BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

Makeup Examination

Course Code: SMS 1113 **Time: 2 Hours**

Course Name: Basic Pneumatics **Max. Marks: 50**

Instruction:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 04 Marks.
4. Section C contains 04 Questions. Each question carries 06 Marks.

Section – A

10X01 = 10 Marks

1. Fluid power system is based on:
   a) Bernoulli's principle
   b) Gas law
   c) Avogadro's law
   d) Pascal law
2. SI unit of pressure is:
   a) N/m^2
   b) bar
   c) Pascal
   d) All of above
3. Which air we control in METER IN method?
   a) Control to air that going to actuator
   b) Control to air that coming from actuator
   c) Both of above
   d) None of above
4. The power source in pneumatics system is_____
   a) Air receiver
   b) Compressor
   c) Valve
   d) Muffler
5. Which type of valve we use in pneumatics?
   a) Slide
   b) Plane
   c) Poppet
   d) Spool

6. Which type of air dryer use silica gel as a drying agent?
   a) Absorption air dryer
   b) Adsorption air dryer
   c) Refrigerant air dryer
   d) None of above
7. Which type of refrigerant used in refrigeration air dryer?
   a) R-22
   b) R-134a
   c) R-12
   d) All of above
8. Which of the following material is not used for pneumatic tubes?
   a) Nylon
   b) Aluminum
   c) Steel
   d) Polyurethane
9. A hydraulic system operates at a pressure up to-
   a) 10-12 bar
   b) 7-8 bar
   c) 400 bar
   d) 700 bar
10. OR element is also known as-
   a) Shuttle valve
   b) Flow control valve
   c) Memory valve
   d) Dual pressure valve

Section – B

04X04 = 16 Marks

11. Draw the symbol of Pressure Switch and Pressure Regulator.
12. Write down any five applications of Pneumatics.
13. What is the function of quick exhaust valve? Also draw its symbol.
14. Draw the symbol of shuttle valve and dual pressure valve and write their function.

Section – C

04X06 = 24 Marks

15. Explain with the help of neat sketch the ***Construction***, ***Working*** and ***Function*** of ***Timer.***
16. Draw a circuit diagram for Single Acting Cylinder with combination of ***Meter In*** and ***Meter Out***.
17. Explain Bernoulli's principle and its equation.
18. What is Air Production system? Explain all the components of Air production system.

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Registration No.: .....

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Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

Makeup Examination

Course Code: SMS 1113 **Time: 2 Hours**

Course Name: Basic Pneumatics **Max. Marks: 50**

Answer Key

Section – A

10X01 = 10 Marks

1. Fluid power system is based on:
   a) Bernoulli's principle
   b) Gas law
   c) Avogadro's law
   d) Pascal law
2. Which air we control in METER IN method?
   a) Control to air that coming from actuator
   b) Control to air that going to actuator
   c) Both of above
   d) None of above
3. The power source in pneumatics system is_____
   a) Air receiver
   b) Compressor
   c) Valve
   d) Muffler
4. Which type of valve we use in pneumatics?
   a) Slide
   b) Plane
   c) Poppet
   d) Spool
5. SI unit of pressure:
   a) N/m^2
   b) bar
   c) Pascal
   d) All of above
6. Which type of air dryer is used silica gel as a drying agent?
   a) Absorption air dryer
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   d) None of above
7. Which type of refrigerant used in refrigeration air dryer?
   a) R-22
   b) R-134a

c) R-12

d) All of above

8. Which of the following material is not used for pneumatic tubes?

a) Nylon

b) Aluminum

c) Steel

d) Polyurethane

9. A hydraulic system operates at a pressure up to-

a) 10-12 bar

b) 7-8 bar

c) 400 bar

d) 700 bar

10. Speed controller is also known as-

a) Shuttle valve

b) Flow control valve

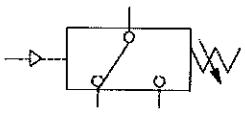
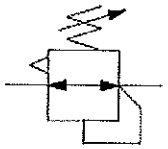
c) Memory valve

d) Dual pressure valve

Section – B

04X04 = 16 Marks

11. Draw the symbol of Pressure Switch and Pressure Regulator.

Pressure Switch		Maintains a Pressure Range between minimum and maximum
Pressure Regulator		It regulates the air pressure i.e. increase or decrease air pressure.

