



**School of Automotive Skills**

**Session: 2020-21 (Summer / Winter Semester)**

**B. Voc. V<sup>th</sup> Semester,**

**2<sup>nd</sup> In-Sem. Examination**

**Course Code: AUT 1501**

**Time: 1 Hour**

**Course Name: Mechatronics**

**Max. Marks: 20**

- Instruction:** (a) All questions are compulsory  
(b) Scientific non-programmable calculators are permitted.  
(c) Any data not given may be assumed if necessary and assumptions mentioned.

**Section – A**  
**( choose the correct option)**

05X01 = 05 Marks

1. In BOSCH M3 ECU the enrichment factor is reduced after the engine reaches.....

- (a) 5000 rpm.
- (b) Temp of 80 ° C.
- (c) There is change of more than 30 m bar in MAP.
- (d) None of the above.

2. GDI injections can achieve ultra lean burn A:F Ratio upto.....

- (a) 25:1.
- (b) 16:1.
- (c) 65:1
- (d) None of the above.

3. Accuracy requirement of automotive sensors are generally accurate maximum.....

- (a) 1 to 2 %.
- (b) 10 to 15 %.
- (c) 37 to 42 %.
- (d) None of the above.

4. Adaptive cruise control adjusts the speed as per the speed of the vehicle in front.

- (a) True
- (b) False

5. Roll over protection sensor works on .....principle

- (a) Hall effect.
- (b) Pressure.
- (c) Heating voltage.
- (d) Gyroscope.



# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

## Section – B

03X02 = 06 Marks

6. How does the ESP combine with the Engine Management System for better safety?
7. Write a short note on Acceleration Phase of BOSCH Motronic M3 EMS.
8. How does the Hall Sensor work ?

## Section – C

03X03 = 09 Marks

9. Explain the features and working of Automatic Emergency Brakes.
10. Explain Hot Wire Air Mass Meter in detail
11. Explain any three types of Intermittent Injections in MPFI

SAS

2020-21 (Summer)

V Sem, II Insem Exam

AUT 1501 Mechatronics

SECTION-A

1. (a)
2. (c)
3. (a)
4. (a)
5. (d)

SECTION-B

6. ESP can combine with EMS by various sensors of ESP giving inputs to ECU of ESP on stability parameters like roll, yaw, cornering, steering angle and from active suspension system and, then this ECU will give inputs to EMS to control the speed by adjusting the TPS for correct speed.

7. Acceleration Phase BOSCH M3

When rapid acceleration is detected by ECU from the rate of change of ~~the~~ TPS potentiometer signal the following takes place

- (a) Enrichment takes place over a set number of ignitions.
- (b) Amount of enrichment factor controlled by coolant temp and variation in MAP.
- (c) Then enrichment decreases over a set number of ignitions.
- (d) Enrichment will not occur if engine rpm is more than 5000 rpm.

8. Hall sensor works on Hall effect where a semi conductor to which voltage is applied and when placed in a magnetic field will produce a Hall voltage & current. The magnitude will depend on the type, intensity & direction of the magnetic field.

This type of sensor is used at many places in an automobile as it is a sensor which has long life.

### section C

9. AEB is a collision avoidance system where when the camera or radar senses an object in the front and anticipates a collision works in two modes

(a) Alerts the driver so that the driver can apply brakes to avoid collision. If the driver does apply brakes but the force is inadequate the system applies the balance force.

(b) If the driver is not alerted and applies NO brake the system applies brakes to minimize the damage.

