QP

Registration No.: .....

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

School of Automotive Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, 3rd Semester

1st In-Sem. Examination

Course Code: AUT1301 **Time: 1 Hour**

Course Name: Automotive power Train **Max. Marks: 20**

Instruction:

1. Answer all questions from section A, each question carries one mark
2. Answer all question from section B, each question carries two mark.
3. Answer all question from section C, each question carries three mark.

Section-A

5x1=5 Marks

Q-1. What is the full form of CVJ?

a. Continuous velocity jet.
b. Continuous velocity joint.
c. Constant Velocity joint.
d. None of the above.

Q-2. In a four cylinder two stroke engine the working cycle completes in…

a. Four revolution of crankshaft
b. Two revolution of crankshaft
c. One revolution of crankshaft
d. None of the above

Q-3. The function of a crankshaft is to…

a. Operates the valves.
b. Convert Reciprocating Motion of piston into Rotatory motion.
c. To crank the engine.
d. All of the above.

Q-4. Universal Joint is used in…

a. Drive shaft of front wheel drive.
b. Transfer shaft of rear wheel drive.
c. Between the clutch and gear box.
d. None of the above.

Q-5. Engine heat is transferred to coolant through which heat transfer mode?

a. Convection.
b. Radiation.
c. Conduction.
d. All of the above.

Registration No.: .....

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Section-B

3x2=6 Marks

Q-6. Write down the differences between a dry and a wet cylinder liner. (Any four).

Q-7. Write a short note on piston rings.

Q-8. What is heat transfer? Give an example of each types of heat transfer mode.

Section-C

3x3=9 Marks

Q-9. Explain different types of cylinder block.

Q-10. Explain 5S? Write down the two advantages of each component of 5S?

Q-11. What is a cylinder head? Explain different types of cylinder heads.

AK

Registration No.: .....

School of Automotive Skills

3rd Semester, 1st In-Sem. Examination

B. Voc. Program, Winter Semester (2020-21)

Answer key

Course Code: AUT1301 **Time: 1 Hour**

Course Name: Automotive power Train **Max. Marks: 20**

Instruction:

1. Answer all questions from section A, each question carries one mark
2. Answer all question from section B, each question carries two mark.
3. Answer all question from section C, each question carries three mark.

Section-A

Direction : Select the one correct option from the given options in the following questions : -

5x1=5 Marks

Ans 1: (C)

Ans 2: (C)

Ans 3: (B)

Ans 4: (B)

Ans 5: (A)

Section-B

3x2=6 Marks.

Ans 6: The contact surface of the cylinder block and cylinder head must be sealed gastight by the cylinder head gasket.

It is subjected to the following loads:

- Chemical loads: Aggressive fuel components and hot combustion gases in the cylinders.
- Thermal loads: High combustion temperatures and inducted cold fresh gas.
- Mechanical loads: Rapid changing overpressure during the compression, combustion and vacuum during induction(Suction).

The cylinder head gasket must satisfy the following requirements:

- Elastic adaption of the sealing surfaces in all operating states/conditions.
- Low tendency to settle to facilitate cylinder head tensioning without retightening.

- **Material used for Gasket:**

1. Metal/ Soft material cylinder head gasket: A metallic carrier plate roughly 0.3 mm thick is provided with clamping teeth. These teeth hold the soft material layer applied on both sides. The soft material is provided with a pore-filling plastic coating to improve its resistance to the surrounding media. The combustion chamber passages are beaded in. e.g.: With an aluminum plated steel plate. The sealing effect at the liquid passages can be further improved by an elastomer coating.

2. Metal cylinder head gasket: This is usually manufactured as multilayer cylinder head gasket from steel plates. For the purpose of providing a secure gas seal, beads or plate linings are required to increase the local pressing. The sealing effect at the liquid passages is also increased by elastomer coatings

Q-7. Write a short note on piston rings.

Ans: Piston rings commonly used on small engines include the compression ring, wiper ring, and oil ring. A *compression ring* is the piston ring located in the ring groove closest to the piston head. The compression ring seals the combustion chamber from any leakage during the combustion process. When the air-fuel mixture is ignited, pressure from combustion gases is applied to the piston head, forcing the piston toward the crankshaft. The pressurized gases travel through the gap between the cylinder wall and the piston and into the piston ring groove. Combustion gas pressure forces the piston ring against the cylinder wall to form a seal. Pressure applied to the piston ring is approximately proportional to the combustion gas pressure.

