



Registration No:

SCHOOL OF AUTOMOTIVE SKILLS
FIRST END-SEMESTER EXAMINATION – 2017-18
SUMMER SEMESTER, B. VOC. PROGRAM

Course Code: AUT1001

Time: 3 Hour

Course Name: AUTOMOTIVE POWER TRAIN CHASSIS & SUSPENSION

Max. Marks: 100

Instructions: (1) Attempt all question from section A & section C.

(2) Attempt any six questions from section B.

Section-A

Select the one correct option from the given options in the following questions :- 10x2=20 Marks

Q1. (I) The working cycle in case of four stroke engine is completed in following number of revolutions of crankshaft...

- A) 1
- B) 2
- C) 4
- D) 8

(II) In diesel engine, the fuel is ignited by...

- A) Spark
- B) Injected fuel
- C) Heat resulting from compressing air that is supplied for combustion...
- D) Combustion chamber

Q2. (I) Compression ratio in I C Engine is defined as

- A) Total volume/clearance volume
- B) Clearance volume/ Total volume
- C) Both A & B
- D) None of the above

(II) Which of the following is not an internal combustion is...

- A) 2 stroke petrol engine
- B) 4 stroke petrol engine
- C) Diesel engine
- D) Gas turbine

Q3. (I) what is the full form of OEM...

- A) Original Equipment Manager
- B) Original Equipment Master
- C) Optional Equipment Manufacturer
- D) Original Equipment Manufacture

(II) SI unit of Pressure is...

- A) Pascal
- B) N/mm
- C) N/square mm
- D) None of the above

Q4. (I) Full form of PCV is ...

- A) Positive crankcase ventilation valve
- B) Plus ventilation valve
- C) Positive Ventilation valve
- D) None of the above

(II) Full form of ECU is...

- A) Engine connection unit
- B) Engine control unit
- C) Electrical connection unit
- D) None of these

Q5. (I) Function of ABS system in a vehicle is ...

- A) To avoid the instant locking of wheels
- B) To prevent tires to skid
- C) To provide steering balancing
- D) All of the above

(II) Identify the following Exhaust system

- A) Exhaust manifold
- B) Muffler
- C) Catalytic convertor
- D) All of the above

Q6. (I) if the intake air temperature of IC engine is lowered, the efficiency will be...

- A) Increase
- B) Decrease
- C) Remains same
- D) None of the above

(II) For high power condition in automotive engines, the air-fuel mixture must be

- A) Lean
- B) Rich
- C) Chemically balanced
- D) None of the above

Q7. (I) Hydraulic braking system is work on the principle of...

- A) Pascal law
- B) Gas law
- C) Both A & B
- D) None of the above

(II) When brake is applied, the kinetic energy converts into...

- A) Potential energy
- B) Heat energy
- C) Chemical energy
- D) All of the above

Q8. (I) Torque wrench is used to...

- A) Apply appropriate torque
- B) Measure the torque
- C) Both A & B
- D) None of the above

(II) Purpose of brake bleeding is to...

- A) Remove the air from the pipe line
- B) Fill the Liquid in pipe line
- C) Both A & B
- D) None of the above

Q9. (I) Nipping is providing in.....

- A) Helical spring
- B) Torsion spring
- C) Leaf spring
- D) Spiral spring

(II) Effect of weak suspension is.....

- | | |
|---|---|
| A) Proper cooling of engine | C) Structural support to Automotive vehicle |
| B) More shock and uncontrollable riding | D) Turning of vehicle |

Q10. (I) The motion of the cam is transferred to the valves through...

- | | |
|----------------|-------------------|
| A) Rocker arms | C) Connecting rod |
| B) Piston | D) Crankcase |

(II) In the diesel engine, the compression ratio is as high as..

- | | |
|---------|--------|
| A) 10:1 | C) 7:1 |
| B) 15:1 | D) 5:1 |

Section-B

(6x5) = 30 Marks

Q11. Define term automobile. Classify the automobile vehicles based on their stroke with neat sketch.

Q12. What is safety equipments used in mechanical shop? Write its name & advantages.

Q13. Explain four strokes Petrol engine along with Sketch.

Q14. Write down the differences between Single plate clutch & multiple plate clutches. (at least 5)

Q15. What is the different types of gears. Explain with figure. Also mention the application of each gear.

Q16. Define torque steer in drive shaft .

Q17. What is ABS? Explain different types of components of ABS.

Q18. Write short note on universal joint.