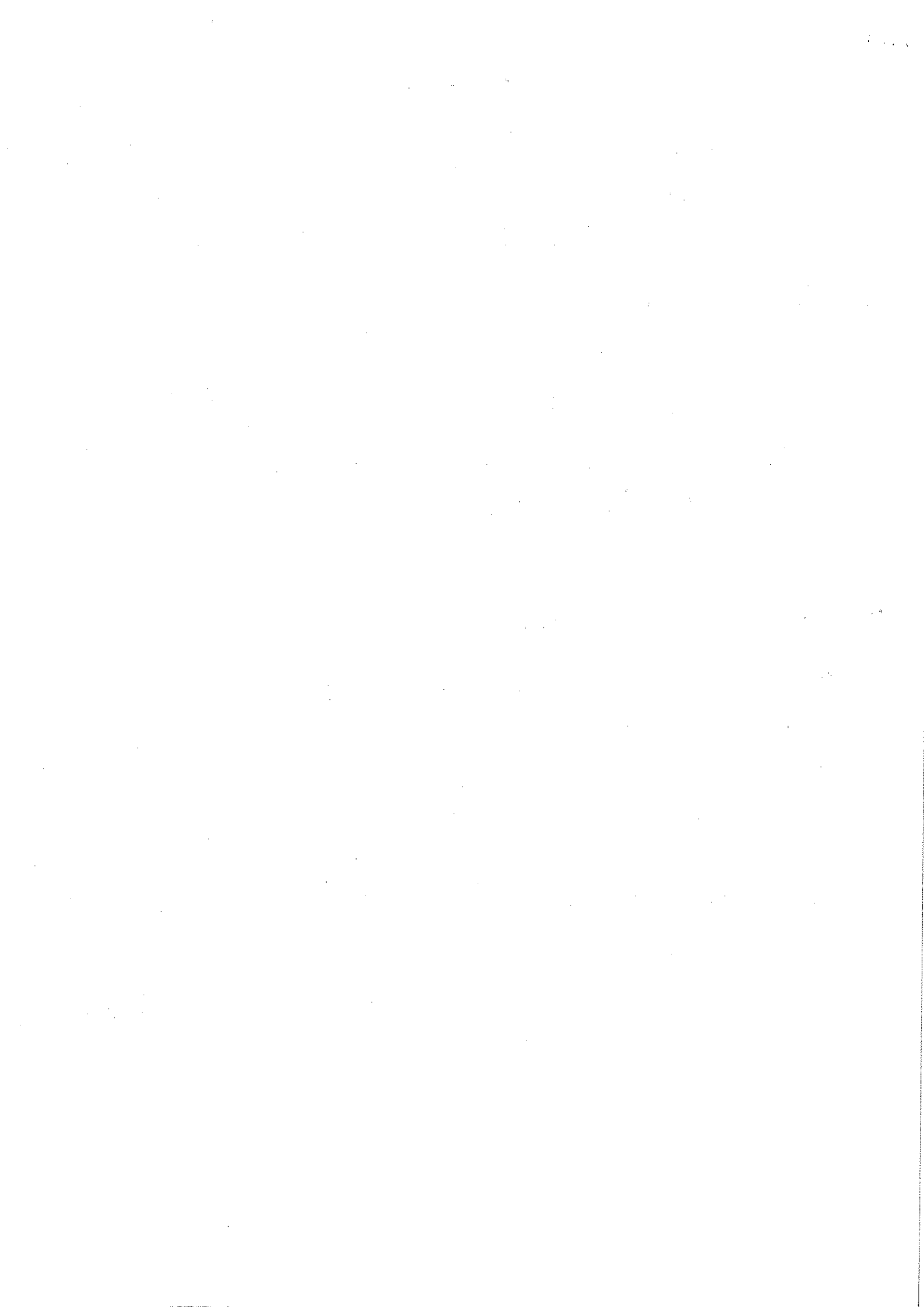
10. Hot wire Air Mass Meter is a type of sensor without any moving parts and thus has long life.

and has a wire made of metals like platinum whose resistance increases with temperature.

- the principle followed is that the heat conduction is proportional to mass flow of air
- the wire is heated to a particular temp and when air flows the temp drops. Some current is required to maintain the temp.
- this current is calibrated to know the mass of air flow.

## 11. Drawbacks of MPFI

- (a) Cold walls of inlet manifold lead to droplet formation and uneven distribution of fuel to cylinders.
- (b) on the walls a film of fuel can be formed.
- (c) Fuel distribution to various cylinders is uneven.
- (d) They have to operate at higher F:A ratio.





**School of Automotive Skills**  
**Session: 2020-21 (Summer Semester)**  
**B. Voc. Program, 5th Semester,**  
**2<sup>nd</sup> In-Sem. Examination**

**Course Code: AUT1502**

**Time: 1 Hour**

**Course Name: Automotive Electrical System**

**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**

05X01 = 05 Marks

Q1. Full form of POF is...

- |                           |                       |
|---------------------------|-----------------------|
| A. Plastic optical fibre  | C. Pure optical fibre |
| B. Plastic optical freeze | D. None of these      |

Q2. Full form of MOST Bus is...

- |  |                                     |
|--|-------------------------------------|
| A. Media oriented system transport       | C. Model oriented system tools      |
| B. Media oriented systematic transformer | D. Multiple oriented system traffic |

Q3. What is the full form of CAN Bus system?