1. Compression Ring

The compression ring is the top or closest ring to combustion gases and is exposed to the greatest amount of chemical corrosion and the highest operating temperature. The compression ring transfers 70% of the combustion chamber heat from the piston to the cylinder wall. A taper faced compression ring is a piston ring that has approximately a 1° taper angle on the running surface. This taper provides a mild wiping action to prevent any excess oil from reaching the combustion chamber.

2. Wiper Ring

The wiper ring, sometimes called the scraper ring, Napier ring, or back-up compression ring, is the next ring away from the cylinder head on the piston. The wiper ring provides a consistent thickness of oil film to lubricate the running surface of the compression ring.

The taper angle provides contact that routes excess oil on the cylinder wall to the oil ring for return to the oil reservoir. A wiper ring incorrectly installed with the tapered angle

closest to the compression ring results in excessive oil consumption. This is caused by the wiper ring wiping excess oil toward the combustion chamber.

3. Oil Ring

An oil ring includes two thin rails or running surfaces. Holes or slots cut into the radial center of the ring allow the flow of excess oil back to the oil reservoir. Oil rings are commonly one piece, incorporating all of these features. Some on-piece oil rings utilize a spring expander to apply additional radial pressure to the piston ring. This increases the unit (measured amount of force and running surface size) pressure applied at the cylinder wall.

Ans-8. HEAT TRANSFER: The transfer of heat from one object/medium to another object/medium.

There are three types of heat transfer mode: 1. Convection 2. Conduction 3. Radiation

Section-C

3x3=9 Marks

Ans 9: **Design of a cylinder block:** The double-walled cylinder block is trans versed by cooling channels. Coolant is supplied by the water pump, it cools the cylinder walls and flows through ducts into the cylinder head.

There are the different structural types:

1. Open deck cylinder block
2. Semi-close deck
3. Closed deck cylinder block

1. Open deck cylinder block

- An open deck is one of the most common designs found in lower horsepower aluminum blocks. It is the easiest to manufacture and provides the overall best cooling efficiency, due to the coolants ability to make full contact with the surface area of the upper portion of the cylinder.
- Some will argue that this block has the benefit of weighing less than its two siblings because less material is used, but this weight difference is marginal for most blocks.

2. Semi-Closed Deck

- A semi-closed deck is the most common design found in modern factory turbocharged aluminum blocks and is stronger than an open deck by adding structural support to the top of the cylinders at four points.
- Using modern casting techniques, this design can handle respectable boost levels into the mid 30 PSI range and a much higher peak cylinder pressure than an open deck (depending on the application).

3. Closed Deck:

- A closed deck design is generally left to iron blocks and aluminum racing engines. It is the perfect design for fully built, high compression, high revving race engines that require the highest level of structural support available. Common on high level drag race motors, this design is also able to withstand prolonged periods of high heat and cylinder pressure commonly seen in endurance racing and road racing.

Ans10 : It is the perfect tool to identify the first improvement in your company to eliminate the waste.It is an innovative management system that helps people think lean

The way of adaptation of lean principles in the organization.

5 S is a workplace organisation that uses a list of five Japanese words.

1. Seiri/sort
2. Seiton/set in order
3. Seiso/shine
4. Seiketsu/standardize
5. Shitsuke/sustain

Advantages of 5S:

- Less Waste (Improved Efficiency)
- Reduced Space Used for Storage.
- Improved Maintenance.
- Improved Safety.
- Better, More Committed Employees.
- Improved Quality.
- Optimized organisation
- Efficiency
- Bigger storage density
- Heightened safety
- Increased workplace morale.

Ans11 : The cylinder head seals off the combustion chamber at the top. It is secured by the cylinder head bolts with the inserted cylinder head gasket on cylinder block.

- **Design of Cylinder Head:** The cylinder head contains the fresh gas and exhaust gas ducts with their valves seats and usually also the compression space (clearance volume).
- It accommodates the spark plugs as well as the fuel injectors in the case of direct injection engines together with the engine timing components. E.g. The valves.
- The camshaft is often mounted on the cylinder head. The cylinder head is subjected to high loads resulting from combustion pressure and hot combustion gases and must therefore demonstrate high inherent stability, good heat conduction and low thermal expansion.
- There are two types of cylinder head: -

1. **Liquid-cooled cylinder head:** This is predominantly cast from Al alloys for each cylinder individually or for the entire block in one piece. The coolant flows from the cylinder block into the cylinder head via flow ducts.