12. Write down any five applications of Pneumatics.

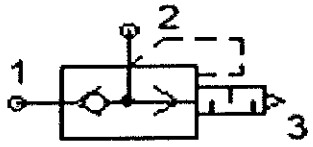
Ans.

Operation of system valves for air, water or chemicals
Operation of doors
Unloading of hoppers in building, steel making, mining and chemical industries.
Lifting, Moving and Holding a part
Dental drills

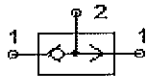
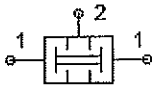
13. What is the function of quick exhaust valve and draw its symbol?

- It removes air quickly from actuator and increase the speed of actuator

BHARTIYA SKILL DEVELOPMENT UNIVERSITY



14. Draw the symbol of shuttle valve and dual pressure valve and write their function

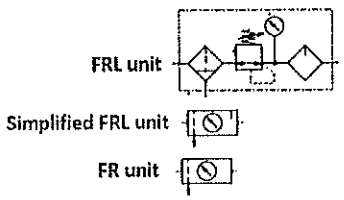
1.	OR element/shuttle valve		It provide output when we gives any input
2.	And element/dual pressure valve		It only provide output when we gives both side input

Section – C

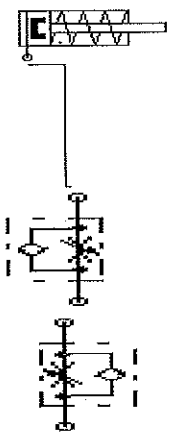
04X06 = 24 Marks

15. Explain with the help of neat sketch the ***Construction***, ***Working*** and ***Function*** of ***Timer.***

- It is a combine unit of Filter, Pressure regulator and Lubricator elements
- It's also known as <u>Air service unit.</u>



16. Draw a circuit diagram for Single Acting Cylinder with combination of ***Meter In*** and ***Meter Out.***



17. Explain Bernoulli's principle and its equation.

- The Bernoulli Equation can be considered to be a statement of the conservation of energy.

  If a liquid flow through a tube with varying diameters the total energy at point 1 and point 2 is same.

$$P_1 + \frac{1}{2}\rho V_1^{\,2} + \rho g h_1 = P_2 + \frac{1}{2}\rho V_2^{\,2} + \rho g h_2$$

Bernoulli's principle states that an increase in the speed of a fluid occurs simultaneously with a decrease in pressure or a decrease in the fluid's *Potential Energy*.

18. What is Air Production system? Explain all the components of Air production system.
    - Compressor
    - Electric motor
    - Pressure switch
    - Check valve
    - Tank
    - Pressure gauge
    - Auto/Manual drain
    - Safety valve
    - Air dryer
    - Line Filter
    - Intercooler

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

SET-A

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

End-Sem. Examination

Course Code: SMS1301 **Time: 2 Hour**

Course Name: CNC Milling **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. Main program ends with-
   a) G99
   b) M30
   c) M99
   d) M98
2. Edge Finder is used to-
   a) Cut the material
   b) Take the reference point in X and Y direction
   c) Take the reference point in the Z direction
   d) Take the reference point in X, Y and Z direction
3. **SKIP** the block in CNC ISO programming by using-
   a) &
   b) ?
   c) /
   d) %
4. What does "D" represent in DCGT designation of indexable inserts?
   a) Wedge angle of 80 deg.
   b) Clearance angle 7 deg.
   c) Wedge angle of 55 deg.
   d) Wedge angle of 35 deg.
5. G02 is named as-
   a) Linear interpolation
   b) Circular Interpolation Anti-clockwise
   c) Circular Interpolation clockwise
   d) None of the above

6. G94 is named as-
   a) Absolute Coordinate
   b) Incremental Coordinate
   c) Feed in mm/rev
   d) Feed in mm/min
7. M08 is used for _____.
   a) Clockwise Rotation
   b) Coolant ON
   c) Optional Stop
   d) Main Program End
8. CNC stands for-
   a) Computer Number Control
   b) Computer Numerical Control
   c) Computer Number Case
   d) Computer Numerical Case
9. G97 is used for-
   a) Feed/revolution
   b) Feed/min
   c) Constant spindle speed
   d) None of the above
10. Linear Interpolation is given by-
    a) G00
    b) G01
    c) G02
    d) G03