- |                           |                            |
|---------------------------|----------------------------|
| A. Controller air network | C. Controller area network |
| B. Computer area network  | D. Controlled area network |

Q4. Which component of the electrical system keeps the battery charged?

- |                   |                |
|-------------------|----------------|
| A. The engine     | C. The brakes  |
| B. The alternator | D. The starter |

Q5. A hydrometer is used to determine...

- |                                |                         |
|--------------------------------|-------------------------|
| A. Relative humidity           | C. Buoyancy force       |
| B. Specific gravity of liquids | D. Viscosity of liquids |

**Section – B**

03X02 = 06 Marks

Q6. What is the primary task of a spark plug?

Q7. Define Flash over in Sparkplug.

Q8. What are the differences between hot spark plug and cold spark plug?

**Section – C**



- Q9. Explain LIN Bus and CAN bus system in Automotive Networking.
- Q10. Explain three different types of sensors used in a car.
- Q11. Explain automotive Ethernet in details. What are the advantages of automotive Ethernet?

*Handwritten signature*  
21 Dec 2020



**School of Automotive Skills**  
**Session: 2020-21 (Summer Semester)**  
**B. Voc. Program, 5th Semester,**  
**2<sup>nd</sup> In-Sem. Examination**

**Course Code: AUT1502**

**Time: 1 Hour**

**Course Name: Automotive Electrical System**

**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**

05X01 = 05 Marks

Q1. Full form of POF is...

- |                           |                       |
|---------------------------|-----------------------|
| A. Plastic optical fibre  | C. Pure optical fibre |
| B. Plastic optical freeze | D. None of these      |

Ans. A

Q2. Full form of MOST Bus is...

- |  |                                     |
|--|-------------------------------------|
| A. Media oriented system transport       | C. Model oriented system tools      |
| B. Media oriented systematic transformer | D. Multiple oriented system traffic |

Ans. A

Q3. What is the full form of CAN Bus system?

- |                           |                            |
|---------------------------|----------------------------|
| A. Controller air network | C. Controller area network |
| B. Computer area network  | D. Controlled area network |

Ans. C

Q4. Which component of the electrical system keeps the battery charged?

- |                   |                |
|-------------------|----------------|
| A. The engine     | C. The brakes  |
| B. The alternator | D. The starter |

Ans. Alternator

Q5. A hydrometer is used to determine...

- |                                |                         |
|--------------------------------|-------------------------|
| A. Relative humidity           | C. Buoyancy force       |
| B. Specific gravity of liquids | D. Viscosity of liquids |

Ans. B

**Section – B**



Q6. What is the primary task of a spark plug?

Ans. The primary task of the sparkplug is to ignite the Air/fuel mixture through high voltage pulse. To this end, a sparkover occurs between the electrodes of the spark plug after the ignition voltage is reached.

Q7. Define Flash over in Sparkplug.

Ans. Flashover is the phenomenon where sparks are discharged between the terminal and metal shell of the spark plug.

Q8. What are the differences between hot spark plug and cold spark plug?

Ans. When a spark plug is referred to as a "cold plug", it is one that transfers heat rapidly from the firing tip into the engine head, keeping the firing tip cooler. \*A "hot plug" has a much slower rate of heat transfer, which keeps the firing tip hotter.

## Section – C

03X03 = 09 Marks

Q9. Explain LIN Bus and CAN bus system in Automotive Networking.

Ans. LIN Bus: The role of the LIN (Local Interconnect Network) bus is to complement the CAN bus, not replace it. It is an inexpensive serial communications protocol that supports remote and non-critical applications in a car's network. Unlike CAN, LIN works on a master-slave topology. The LIN network can have one master and up to 16 slave nodes. All communication is initiated by the master node.

- Usually a "Single-wire line" is used in automotive industry.
- The data transfer rates are the lowest in a LIN-System (20 kbit/s)

CAN Bus: A Controller Area Network (CAN bus) is a vehicle bus standard designed to allow microcontrollers and devices to communicate with each other in applications without a host computer. All nodes are connected to each other via a "Two-wire line" (CAN High and CAN Low).

Q10. Explain three different types of sensors used in a car.

Ans. Today's modern automobiles have a variety of sensors. You may hear of several of them such as: Throttle position sensor, TPMS sensor, .... These sensors built into their engine to ensure that the owner can identify and prevent possible issues before they result in breakdowns can result in expensive repairs.