2. Air-Cooled Cylinder Head: This is manufactured entirely from AL alloys and is provided with cooling fins. Because the transfer of heat to air is less efficient than to coolant (cooling liquid), the cooling surface must be enlarged by cooling fins.

Note: - Compression Space: The compression space is the smallest combustion chamber. It is sealed towards the bottom by the position of the piston at TDC, where part of the compression space may be situated in the piston crown.

Geometrical shape:

- The geometrical shape of the compression space has a significant bearing on:-
- Surface to volume ratio
- Position of the spark plug and fuel injector
- Mixture Swirl
- Combustion Sequence
- Knock resistance
- Achievable Compression ratio
- Valve arrangement.
- Note: The compression space influences engine efficiency and thus performance, torque and fuel consumption as well as emissions characteristics.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Automotive Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, 3rd Semester,

1st In-Sem. Examination

Course Code: AUT 1302 **Time: 1 Hour**

Course Name: Automotive Breaking, Suspension and Steering System **Max. Marks: 20**

Instruction:

1. All the questions are compulsory to attend.
2. Students are not allowed to bring any smart device or cell phone in the exam hall.
3. Marks will be deducted if any overwriting in words will be found.

Section – A

05X01 = 05 Marks

1. Which method is used for rebuilding tread on tires of heavy duty vehicle?

   a) scaving
   b) Re- treading
   c) tread tearing
   d) None of the above

2. Which of these is not a cause of vibration in steering wheel?
   a) Damage suspension parts
   b) play in rack and pinion
   c) Play in wheel bearing
   d) play in steering wheel

3. What is the full form of ABS system?
   a) Anti-lock braking system
   b) Anti-lock blocking system
   c) Auto-lock braking system
   d) None of above

4. Proper tire inflation pressure information is found _____.

a) On the driver's door or post
b) On the sidewall of the tire
c) In the owner's manual
d) All of the Above

5. Which type of defect occurs mainly due to sudden braking of the vehicle?

a. cupping
c. bubble in ply
b. tread braking
d. Coning

Section – B

03X02 = 06 Marks

6. classify tires on the basis of: -
   a. Whether.
   b. Strength.
7. Write a note of Wheel alignment.
8. Explain the reason of wheel to get unbalanced during running of the vehicle.

Section – C

03X03 = 09 Marks

9. Explain the process of Tire re-treading.
10. Write any three differences between flat tire and radial tire.
11. Explain any five tire defects in Automotive vehicle?

Registration No.: .....

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Automotive Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, 3rd Semester,

1st In-Sem. Examination

Answer key

Course Code: AUT 1302 **Time: 1 Hour**

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Section – A

05X01 = 05 Marks

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   a) scaving
   b) Re- treading
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a. cupping
c. bubble in ply
b. tread braking
d. Coning

Section – B

03X02 = 06 Marks

6. classify tires on the basis of: -

a. Whether.

b. Strength.

Ans. Lower temperatures mean lower tire pressure, so be prepared to inflate your tires more often during the cold weather months. The temperature does affect tire pressure, however. So when the temperature drops, you might be inflating your tires more often to maintain ideal tire pressure in cold weather.

Strength: - Radial ply tires have higher strength in comparison to the flat tires

7. Write a note of Wheel alignment.

Ans. Alignment refers to an adjustment of a vehicle's suspension – the system that connects a vehicle to its wheels. It is not an adjustment of the tires or wheels themselves. The key to proper alignment is adjusting the angles of the tires which affects how they make contact with the road. There are three main types of alignments available – front-end, thrust and four-wheel. The type of suspension that your vehicle has determines what kind of alignment your car will receive. An alignment essentially requires squaring a car's wheels and axles with each other so that they're moving in the same direction. The mechanic adjusts the various suspension angles -- known as toe, thrust, camber and caster -- that influence tire movement and position.