Section-C

(5x10) = 50 Marks

Q19. Explain different types of Gear box used in vehicle? (Sketch)

Q20. What is hydraulic Braking system? Draw a diagram of hydraulic braking system with their components. Also explain the function of each components used in hydraulic braking system.

Q21. Explain the process of general service of a vehicle?

Q22. What is the role of suspension system in a vehicle? Explain different types of suspension system.

Q23. Explain hydraulic shock absorber with neat diagram.



Registration No:.....

**SCHOOL OF AUTOMOTIVE SKILLS
FIRST END-SEMESTER EXAMINATION – 2017
SUMMER SEMESTER, B. VOC. PROGRAM**

Course Code: AUT1002

Time: 3 Hour

Course Name: AUTOMOTIVE WHEEL CARE & STEERING SYSTEM

Max. Marks: 100

Instructions: (1) Attempt all question from section A & section C.

(2) Attempt any six questions from section B.

Section-A

Select the one correct option from the given options in the following questions :- (10x2) = 20 Marks

Q1. (I) Which Type of Bearing is use in Wheel Assembly?

- | | |
|--------------------------|--------------------------|
| A) Roller Bearing | B) Ball Bearing |
| C) Tapper Roller Bearing | D) Self Aligning Bearing |

(II) Function of wheel balancing:

- | | |
|-----------------------|------------------|
| A) Removing Vibration | B) Locking wheel |
| C) Removing tyre | D) None of These |

Q2. (I) What is the full form of TPMS?

- | | |
|------------------------------------|-------------------------------------|
| A) Tyre Pressure Monitoring Sensor | B) Tyre Pressure Maintenance Sensor |
| C) Tyre Pressure Master Cylinder | D) Tyre Puncture Management Sensor |

(II) Select any two Suitable Processes for Removing Tyre Wear & Vibration Problem:

- | | |
|--------------------|------------------|
| A) Wheel Alignment | B) Tyre Changing |
| C) Wheel Balancing | D) None of These |

Q3. (I) What is the full form of OEM:

- | | |
|------------------------------------|------------------------------------|
| A) Original Equipment Manager | B) Original Equipment Master |
| C) Optional Equipment Manufacturer | D) Original Equipment Manufacturer |

(II) How many kinds of weight are used for wheel balancing:

- | | |
|------|------|
| A) 4 | B) 6 |
| C) 2 | D) 3 |

Q4. (I) Purpose of the wheel axle in a vehicle is:

- A) To cool the engine
- B) To give power on fly wheel
- C) To give structural support to wheel
- D) For air inlet

(II) What is the full form of ECU?

- A) Engine connection unit
- B) Engine control unit
- C) Electrical connection unit
- D) None of these

Q5. (I) Function of tread in a tyre is:

- A) To give better look
- B) To Provide friction
- C) To give structural support
- D) To improve strength

(II) Main function of steering pump is:

- A) To provide load
- B) To provide force
- C) To provide pressure
- D) None of these

Q6. (I) Material of the car wheel is:

- A) Plastic
- B) Wood
- C) Pressed steel disk
- D) Copper

(II) During tyre changing which liquid is apply on tyres:

- A) Tyre lube
- B) Water
- C) Oil
- D) Grease

Q7. (I) The popular type of tyre in modern vehicle is:

- A) Tube type
- B) Tube less
- C) Solid iron
- D) Wood wheel

(II) Which mechanism is used for bead breaking in tyre changer machine?

- A) Electrical
- B) Mechanical
- C) Pneumatic
- D) None of these

Q8. (I) Which type of plier is use to mount counter weight:

- A) Pincers
- B) Needle nose pliers
- C) Lineman's Pliers
- D) Weight plier

(II) What kind of material is use to make tyre bead wire:

- A) Rubber
- B) Copper wire
- C) Aluminium
- D) High-strength steel

Q9. (I) Where is bead located in the tyre.

- | | |
|------------------|---------------|
| A) At Surface | B) On edges |
| C) On side walls | D) Inner side |

(II) Which substance is responsible for black color of tyre:

- | | |
|-----------|------------------|
| A) Carbon | B) Sulfur |
| C) Glass | D) None of these |

Q10. (I) What is the best temperature to use summer tyre:

- | | |
|---------------|----------------|
| A) Below +8°C | B) Above + 8°C |
| C) Above +7°C | D) Below +7°C |

(II) What is best temperature to use winter tyre:

- | | |
|---------------|---------------|
| A) Above +8°C | B) Below +8°C |
| C) Above +7°C | D) Below +7°C |

Section-B

(6x5) = 30 Marks

Q11. Write briefly about components of tyre.