Section – B

04X04 = 16 Marks

11. What is the difference between MDI mode and Memory mode?
12. Define CNC.
13. Explain the difference between G02 and G03 with syntax.
14. Define the following:
    a) Cutting Speed
    b) Feed

Section – C

04X06 = 24 Marks

15. Explain the Reference Points of the EMCO Milling Machines.
16. Write down the program structure used in CNC Milling.
17. Write down the steps for taking work piece zero at the left bottom corner and centre of the work piece.
18. Explain the use of Edit Mode.

SET-B

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

End-Sem. Examination

Course Code: SMS1301 **Time: 2 Hour**

Course Name: CNC Milling **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. Sub program ends with-
   a) M99
   b) M30
   c) G99
   d) M98
2. Touch Probe is used to-
   a) Take the reference point in X and Y direction
   b) Take the reference point in the Z direction
   c) Take the reference point in X, Y and Z direction
   d) Cut the material
3. _____ is used for optional stop.
   a) G01
   b) G02
   c) M01
   d) M02
4. What does "V" represent in VCGT designation of indexable inserts?
   a) Wedge angle of 80 deg.
   b) Wedge angle of 55 deg.
   c) Wedge angle of 35 deg.
   d) Clearance angle 7 deg.
5. G03 is named as-
   a) Linear interpolation
   b) Circular Interpolation clockwise
   c) Cutter Compensation Left
   d) Circular Interpolation Anti-clockwise

6. EOB is -
   a) End of Block
   b) Enter of Block
   c) End of Base
   d) None
7. RESET is used to-
   a) Cancel an alarm
   b) Alter word
   c) Delete input
   d) None
8. M09 is used for _____.
   a) Clockwise Rotation
   b) Coolant ON
   c) Optional Stop
   d) Coolant OFF
9. G92 is used for-
   a) Feed/revolution
   b) Spindle Speed Limit
   c) Constant spindle speed
   d) None of the above
10. G18 is used for-
    a) XY plane
    b) YZ plane
    c) XZ plane
    d) None of the above

Section – B

04X04 = 16 Marks

11. Define Machine Coordinates and Absolute Coordinates.
12. Write down the different types of offsets used in CNC Milling.
13. Explain the difference between G41 and G42.
14. What is the difference between Block Codes and Modal Codes?

Section – C

04X06 = 24 Marks

15. What is the difference between 2 flute and 4 flute end-mill?
16. Write down the steps for taking work piece zero at the right bottom corner of the work piece.
17. Which is better for rough machining, Collet type holder or Weldon type holder and why?
18. Explain the difference between slot drill and end mill.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

SET-A

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

End-Sem. Examination

Course Code: SMS1302 **Time: 2 Hour**

Course Name: CNC Turning **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. G92 is named as-
   a) Constant Cutting Speed
   b) Constant Spindle speed
   c) Spindle rotation Clockwise
   d) Spindle Speed limit
2. M01 is named as-
   a) Coolant ON
   b) Coolant OFF
   c) Program End
   d) Optional Stop
3. M30 is named as-
   a) Coolant ON
   b) Coolant OFF
   c) Program End
   d) Optional Stop
4. Programs are executed in-
   a) Edit mode
   b) Memory mode
   c) MDI mode
   d) All of the above
5. Full form of EOB is-
   a) End of Block
   b) Enter OR Block
   c) End of Best
   d) None of the above

6. Work piece Zero point is denoted by-
   a) M
   b) W
   c) R
   d) N
7. What is the number of non-driven tool positions in the turret of Emco Concept Turn 250?
   a) 12
   b) 6
   c) 18
   d) 3
8. What is the unit of Cutting Velocity?
   a) mm/min
   b) mm/rev
   c) m/min
   d) None of the above
9. New programs are prepared in-
   a) Edit mode
   b) Memory mode
   c) MDI mode
   d) All of the above
10. What is the code for Dwell time?
    a) G15
    b) G17
    c) G04
    d) G03

Section – B

04X04 = 16 Marks

11. What is the difference between Memory mode and MDI mode?
12. Write down the difference between Machine coordinates and Absolute coordinates with the help of a diagram.
13. Explain the G74 cycle with all its parameters.
14. Write down the steps for taking work piece zero in CNC Turning.