8. Explain the reason of wheel to get unbalanced during running of the vehicle.

Ans. Wheel balancing is the process of balancing the weight of a tire and wheel assembly so that it travels evenly at high speeds. Balancing requires putting a mounted wheel and tire on a balancer, which centers the wheel and spins it to determine where the weights should go. A computer wheel balancer spins the wheel and determines the locations and amounts of vibration. The computer splits the tire into two halves and measures

both lateral and radial forces on each side of the tire's center. Weights are added to each side of the wheel to correct the imbalance.

Section – C

03X03 = 09 Marks

9. Explain the process of Tire re-treading..

   Ans. Retreading is a process through which we can use our old tyres. In this method, a worn casing of a tyre that has a good structural quality is taken off and put through a process in which it gets a completely renewed tread and sidewall rubber. A retreaded tyre commences its life as a worn out tyre.

   A pre-vulcanized ring tread liner is stretched and fitted around the tire. A laser ensures the machine is centered on the tire, while clamps emerge and press the tread liner down. The machine holding the tread withdraws. Rollers emerge and smooth the tread liner to the casing.

10. Write any three differences between flat tire and radial tire.

    Ans. The advantages of **radial tires** over bias ply: Flexible sidewalls. Reduced fuel consumption due to less rolling resistance. A softer ride because of the layout of the **tire's** plies and because of the flex of the sidewalls.

The Advantages and Disadvantages of Run-Flat Tires

- **Run-flat tires** are much more expensive than other **tires**; 40 to 75% more. ...
- Because they're so heavy, they can reduce fuel economy.
- The tread on **run-flats** does not typically last as long as on other **tires**.
- They don't grip the road well when temperatures are colder.
- They don't provide the most comfortable ride.

11. Explain any five tire defects in Automotive vehicle?

    Ans. **5 Types of Tyre Defects You Should Look Out For**

- Inconsistent tread pattern. To petrolheads this will sound obvious, but for more casual drivers, paying particular attention to their **tyres**' treads may not be a given. ...
- Wear and tear while 'new' New **tyres** should look new. ...
- Missing components. ...
- Tread and steel belt separation. ...
- **Tyres** unsuitable for your vehicle.

Some of the common **defects** routinely found in **tires** are age-related rubber wear, low tread, and tread separation. The overall age and wear on the **tire** can account for the majority of problematic **tire defects**.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Automotive Skills

Session: 2021-22 (Summer Semester)

B. Voc. Program, 3rd Semester,

QP

1st In-Sem. Examination

Course Code: AUT1303 **Time: 1 Hour**

Course Name: Automotive Body Works **Max. Marks: 20**

Instruction: (if any)

1. Attempt all questions.
2. Use of Calculators is prohibited.
3. Section A contains 05 Questions. Each question carries 1 Marks.
4. Section B contains 03 Questions. Each question carries 2 Marks.
5. Section C contains 03 Questions. Each question carries 3 Marks.

Section – A

05X01 = 05 Marks

Q1. Body hammer with round heads are used for- general panel flattening.

a) Restoring bodylines
b) Shrinking metal
c) General panel flattening
d) All of the above

Q2. A slide hammer is used for-

a) Pulling out dents in sheet metal
b) Prying panels outward from behind.
c) Removal of paints
d) None of the above

Q3. A sander or grinder is used for-

a) Removal of paints
b) Removal of primer
c) Old body filler
d) All of the above

Q4. Out of the following options which one is a safety equipment?

a) Gloves
b) Shoes
c) Goggles
d) All of the above

Q5. The number of Body Panels in a vehicle are: -

a) 15
b) 13
c) 10
d) 12

Section – B

03X02 = 06 Marks

Q6. Write down the names of any four PPE equipment used in a body shop.

Q7. What is panel flanger?

Q8. What do understand by paint stripper?

Section – C

03X03 = 09 Marks

Q9. What is body filler? Explain in detail.

Q10. What are the types of abrasive material include in sandpaper? And also write its uses.

Q11. Write down the names of All body panels in an automotive vehicle.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Automotive Skills

Session: 2021-22 (Summer Semester)

B. Voc. / M. Voc. Program, 3rd Semester,

1st In-Sem. Examination

Course Code: AUT1303 | **Time: 1 Hour**

Course Name: Automotive Body Works | **Max. Marks: 20**

Instruction: (if any)

1. Attempt all questions.
2. Use of Calculators is prohibited.
3. Section A contains 05 Questions. Each question carries 1 Marks.
4. Section B contains 03 Questions. Each question carries 2 Marks.
5. Section C contains 03 Questions. Each question carries 3 Marks.