Q12. Write briefly about the Safety Equipment required in wheel care section.

Q13. Write the name of tyres based on applications also explain run-flat tyre.

Q14. Write short note on Nomenclature.

Q15. What is the process of wheel bearing maintenance?

Q16. What are the functions of a steering system in an automobile?

Q17. Write briefly about the components of a steering system of an automobile.

Q18. What is the process of identify the miss-aligned angle in wheel alignment based on tyre wear?

Section-C

(5x10) = 50 Marks

Q19. Explain Caster, caster and Toe Angle with the help of Diagrams.

Q20. What is Wheel Balancing? Also write the advantages of wheel balancing.

Q21. Explain the role & responsibilities of a wheel care technician in a automotive workshop.

Q22. Explain the standard process of wheel alignment on an automobile also write its advantages.

Q23. Discuss the different types of season tyre along with the differences based on their application

SCHOOL OF AUTOMOTIVE SKILLS
FIRST END-SEMESTER EXAMINATION – 2017
SUMMER SEMESTER, B. VOC. PROGRAM

Course Code: AUT1003

Time: 3 Hours

Course Name: AUTOMOTIVE BODY REPAIR

Max. Marks: 100

Instructions: Attempt all questions.

Directions: Select any one correct answer from the given options:

Section-A

(20x1=20) Marks

- 1) (I) Front body section of car is also called as.....
a) Doghouse c) Cathouse
b) Greenhouse d) None of the above
(II) A structure design in which the frame and body are built as a single integrated structure is called.....
a) Backbone c) Monocoque
b) Ladder d) All of the above
- 2) (I) Select Destructive type testing methods:
a) Visual Inspection c) Tensile Testing
b) X-ray Testing d) Dye Penetration testing
(II) Wire feeding system is used to.....
a) Control the gas pressure c) Adjust the voltage
b) Control the wire speed d) Both a) & b)
- 3) (I) Which of the following joint have high corrosion resistance?
a) Welding joint c) Bolted joint
b) Riveted joint d) None of the above
(II) Which of the following types is not fillet weld?
a) Butt joint c) lap joint
b) T-joint d) Corner joint
- 4) (I) The heat generated (Q) in resistance welding is expressed by
a) $Q = I^2 R T$ c) $Q = IR^2 T$
b) $Q = IRT^2$ d) $Q = 2IRT$
(II) The gap between the electrode rod and the work piece should be about
a) the electrode diameter c) 5 mm
b) the work piece thickness d) the core wire diameter
- 5) (I) For gas tungsten arc welding..... electrode is used.
a) Consumable c) filler
b) Non-consumable d) None of the above

- 16) Write about the different types of automotive body style with examples.
17) Write short notes on:
a) Ladder Chassis b) Monocoque Chassis
18) What are the advantages and disadvantages of manual metal arc welding?

Section-C**(5x10=50) Marks**

- 19) Explain the weld seam inspection procedures in details.
20) Discuss the working principle of Manual Metal Arc Welding with the help of diagram.
Also write the classification of electrodes.
21) Explain the Gas Shielded Arc Welding and also mention its applications.
22) Describe the process of TIG welding with the help of diagram. Write its advantages and disadvantages.
23) Describe the different sheet metal processes.



Registration No:

**SCHOOL OF AUTOMOTIVE SKILLS
FIRST END-SEMESTER EXAMINATION – 2017
SUMMER SEMESTER, B. VOC. PROGRAM**

Course Code: AUT1004

Time: 3 Hour

Course Name: AUTOMOTIVE SPRAY PAINTING

Max. Marks: 100

- Instructions:** (1) Attempt all questions from section A and section C.
(2) Attempt any six questions from section B

Section-A

Select the one correct option from the given options in the following questions :- 10x2=20 Marks

Q-1 (i) What should be the distance between HVLP spray gun and panel during painting?

- a. 6-8 inches
- b. 1-3 inches
- c. 12-15 inches
- d. None of these

(ii) The Angle of spray gun during painting should be...

- a. 90°
- b. 120°
- c. 45°
- d. None of these

Q-2 (i). The equipment used to purify the breathing air in paint booth is...

- a. Mask and respirator
- b. Hand gloves
- c. Dry sander
- d. All of the above

(ii). The equipment used to remove the extra putty from the surface is...

