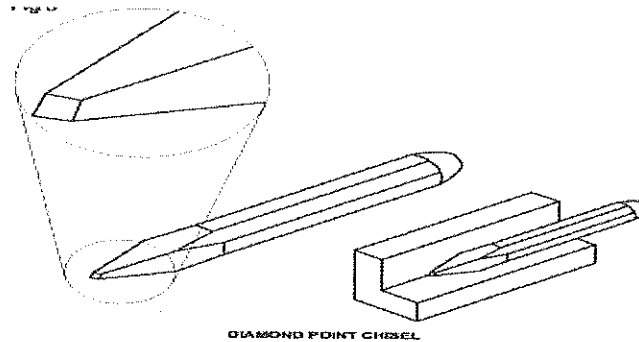
- A chisel is specified according to their
 - Length
 - Width of cutting edge
 - Type
 - Cross section of body
- The length ranges from 150 mm to 400mm
- The width of cutting edge varies according to type of chisels
- 1. **Flat chisel:** - They are used to remove the metal from large flat surfaces and to chip excess metal from weld joints and castings
- 2. **Cross cut chisel:** - They are used for cutting keyways, grooves and slots



- 3. **Half round chisel:** - Half Round Nose chisels are used or cutting grooves .

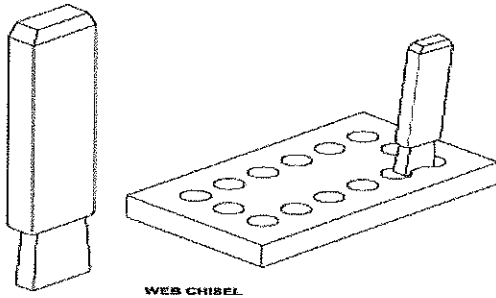


- 4. **Diamond point chisel:** - Diamond Point chisels are used for squaring materials at the corners.



DIAMOND POINT CHISEL

5. Web/punching chisel: - Web/ Punching Chisels are used for separating metals after chain drilling.



WEB CHISEL

Q.10 Explain pliers and snips.

Ans:

Pliers have a pair of legs joined by a pivot, hinge or fulcrum pin (combination pliers)

Each leg consists of long handle and a short jaw

Elements of pliers:

Flat Jaw: Serrated for general gripping

Pipe Grip: serrated for gripping cylindrical objects

Side Cutters: for cutting off soft wires

Joint Cutters: two joint cutters for cutting or shearing off steel wires

Handles: for applying pressure by hand

Available in sizes from 150 mm to 230 mm (Size = Overall length)

1.Flat Nose Pliers has tapered jaws with flat gripping surfaces which may be either smooth or serrated

It is used for bending and folding narrow strips of thin jobs.

2. ROUND NOSE PLIERS

This type of pliers is made with tapered round shape

They are used to shape loops in wires and form curves in light metal strips

3. SLIP- JOINT PLIERS:

These pliers are available in different ranges of positions with different shapes of pivot pins so that they have various range of jaw opening

Mainly used for gripping

4. END CUTTING 7 SIDE CUTTING.

They are used for shearing off wires in confined spaces and cutting of wires close to surface level

They are also used for spreading the cotter pin

5. INTERNAL & EXTERNAL CIRCLIP PLIERS
6. SLIP-JOINT, MULTI GRIP PLIERS

SNIP:

A snip also called a hand shear is used like a pair of scissors to cut thin, soft metal sheets.

Snips are used to cut sheet metal up-to 1.2 mm thickness.

There are several types of snips available for making straight or circular cuts.

The most common snips are straight snips and curved/bent snips.

The choice of snips depends on the shape and type of cut required

Snips are specified by overall length and shape of the blade

1.STRAIGHT SNIPS

These are used for making straight cuts and large external curves

Straight snips have thin blades which are strongly on vertical planes

They are therefore only suitable for straight cuts and external curves when surplus waste has to be removed

While cutting the blade of the snips should not cover the marking

2. BENT SNIPS

These snips have curved blades for making circular cuts

They are also used for trimming cylindrical or conical work in sheet metal

They are therefore only suitable for circular/conical cuts and curves when surplus waste has to be removed

While cutting the blade of the snips should not cover the marking

Q.11 Write difference between tools & equipment.

Ans: Tools and equipment are two words that are often used synonymously, mainly due to the similarities of their meanings. Because of this factor, they can be used interchangeably in most instances. However, in certain cases, this may not be so.

- A tool can be any item that is used to achieve a goal. Equipment usually denotes a set of tools that are used to achieve a specific objective.
- A tool can be non-mechanical as well. However, when one says equipment, there is a certain mechanical aspect to it that cannot be ignored.
- The usage of tools among human beings runs back to millions of years. However, the use of equipment is more of a recent development.

- Tools are often seen to be used by animals as well. Equipment is only used by human beings.
- Tools are usually multipurpose. Equipment is designed for a specific task.