Answer Key

Section – A

05X01 = 05 Marks

Q1. Body hammer with round heads are used for- general panel flattening.

a) Restoring bodylines
b) Shrinking metal
c) General panel flattening
d) All of the above

Ans. C

Q2. A slide hammer is used for-

a) Pulling out dents in sheet metal
b) Prying panels outward from behind.
c) Removal of paints
d) None of the above

Ans. A

Q3. A sander or grinder is used for-

a) Removal of paints
b) Removal of primer
c) Old body filler
d) All of the above

Ans. D

Q4. Out of the following options which one is a safety equipment?

a) Gloves
b) Shoes
c) Goggles
d) All of the above

Ans. D

Q5. The number of Body Panels in a vehicle are: -

a) 15
b) 13
c) 10
d) 12

Ans. 13

Section – B

03X02 = 06 Marks

Q6. Write down the names of any four PPE equipment used in a body shop.

Ans.

1. Helmet
2. Safety goggles
3. Safety shoes
4. Nose masks

Q7. What is panel flanger ?

- Ans. Whenever you are attaching two panels to each other, you will find it useful to create flange on a piece of sheet metal.

Q8. What do understand by paint stripper?

- Ans. Paint stripper removes old paint from steel parts and some other metals.
- Since this product may not be suitable for use on all metals or finishes, you should consult your paint suppliers for recommendations on which products to use.
- Even though chemical stripping does not involve acid (as some people believe), it does involve handling chemicals that require some care in their use and disposal.
- Chemical paint strippers are safe to use if handled with care: follow the appropriate safety precautions to prevent burns to your skin or other skin irritations.

Section – C

03X03 = 09 Marks

Q9. What is body filler? Explain in detail.

- Ans. Body fillers are generally a polyester resin based filler with a creme hardener that can be used to even out dents and cover blemishes on vehicles.
- Body fillers all fall into three general categories: standard, mid-range, and premium, and are generally available in a two-part material consisting of a polyester resin and a creme hardener.
- The filler grade you select will depend on the scope of the project and the size of the damaged spots needing to be repaired.
- Standard grade is a great option for minimal hail damage and small rust spots, while premium grade should be used for actual tears or a large surface area.

Q10. What are the types of abrasive material include in sandpaper? And also write its uses.

- Ans. **Garnet:** commonly used in woodworking
- **Emery:** commonly used to abrade or polish metals
- **Aluminium oxide:** The most common in modern use, with the widest variety of grits, lowest unit cost; can be used on metal (i.e. body shops) or wood
- **Silicon carbide**: available in very coarse grits all the way through to micro-grits, common in wet applications
- **Alumina-zirconia:** (an aluminium oxide–zirconium oxide alloy), used for machine grinding applications
- **Chromium(III) oxide:** used in extremely fine micron grit (micrometre level) papers
- **Diamond:** used for finishing and polishing hard metals, ceramics and glass
- **Ceramic aluminium oxide**: used in high pressure applications, used in both coated abrasives, as well as in bonded abrasives.

Q11. Write down the names of All body panels in an automotive vehicle.

1. Ans. Front Bumper
2. Rear Bumper
3. Hood (Bonnet)
4. Right hand side front fender
5. Right hand side rear fender (or Rh Qtr panel)
6. Left hand side front fender
7. Left hand side rear fender (or LH Qtr panel)
8. Right hand side front door
9. Right hand side rear door
10. Left hand side front door
11. Left hand side rear door
12. Back door panel
13. Roof panel

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Automotive Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, 3rd Semester,

1st In-Sem. Examination

Course Code: AUT1304 | **Time: 1 Hour**

Course Name: Automotive Refinish Painting | **Max. Marks: 20**

Instruction: Attempt all Questions.

Section – A

05X01 = 05 Marks

Q-1. What is a solid color?

a. Color having particles
b. Color requires clear coat
c. Color don't have particles
d. None of these

Q-2. What is the recommended intensity of light required in a paint booth?

a. 1000 lux
b. 2000 lux
c. 1500 lux
d. None of the above

Q-3. What is the best way of removing the dust particles after putty dry sanding?

a. Air blowing
b. Cleaning with thinner
c. Cleaning with degreaser
d. Both (a) and (c)

Q-4. What are the primary colors?

a. Red, yellow and blue
b. Green, orange and red
c. Blue, violet and green
d. None of the above

Q-5. Which of the following paint layer is not a part of refinish painting?

a. Electrophoretic dip coat primer
b. Epoxy primer
c. Polyester putty
d. Body filler

Section – B

03X02 = 06 Marks

Q-6. Write a short note on unique hues and combination hues?