- a. The Mass Air Flow Sensor (MAF)

From different types of sensors used in cars, The Mass Air Flow Sensor (MAF) is a computer-controlled sensor that calculates the volume and density of the air taken in by the engine. This in turn ensures the right amount of fuel is used for optimized operating conditions. If this sensor is faulty, the car may stall and the fuel usage will be higher than necessary.



## b. The Engine Speed Sensor

The Engine Speed Sensor will help car owners control their cars better. Engine Speed Sensor is attached to the crankshaft and monitors the spinning speed of the crankshaft, which controls the fuel injection and timing of the engine. There are many ways for car engine to stop suddenly, and this sensor will prevent that for drivers.

## c. Oxygen Sensor

The Oxygen sensor measures the amount of unburden oxygen that is present in the exhaust pipe and will indicate if the fuel is burning rich or lean. A faulty oxygen sensor will cause the car to idle poorly and jerk as well as cause high fuel consumption.

Q11. Explain automotive Ethernet in details. What are the advantages of automotive Ethernet?

Ans. In close future, automotive wiring harnesses will change from heterogeneous networks of proprietary protocols (such as CAN and MOST) to hierarchical homogenous automotive Ethernet networks. In the new model, switched 1GE automotive Ethernet will interconnect all the domains in the car (meaning that Ethernet will be a shared medium with signals controlling throttle sharing the same twisted pair as a request to change the radio station and the video for the kids in the back seat).

### Advantages:

- Reduce the cable costs
- Reduce the cable weight
- Increasing data transfer speed up to 100Mbps





School of Automotive Skills  
Session: 2020-21 (Summer Semester)  
B. Voc. Program, 5<sup>th</sup> Semester,  
2<sup>nd</sup> In-Sem. Examination

Course Code: AUT1503

Course Name: Workshop Management

Instruction: Attempt all Questions.

Time: 1 Hour

Max. Marks: 20

Section – A

05X01 = 05 Marks

Q.1 In a fishbone diagram, some potential causes to consider are:

- a. People
- b. Process
- c. Material
- d. All of the above

Q.2 What amount of cost will B category items take of inventory budget?

- a. 10%.
- b. 30%.
- c. 50%.
- d. 80%.

Q.3 What is the full form of STP?

- a. Sewage treatment plant.
- b. Sunlight temperature precaution.
- c. Save tree policy.
- d. Non of the above.

Q.4 Which of the following are characteristics of Break Even Point?

- a. There is no loss and no profit to the firm.
- b. Contribution is equal to fixed cost.
- c. Total revenue is equal to total cost.
- d. All of the above.

Q.5 What is the full form of AMC?

- a. Annual maintenance cost
- b. Annual monitoring cost
- c. Automotive maintenance cost
- d. Non of the above

Section – B

03X02 = 06 Marks

Q.6 Write the fundamental objectives of occupational health and safety.

Q.7 Describe the responsibilities of a EHS manager.

Q.8 Briefly write the types of fire?

Section – C

03X03 = 09 Marks

Q.9 What is an ABC curve? Why is its utility in the industry?

Q.10. Write 5 Most common workplace accidents and possible ways to avoid to happen.

Q.11 Explain fire management system.

*Signature*  
21 DEC 2020





**School of Automotive Skills**  
**Session: 2020-21 (Summer Semester)**  
**B. Voc. Program, 5<sup>th</sup> Semester,**  
**2<sup>nd</sup> In-Sem. Examination**

**Course Code: AUT1503**

**Time: 1 Hour**

**Course Name: Workshop Management**

**Max. Marks: 20**

**Instruction: (if any)**

**Section – A**

05X01 = 05 Marks

Q.1 In a fishbone diagram, some potential causes to consider are:

- |            |                     |
|------------|---------------------|
| a. People  | c. Material         |
| b. Process | d. All of the above |

Q.2 What amount of cost will B category items take of inventory budget?

- |         |         |
|---------|---------|
| a. 10%. | c. 50%. |
| b. 30%. | d. 80%. |

Q.3 What is the full form of STP?

- |                                     |                      |
|-------------------------------------|----------------------|
| a. Sewage treatment plant.          | c. Save tree policy. |
| b. Sunlight temperature precaution. | d. Non of the above. |

Q.4 Which of the following are characteristics of Break Even Point?