- a. Putty Spreader Sheet
- b. Dry Sander
- c. Spray gun
- d. Plier

Q-3 (i). The air pressure of the HVLP spray gun should be....

- a. 2-3 bar
- b. 4-5 bar
- c. 5-6 bar
- d. None of these

(ii). The ventilation of the paint mixing room must be...

- a. Downwards
- b. Upwards
- c. Sideways
- d. None of these



Q-4(i). The paint mixing room should be equipped with.....

- a. Blue lights
- b. Yellow lights
- c. Artificial lights
- d. None of these

(ii). Infrared dryer works on the principle of...

- a. Conduction
- b. Convection
- c. Radiation
- d. None of these

Q-5(i). Which automotive painting is also known as 3-stage painting...

- a. Solid painting
- b. Pearlscent painting
- c. Metallic painting
- d. None of these

(ii). The shape of the spray should be.....in shape.

- a. Circular
- b. Oval
- c. Triangular
- d. None of these

Q-6 (i). The clear coat is used for....

- a. Protection of paint
- b. Gloss of paint
- c. Both (a) and (b)
- d. None of these

(ii). The paint defect occurred due to wrong sanding is...

- a. Sanding scratches
- b. Orange peel
- c. Water spotting
- d. None of these

Q-7 (i). The size of nozzle tip for primer application is.....

- a. 1.8 mm
- b. 0.8 mm
- c. 1.3 mm
- d. None of these

(ii). The size of nozzle tip for clear coat application is...

- a. 1.8 mm
- b. 0.8 mm
- c. 1.2 mm
- d. None of these

Q-8 (i) The liquid used to make the paint smooth for spraying is ...

- a. Thinner
- b. Hardener
- c. water
- d. None of these

(ii). Which element of paint provides the paint its colour?

- | | |
|------------|------------------|
| a. Binder | c. Solvent |
| b. Pigment | d. None of these |

Q-9 (i) primer is used to....

- | | |
|--------------------------------|------------------------|
| a. Protect the metal from rust | c. Support the topcoat |
| b. Hide the putty | d. None of these |

(ii) Which sanding promotes the corrosion?

- | | |
|----------------|---------------------|
| a. Wet sanding | c. Both (a) and (b) |
| b. Dry sanding | d. None of these |

Q-10 (i). The elements which enhance the properties of paint are....

- | | |
|--------------|------------------|
| a. Additives | c. Solvents |
| b. Binders | d. None of these |

(ii). DFT (Dry film thickness) is an instrument which is used to measure...

- | | |
|-------------------------|-------------------|
| a. Thickness of coating | c. Gloss of paint |
| b. Colour quantity | d. None of these |

Section-B

6x5=30 Marks

Q-11 What is paint? .What are the different elements of paints?

Q-12. Write about different properties of primer.

Q-13. Write about jobs and responsibilities of a paint shop technician.

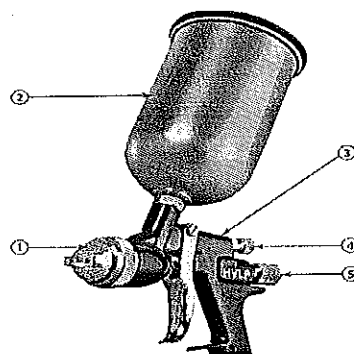
Q-14 Write about classification of paints.

Q-15 Write about any five equipments used in paint shop.

Q-16 What is Infrared drying? What are the advantages of infrared drying?

Q-17 Write the steps for painting using solid paint.

Q-18 Write the names of different parts of the spray gun in the given figure and explain each part.



Section-C

5x10=50 Marks

- Q-19. What is paint defect? Write about different types of paint defects and explain any four with its causes, preventions and remedies.
- Q-20. What is a spray gun? Explain different types of spray guns with its applications.
- Q-21. What is primer? Explain different types of primers.
- Q-22. What is masking? Explain different materials used for masking.
- Q-23. Discuss about paint booth and paint mixing room.



BHARTIYA SKILL DEVELOPMENT UNIVERSITY
SCHOOL OF AUTOMOTIVE SKILLS
END SEMESTER EXAMINATION
SUMMER SEMESTER, B.VOC. PROGRAM
SESSION 2017-2018

Course Code: AUTO1005

Time: 3 Hour

Course Name: Automotive electrical fundamentals & A.C.