Q-7. What is HVLP gun? Write down its application.

Q-8. What is Paint? Name different components of paint

Section – C

03X03 = 09 Marks

Q-9. Explain Hue, Value and chroma.

Q-10. Draw and explain Hue circle diagram.

Q-11. Discuss the correct parameters of spray gun handling.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

Answer Key

School of Automotive Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, 3rd Semester,

1st In-Sem. Examination

Course Code: AUT1304 **Time: 1 Hour**

Course Name: Automotive Refinish Painting **Max. Marks: 20**

Instruction: Attempt all Questions.

Section – A

05X01 = 05 Marks

Q-1. What is a solid color?

a. Color having particles
c. **Color don't have particles**
b. Color requires clear coat
d. None of these

Q-2. What is the recommended intensity of light required in a paint booth?

a. **1000 lux**
c. 1500 lux
b. 2000 lux
d. None of the above

Q-3. What is the best way of removing the dust particles after putty dry sanding?

a. Air blowing
c. Cleaning with degreaser
b. Cleaning with thinner
d. **Both (a) and (c)**

Q-4. What are the primary colors?

a. **Red, yellow and blue**
c. Blue, violet and green
b. Green, orange and red
d. None of the above

Q-5. Which of the following paint layer is not a part of refinish painting?

a. **Electrophoretic dip coat primer**
c. Polyester putty
b. Epoxy primer
d. Body filler

Section – B

03X02 = 06 Marks

Q-6. Write a short note on unique hues and combination hues?

Ans 1.Some hue perceptions appear to be combined from other hues. For example, we perceive that orange combines hue aspects of red and yellow

2. Other hue perceptions appear to be unique or not combinations. For example, green is a unique hue. It is not perceived as a combination of blue and yellow.

Q-7. What is HVLP gun? Write down its application.

Ans . 1. HVLP stands for high-volume, low-pressure.

2. These guns use high volume of air to push the paint through the nozzle.

3. Dilute the paint to make it thinner, and spray from a distance of five to eight inches.

4. It decreases the wastage of paint.

Q-8. What is Paint? Name different components of paint

Ans. Paint is a mixture of different chemicals which gives aesthetic appearance, provides strength, prevent from atmospheric conditions.

Paint is made up of five basic elements: -

1. Binder/Resin
2. Pigment
3. Additives
4. Hardener
5. Solvent

Section – C

03X03 = 09 Marks

Q-9. Explain Hue, Value and chroma.

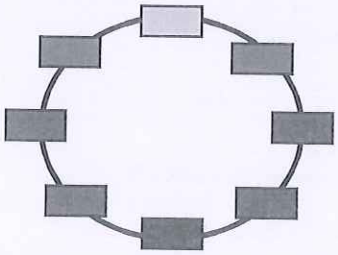
Ans. Hue: - Hue is the most important property of colour as it simply described by simply names of colour. Colour names like red, blue, yellow etc. all are hue names.

Value: - The attribute with which we can classify color on the basis of their lightness and darkness is called value.

Chroma: - The attribute with which we can classify color on the basis of their Brightness and dullness is called chroma.

Q-10. Draw and explain Hue circle diagram.

Ans



White, black and gray are"neutral" colors. They have no hue.Neutral colors are not more related to one hue than to anyother. To show this on the huecircle diagram, we place neutral colors at the center

Q-11. Discuss the correct parameters of spray gun handling.

Ans 1. The angle of gun should be 90 degrees to the panel.

2. The pressure of gun should be 2-3 bar.
3. The distance between the panel and gun should be 5-8 inches.
4. The discharge should be 2.5 rounds of the discharge knob.
5. Overlapping should be 50% in each lap.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Automotive Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, 3rd Semester,

1st In-Sem. Examination

Course Code: AUT1305 **Time: 1 Hour**

Course Name: Automotive Electrical and A.C. **Max. Marks: 20**

Instruction:

1. Answer all questions from section – A, each question carries one mark.
2. Answer all questions from section – B, each question carries two marks.
3. Answer all questions from section – C, each question carries three marks.