- |  |  |
|--|--|
| a. There is no loss and no profit to the firm. | c. Total revenue is equal to total cost. |
| b. Contribution is equal to fixed cost.        | d. All of the above.                     |

Q.5 What is the full form of AMC?

- |                            |                                |
|----------------------------|--------------------------------|
| a. Annual maintenance cost | c. Automotive maintenance cost |
| b. Annual monitoring cost  | d. Non of the above            |

**Section – B**

03X02 = 06 Marks

Q.6 Write the fundamental objectives of occupational health and safety.

Ans:

According to the document, Global Strategy on Occupational Health for All, the ten high priority objectives proposed by the strategy are as follows:

- Strengthening of international and national policies for health at work and developing the necessary policy tools
- Development of healthy work environment
- Development of healthy work practices and promotion of health at work
- Strengthening of OHS
- Establishing of support services for occupational health
- Development of occupational health standards based on scientific risk assessment
- Development of human resources for occupational health
- Establishment of registration and data systems, development of information services for experts, effective transmission of data and raising public awareness through public information



# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

The golden rule in preventing mechanical hazards is to remember that any machine part, function or process that may cause injury must be safeguarded. Also, existing hazards must be controlled or eliminated and proper operator training and protective clothing must be provided.

## • **Transportation And Vehicle-Related Accidents**

Where there is equipment, vehicles and large trucks, there's the potential for vehicle-related accidents. These accidents include being struck or run over by a moving vehicle, falling from a vehicle, being struck by objects falling from a vehicle and getting crushed by or stuck under an overturned vehicle. Vehicle-related accidents are the most common cause of fatal injuries in the agriculture industry, but they can be equally catastrophic in industrial or manufacturing environments as well.

There are two distinct kinds of vehicle-related accidents.

- **On The Road** - Workers can be injured or killed after being struck by a vehicle while repairing roads or other work in traffic zones.
- **In The Workplace** - Operators of vehicles and equipment can be injured or cause injury to pedestrians.

Avoiding workplace transportation accidents begins with assessing who is at risk, as well as where and when these accidents most commonly occur. Only then are prevention measures, such as vehicle/worker orientation and safe systems of work, more easily established. You should focus on workplace design, ensuring layout routes always segregate pedestrians and vehicles and make any obstructions clearly visible. Directions, **speed limit and priority signs are also helpful.**

## • **Fire and Explosions**

Unexpected explosions and fires in the workplace are frequently caused by risk factors such as faulty gas lines, poor pipefitting, improperly stored combustible materials or open flames. The resulting injuries incurred include damage to the respiratory system, varying degrees of burns and potential disfigurement. Explosions and fires account for 3% of workplace injuries and have the highest casualty rate of all probable workplace accidents.

There are four types of injuries commonly associated with fires and explosions:

- **Primary Blast Injuries** - Occurs due to the effects of pressure on body tissues, affecting ears, lungs and the GI tract.
- **Secondary Blast Injuries** - Occurs when flying objects strike nearby workers.
- **Tertiary Blast Injuries** - High-energy explosions can lift someone off the ground and cause them to fly into surrounding objects.
- **Quaternary Blast Injuries** - Everything else that happens as a result of an explosion: crush injuries, burns and inhalation of toxic substances.

OSHA recommends following its hazard communication standards to help workers avoid fire and explosion injuries. In addition, material safety data sheets (MSDS) for chemicals should be kept on hand and employees should wear personal protective equipment at all times. Every workplace should have a clearly communicated evacuation plan and an effective alert system in place to quickly inform every one of hazards and emergency situations.

## • **Overexertion And Repetitive Stress Injuries**

Although more subtle than a catastrophic explosion, musculoskeletal disorders are the most costly workplace injuries. Complaints of back pain alone cost more lost workdays annually. These kinds of

injuries contribute to loss of productivity, millions in direct costs and millions in annual health benefit pay out costs.

Overexertion injuries are related to **pulling, lifting, pushing, holding, carrying and throwing**.

They account for nearly 33% of occupational injuries. Causes of overexertion include:

- **Improper Lifting**- Bending at the waist instead of at the knees when carrying or moving heavy objects.
- **Manually Lifting Heavy Objects** -Especially objects weighing over 50 pounds, without the assistance of a co-worker or lifting device (manual or mechanical).
- **No Breaks** -With repetitive work, short breaks should be required, or the work may eventually result in too much wear and tear on the body.
- **Speeding Up the Line** -Automation has created work conditions that are faster and often reduced to limited, repetitive tasks.
- **Intensive Keying** -Constant typing and clicking strains muscles and tendons

Q. 11 Explain fire management system.

Ans: A fire safety strategy for a building is made up of three essential elements:

1) Passive fire safety measures

- Passive Fire safety measures are **features which are built into the structure of the building** and are physical features of the building. These features include the provision of escape routes and exits, the provision of fire resistance to the building structure and the provision of access to and around the building.