Max. Marks: 100

Instructions:

1. Attempt all questions.
2. Use of Calculators is prohibited.
3. Section A contains 10 Questions. Each question carries 2 Mark.
4. Section B contains 08 Questions. Do only 06 Questions. Each question carries 5 Mark.
5. Section C contains 05 Questions. Each question carries 5 Marks.

Section- A

1. (I) The boiling point of water is:
a) 0°C
b) 100 °C
c) 273 °C
d) 50 °C
(II) Generally the fins on tubing of condenser are made up of:
a) Steel
b) Aluminium
c) Brass
d) Mild Steel
2. (I) Mass is equals to:
a) Volume x Density
b) Volume/Density
c) Density/Volume
d) None of the above
(II) Efficiency of a heat engine can never be:
a) Zero
b) 100%
c) Positive
d) Negative
3. (I) Work done by the system is
a) Positive.
b) Negative
c) Zero.
d) Infinity.
(II) is the moving part in an air conditioning system
a) Accumulator
b) Filter/Drier
c) Compressor
d) Evaporator
4. (I) Value of 300K in °C is:
a) 30 °C
b) 3 °C
c) 27 °C
d) 20 °C
(II) Thermal equilibrium is related to-
a) Force
b) Chemical Reactions
c) Temperature
d) Pressure



5. (I) Generally the refrigerant used in cars is:
- a) R22
 - b) R32
 - c) R132a
 - d) R134a
- (II) SI unit of heat is:
- a) Kilogram
 - b) Watt
 - c) Joule
 - d) Pascal
6. (I) Rate of energy transfer is called:
- a) Work
 - b) Heat
 - c) Power
 - d) Pressure
- (II) Compressor in a car is situated in:
- a) Trunk
 - b) Dashboard
 - c) Bonnet
 - d) Under seats
7. (I) The coulomb is the unit of :
- a) Power
 - b) Voltage
 - c) Energy
 - d) Quantity of electricity
- (II) The power dissipated by a resistor of $10\ \Omega$ when a current of 2A passes through it is:
- a) 0.4W
 - b) 20W
 - c) 40W
 - d) 200W
8. (I) Which of the following formula for electrical power is incorrect:
- a) VI
 - b) V/I
 - c) I^2R
 - d) V^2/R
- (II) A 240V , 60W lamp has a working resistance of:
- a) $1400\ \Omega$
 - b) $60\ \Omega$
 - c) $960\ \Omega$
 - d) $325\ \Omega$
9. (I) The output of an AND gate with three inputs, A, B and C is HIGH when _____.
- a) $A = 1, B = 1, C = 0$
 - b) $A = 0, B = 0, C = 0$
 - c) $A = 1, B = 1, C = 1$
 - d) $A = 1, B = 0, C = 1$
- (II) The ECU in the electronic control system receives signals from the sensors and determines the opening time for the injector's land, which also controls the injection volume.
- a) True
 - b) False
10. (I) which one is the function of Cam Position Sensor?
- a) Monitors position of valves in engine
 - b) Monitors piston's TDC position in engine
 - c) Used to regulate fuel metering
 - d) Measures Fuel Pressure in the system
- (II) Which one is the function of Oxygen / Lambda Sensor?
- a) Monitors the correct air-fuel ratio for an engine
 - b) Monitors the position of the throttle in an engine
 - c) Monitors the amount of oxygen in the exhaust
 - d) Used to regulate fuel metering

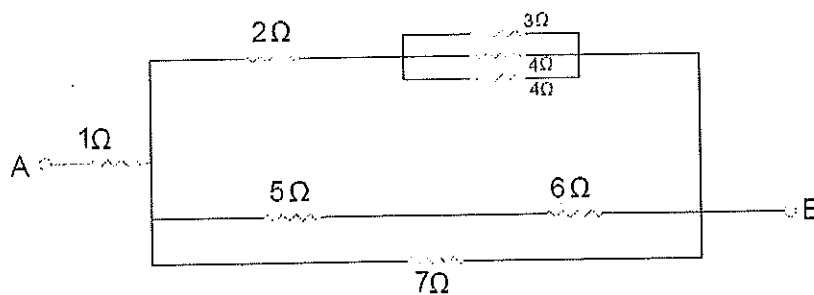


Section-B

11. Explain the difference between Refrigeration and air conditioning
12. What is thermodynamic system? Define types of systems.
13. Define heat and give its sign convention.
14. Write the reactions of the following:
 - a) Ozone layer formation.
 - b) Absorption of UV rays.
15. Explain the working of AND, OR & NOT gate with Truth Table.
16. What are actuators? Give some examples of actuators.
17. A wire 30 meters long has area 0.6 mm^2 and its resistance is 20Ω . Determine specific resistance.
18. (a) State ohms law with an example.
 (b) What is the effect of the current carried by a conductor upon its surroundings?