Section – A

05X01 = 05 Marks

Q1. Which of the following examples is not an effect of electrical current flow?

a) Motion Effect.
b) Heat Effect.
c) Light Effect.
d) Magnetic Effect.

Q2. What is normally the voltage in the electrical system of a passenger car?

a) 6V.
b) 12V.
c) 24V.
d) 2V.

Q3. How are all power consumers normally connected in a vehicle?

a) Series Connection.
b) Mixed Connection.
c) Parallel Connection.
d) None of the above.

Q4. Which of the following material is not an electrical conductor?

a) Graphite.
b) Gold.
c) Silver.
d) Ceramic.

Q5. What is the full form of OBD tool?

a) On Board Data.
b) On Board Diagnostic.
c) Over the Board Diagnostics.
d) None of the above.

Section – B

03X02 = 06 Marks

Q6. What do you understand by structure of atoms?

Q7. State Ohm's Law?

Q8. What do you understand by Flemings Left Hand Rule?

Section – C

03X03 = 09 Marks

Q9. Explain the followings:

1. Capacitor.
2. Inductance.
3. Earthling (Grounding).

Q10. What are the different types of circuits used in vehicle to connect electrical system through power source?

Q11. What do you understand by magnetism? Explain the electromagnetism and its principles.

School of Automotive Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, 3rd Semester,

1st In-Sem. Examination

Answer key A.K.

Course Code: AUT1305 **Time: 1 Hour**

Course Name: Automotive Electrical and A.C. **Max. Marks: 20**

Section – A

05X01 = 05 Marks

Q1. Which of the following examples is not an effect of electrical current flow?

Answer: a. Motion Effect.

Q2. What is normally the voltage in the electrical system of a passenger car?

Answer: b. 12V.

Q3. How are all power consumers normally connected in a vehicle?

Answer: c. Parallel Connection.

Q4. Which of the following material is not an electrical conductor?

Answer: d. Ceramic.

Q5. What is the full form of OBD tool?

Answer: b. On Board Diagnostic.

Section – B

03X02 = 06 Marks

Q6. What do you understand by structure of atoms?

Answer:

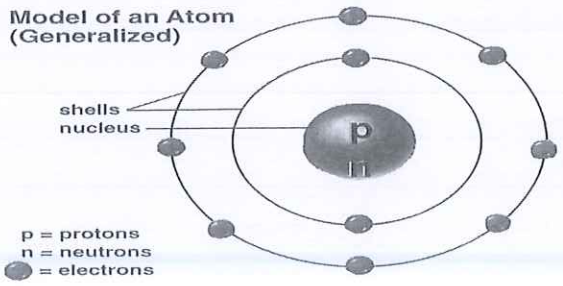
Atoms consist of three main particles: -

1. Electron

Electron is subatomic particle whose charge is negative, they have no known components and substructure.

2. Proton

Proton is a sub atomic particle with a positive charge and a mass slightly less than that of neutron.



3. Neutron

A subatomic particle of about the same mass as a proton but without an electric charge, present in all atomic nuclei except those of ordinary hydrogen.

Q7. State Ohm's Law?

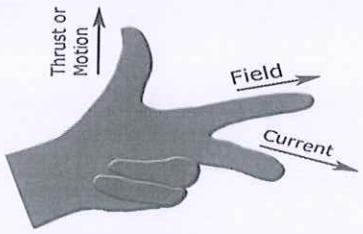
Answer:

Ohm's law states that the current through a conductor between two points is directly proportional to the voltage across the two points. Introducing the constant of proportionality, the resistance.

Q8. What do you understand by Flemings Left Hand Rule?

Answer:

When current flows through a conducting wire, and an external magnetic field is applied across that flow, the conducting wire experiences a force perpendicular both to that field and to the direction of the current flow (i.e. they are mutually perpendicular).