2) Active fire safety measures

- Active Fire Precaution measures are systems which activate or are required to be activated in the event of an outbreak of fire. Active Fire Precaution measures would include **fire detection and alarm systems, emergency lighting and fire-fighting equipment**. Fire safety management within a building must include a full appraisal of the active and passive fire safety measures within the building. All deficiencies in the fire safety measures should be noted and a programme of remedial works to upgrade the building to an acceptable standard should be put in place.

3) Management fire safety measures

- Management Fire safety measures relate to the **day to day management of fire safety in a building**. There is a legal responsibility on persons having control over premises to **take reasonable measures to prevent the occurrence of a fire and to protect the lives and safety of occupants in the event of fire**. The active and passive fire safety measures outlined above could be completely negated unless the building occupants are aware of the significance of the measures, of their role with regard to prevention of fire and of the appropriate action to take in the event of fire. A fire safety programme must be established in a building in order to correctly manage fire safety and meet legal obligations. A person should be designated Fire Safety Manager with responsibility for drawing up, implementing and overseeing the fire safety programme. The Fire Safety Manager should be of adequate status within the organisation and should have authority to effectively discharge his/her responsibility. It should be noted at the outset that the elements of the fire safety programme are based on the assumption that active and passive fire safety measures are present within the establishment. In the absence of adequate active and passive fire safety measures within a building more stringent management fire safety measures will be required.



# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

For a building to function safely each of these elements must be adequately provided.



OP - Set - A

Registration No.: .....

## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

School of Automotive Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, 5<sup>th</sup> Semester

2<sup>nd</sup> In-Sem. Examination

Course Code: AUT1504

Time: 1 Hour

Course Name: Paint Shop Management

Max. Marks: 20 marks

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

05X01 = 05 Marks

Q-1. Why we use flexible additive?

- |   |                          |
|---|--------------------------|
| a. To increase the flexibility of panel | c. To increase the gloss |
| b. To increase the flexibility of paint | d. None of these         |

Q-2. Where we use the flop controller?

- |                      |                     |
|----------------------|---------------------|
| a. In solid paint    | c. In Pearl paint   |
| b. In metallic paint | d. Both (b) and (c) |

Q-3. Which chemical is found in Hardener?

- |               |                      |
|---------------|----------------------|
| a. Isocyanate | c. Xylene            |
| b. Butane     | d. None of the above |

Q-4. Which type of paint is formulated using 1k binder?

- |                   |                     |
|-------------------|---------------------|
| a. Solid Paint    | c. Pearl Paint      |
| b. Metallic paint | d. Both (b) and (c) |

Q-5. Which type of masking tape is required for masking of sharp edges?

- |                           |                        |
|---------------------------|------------------------|
| a. Fine line masking tape | c. Normal masking tape |
| b. Trim masking tape      | d. Both (b) and (c)    |

**Section – B**

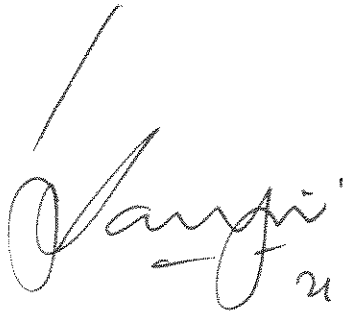
03X02 = 06 Marks

- Q-6. Write the steps for painting a new plastic panel?
- Q-7. Write the steps for color matching?
- Q-8. Write the steps for shade formulation?

**Section – C**

03X03 = 09 Marks

- Q-9. Explain the various masking methods.
- Q-10. Make a checklist for spray booth maintenance.
- Q-11. Write the process for spot repair using metallic paint.

  
21 Dec 20 20



# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

School of Automotive Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, 5<sup>th</sup> Semester

2<sup>nd</sup> In-Sem. Examination

Course Code: AUT1504

Time: 1 Hour

Course Name: Paint Shop Management

Max. Marks: 20 marks

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

05X01 = 05 Marks

Q-1. Why we use flexible additive?