Section-C

19. Differentiate between heat engine, heat pump and a refrigerator with diagram.
20. Write short notes on the following:
 - a) Global warming
 - b) Ozone layer depletion.
 - c) Zeroth law
 - d) Clausius statement of thermodynamics.
21. A Carnot refrigeration cycle absorbs heat at 7°C and rejects it at 47°C .
 - a) Calculate the COP of this refrigeration cycle.
 - b) If refrigerator is taking 4kJ of heat from sink (7°C).what would be the work required.
22. (a) State and explain Kirchoff's law.
 (b) Find the equivalent resistance between two points A and B shown in the figure.



23. Explain "Yaw" in a moving vehicle. Describe and give specifications of Yaw Rate Sensor.
 Saw blade can be made to cut free.

Registration No.....

SCHOOL OF AUTOMOTIVE SKILLS
END-SEMESTER EXAMINATION – 2017

B.VOC. COURSE

Course Code: AUT1006

Time: 3 Hour

Course name: Automotive Workshop Maintenance & Documentation

Max. Marks:100

Instructions: (i) Attempt all questions from Section A and Section C.

(ii) Attempt any six question from Section B.

Section-A

(2 X 10 = 20)

1. (a) The function of the lower jaws of Vernier caliper is to measure thediameter of an object such as a tube, sphere or cylinder. (inner/outer).
(b) The function of the upper jaws of Vernier caliper is to measure the.....diameter of an object such as a tube, pipe or hollow cylinder. (inner/outer).
2. (a) The minimum measurement that can be taken by an instrument is known as..... (minimum count/least count)
(b) Least count of a micrometer is..... (0.001/0.01)
3. (a) Smooth File is used for..... (metal removal/ surface finishing).
4. (b) Rough File is used for..... (metal removal/ surface finishing).
5. (a) In automotive workshop the equipment used for raising the vehicle from ground level to a certain height is known as..... (two-post lift/jib crane)
(b) The equipment used for balancing of wheels is called..... (wheel aligner/wheel balancer).
6. (a) grinders are fitted to a bench or table and are useful for light duty work. (Pedestal/Bench).
(b) Process of making a fresh hole on a work-piece is known as..... (drilling/boring).
7. (a) Spanners are used for operating..... (Threaded fasteners/Nails).
(b) The angle between top face of cutting point and normal to work surface at cutting edge is known as (Clearance/Rake) angle.
8. (a) Still son pipe wrenches are used for gripping and turning of(pipes/bolts).
(b) Material used to make a file is..... (high speed steel/mild steel).
9. (a) The teeth of a single cut file are at an angle of to the center line of file. (60 degree/70 degree).
(b) The hacksaw is used to cutand contours (slots/splines).
10. (a) Hexagon socket screw keys are made from hexagonal section bars of (Aluminium alloy/Chrome Vanadium steel).
(b) have a pair of legs joined by a pivot, hinge or fulcrum pin. (spanners/pliers).

Section-B

(5 X 6= 30)

11. Write a short note on: (a) Hammers (b) Pliers
12. What is micro meter? Draw a labelled sketch of a micrometer.
13. Define least count. Find out the least count of Vernier calipers and Micrometer.
14. List out six major equipments of an automotive workshop and mention the applications of each.
15. What are the purpose and requirements of Clamping device? Draw a neat and labelled sketch of a clamping device.
16. What is an Allen key? Write about the uses, sizes and designation of an Allen Key.
17. What are Mallets? Write about the types and application of different types of mallets.
18. Write a short note and also draw the diagram for each: (a) Wheel base (b) Wheel Track

Section-C

(10 X 5= 50)

19. Explain the following types of chisels with the help of a schematic diagram: (a) Flat Chisel (b) Cross-Cut Chisel (c) Half Round Nose Chisel (d) Web/Punching Chisel
20. Discuss the various types of Marking Punches.
21. Explain the features of a bench Drilling Machine. What is the difference between cutting speed and R.P.M.?
22. What is the purpose of Locking Devices? State the uses of commonly used locking devices.
23. Classify the different types of hand-held screw driver and their applications.