Section – C

03X03 = 09 Marks

Q9. Explain the followings:

1. Capacitor.
2. Inductance.
3. Earthling (Grounding).

Answer:

1. Capacitor:
   - It is a device which is used to store charge.
   - It discharges completely for an instant of time.
   - It is a passive two terminal electrical components that stores potential energy in an electric field.
   - The effect of capacitor is known as capacitance.
   - Capacitor is little like a battery.
   - Battery and capacitor both working same.
2. Inductance: In electromagnetism and electronics, inductance is the property of an electrical conductor by which a change in electric current through it induces an

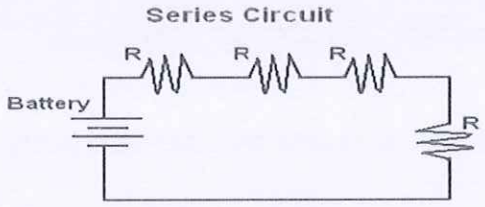
electromotive force (voltage) in the conductor. It is more accurately called self-inductance.

3. Earthling (Grounding): The electrical earthling is done by connecting the non-current carrying part of the equipment or neutral of supply System to the ground. The process of transferring the immediate discharge of the electrical energy directly to the earth by the help of the low resistance wire is known as the electrical earthling

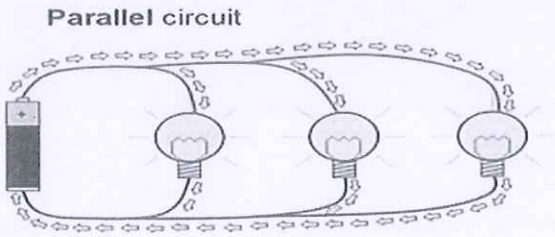
Q10. What are the different types of circuits used in vehicle to connect electrical system through power source?

Answer:

1. Series Circuit:
    a. A circuit where components are arranged in series is known as series circuit.
    b. The current through each of the components is the same, and the voltage across the circuit is the sum of the voltages across each component.



2. Parallel Circuit: In a parallel circuit, the voltage across each of the components is the same, and the total current is the sum of the currents through each component.



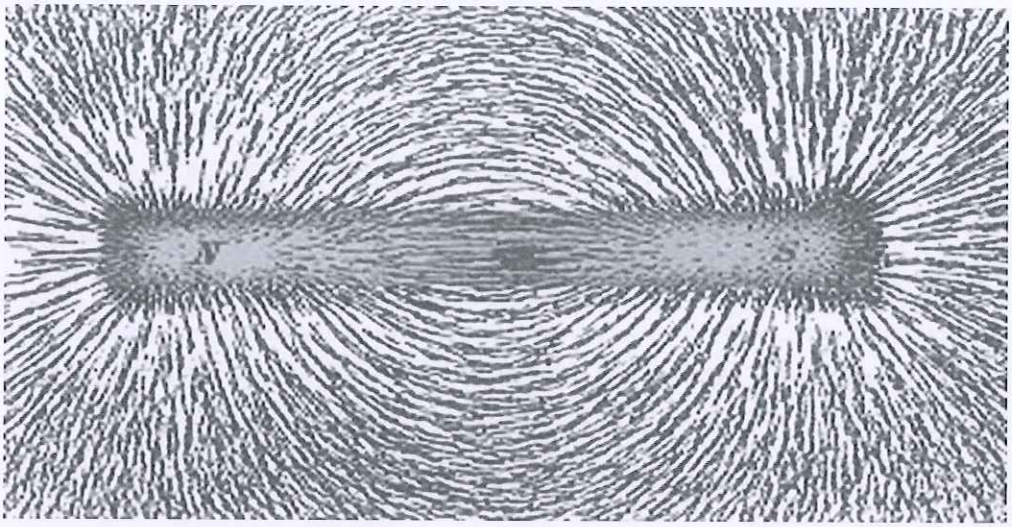
Q11. What do you understand by magnetism? Explain the electromagnetism and its principles.

Answer:

- Magnetism is a class of physical phenomena that are mediated by magnetic fields.
- Electric current and the magnetic moments of elementary particles give rise to the magnetic fields.
- Magnets have two poles: -

1. North pole
2. South pole

- It is called as dipole magnet.



- Electromagnetic phenomena are defined in terms of the electromagnetic force, sometimes called the Lorentz force, which includes both electricity and magnetism.
- Electromagnetism is the process where magnetic field is created by introducing the current in the conductor.
- It generated magnetic field lines of force of conductor.
- Current moving in a wire, produces magnetic field lines along the wire.
- Direction of magnetic field lines and force can be determined by using right hand rule.