- |   |                          |
|---|--------------------------|
| a. To increase the flexibility of panel | c. To increase the gloss |
| b. To increase the flexibility of paint | d. None of these         |

Ans (b)

Q-2. Where we use the flop controller?

- |                      |                     |
|----------------------|---------------------|
| a. In solid paint    | c. In Pearl paint   |
| b. In metallic paint | d. Both (b) and (c) |

Ans (d)

Q-3. Which chemical is found in Hardener?

- |               |                      |
|---------------|----------------------|
| a. Isocyanate | c. Xylene            |
| b. Butane     | d. None of the above |

Ans (a)

Q-4. Which type of paint is formulated using 1k binder?

- |                   |                     |
|-------------------|---------------------|
| a. Solid Paint    | c. Pearl Paint      |
| b. Metallic paint | d. Both (b) and (c) |

Ans (d)

Q-5. Which type of masking tape is required for masking of sharp edges?

- |                           |                        |
|---------------------------|------------------------|
| a. Fine line masking tape | c. Normal masking tape |
| b. Trim masking tape      | d. Both (b) and (c)    |



Ans (a)

Registration No.: .....

## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

### Section – B

03X02 = 06 Marks

Q-6. Write the steps for painting a new plastic panel.

Ans:- 1. Clean the panel with prepsol.

2. Heat the panel at 60 degree for 60 min.

3. Clean with anti static degreaser.

4. Apply plastic primer

5. Apply putty.

6 Apply primer surfacer.

7. Sand with P-400 and P-500.

8. Apply basecoat.

9. Apply clear coat.

Q-7. Write the steps for color matching?

Ans:- Inspect the damage.

2. Find the shade card of the color in natural day light.

3. Formulate the color.

4. Apply on flexible panels.

5. Match the panel with vehicle color.

6. If color does not match do the tinting or shading of the color.

7. Repeat the process until color does not match.

Q-8. Write the steps for shade formulation?

Ans 1. Select the appropriate shade card.

2. Estimate the amount of paint required.

3 Do the calculation for the required amount of paint,

4. Starts the mixing with binder.

5. Always Do the mixing in series of tinters mentioned in shade card.

### Section – C

03X03 = 09 Marks

Q-9. Explain the various masking methods.

Ans:- .1. **Masking for Surface Application**:-

- During surfacer application, we uses generally lower air pressure if compared with top coat.

- The reverse masking method is generally used to prevent the creation of spray step.

**Reverse Masking:-**

- It is a method in which the masking paper is applied with its inside out , so that only a thin coat of mist adheres along the border.
- It is used to reduce the creation of spray step while working with small areas like spot repainting.

**2. Masking for Block Repainting:-**

- For Block repainting, Panels such as fender or door must be masked individually.
- In case the panel has openings (like gap between panels etc.) they must be masked to prevent the paint mist from entering those areas.

**3. Masking for spot repainting:-**

**a. For Repainting a quarter panel:-**

- When repainting a panel without borders we need to ensure that there should not be any spray step.
- We use reverse masking in such cases to avoid spray step.

**b. For Repainting the end of a fender:-**

- To repaint the tip of a fender, the area must be repainted by spot repainting.
- Since the smaller area is repainted than block repainting, mask only the end part of fender suffices.

Q-10. Make a checklist for spray booth maintenance.

Q-11. Write the process for spot repair using metallic paint.

**Ans:-**

1. Carefully clean with Prepsol
2. Make sure that the surfacer area is as small as possible.
3. sanding pad using P2000 wet grit paper
4. Blow parts with compressed air, clean with degreaser and wipe with a tack cloth
5. Mix Basecoat as per TDS
6. Apply basecoat:
7. until surfacer (damaged) area is fully covered by overlapping each coat slightly so a "dust zone" remains.
8. Prepare midcoat:-  
67% Binder XB165 and 33% thinner XB387
- 9 Prepare Blend in:-  
Mix 50% Basecoat with 50% Midcoat and reduce pressure during fade out so a smooth transition is achieved
9. Mix clear coat as per TDS

10. Apply 2.5 coats extending basecoat area

11. Blend in:

Mix 50% Clearcoat with 50% Blending thinner and reduce pressure during fade out so a smooth transition is achieved.

12. Apply Blending thinner on over spray area.

13. If repair area is in middle or bigger than A4 size, apply Clear Coat on full panel

14. After drying polish the blend-in areas