Section – C

04X06 = 24 Marks

15. Write down the different types of Offsets used in CNC Turning.
16. Describe the threading cycle with all the parameters.
17. Explain the G77 cycle with all its parameters.
18. What are the Tool movement and Spindle rotation for Right Hand and Left-Hand Threads? Also, calculate all the parameters for M10 X 2 threads.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

SET-B

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

End-Sem. Examination

Course Code: SMS1302 **Time: 2 Hour**

Course Name: CNC Turning **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. M09 is named as-
   a) Coolant ON
   b) Coolant OFF
   c) Program End
   d) Optional Stop
2. M03 is named as-
   a) Spindle ON clockwise
   b) Spindle ON counterclockwise
   c) Program End
   d) Optional Stop
3. _____ is used for Absolute Programming.
   a) G00
   b) G01
   c) G90
   d) G91
4. G96 is named as-
   a) Constant Cutting Speed
   b) Spindle rotation Clockwise
   c) Constant Spindle speed
   d) Spindle Speed limit
5. _____ is used for Feed per Revolution.
   a) G92
   b) G94
   c) G91
   d) G95

6. Machine Zero point is denoted by-
   a) M
   b) W
   c) R
   d) N
7. What is the number of driven tool positions in the turret of Emco Concept Turn 250?
   a) 8
   b) 12
   c) 6
   d) 3
8. What is the unit of Feed in Turning?
   a) mm/rev
   b) m/min
   c) mm/min
   d) None of the above
9. G00 is used for-
   a) Circular Interpolation Clockwise
   b) Circular Interpolation Counterclockwise
   c) Linear Interpolation (feed)
   d) None of the above
10. What is the code for Constant Spindle Speed?
    a) G97
    b) G96
    c) G92
    d) G91

Section – B

04X04 = 16 Marks

11. Explain Machine Zero Point, Reference Point, Tool Mount Reference Point and Workpiece Zero Point with figure.
12. Describe the Program Structure in CNC Turning.
13. Difference between Left Hand Thread and Right Hand Thread.
14. Describe Facing Cycle.

Section – C

04X06 = 24 Marks

15. Describe Contour Turning Cycle in detail.
16. Explain the G78 cycle with all its parameters.
17. What are the Tool movement and Spindle rotation for Right Hand and Left-Hand Threads? Also, calculate all the parameters for M16 X 1 threads.
18. Describe the Canned cycles with all the parameters.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

SET-A

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

End-Sem. Examination

Course Code: SMS1304 **Time: 2 Hour**

Course Name: Pneumatics **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. Which of the following material is not used for pneumatic tubes?
   a) Nylon
   b) Aluminum
   c) Steel
   d) Polyurethane
2. Which type of valve we use in pneumatics?
   a) Slide
   b) Plane
   c) Poppet
   d) Spool
3. Standard atmospheric pressure is-
   a) 1.013 MPa
   b) 1.013 Pa
   c) 1.013 bar
   d) 1.013 N/m2
4. Which type of air dryer is used silica gel as a drying agent?
   a) Absorption air dryer
   b) Adsorption air dryer
   c) Refrigerant air dryer
   d) None of above
5. Which type of refrigerant used in refrigeration air dryer?
   a) R-22
   b) R-134a
   c) R-12
   d) All of above

6. The Fluid use to transmit power in Pneumatics is-
   a) Air
   b) Water
   c) Oil
   d) Liquid
7. In hydraulic system, fluid is pressurized by:
   a) Air Compressor
   b) Electric motor
   c) Pump
   d) None of the above
8. Which compressor is used as portable compressor?
   a) Diaphragm compressor
   b) Single stage piston compressor
   c) Screw compressor
   d) Vane compressor
9. What is L in FRL unit?
   a) Lubricant
   b) Liquid
   c) Lubricator
   d) Lubrication
10. Which type of valves control the flow of fluid with the help of a disc or plug lifting and normally work against the gravity?
    a) Poppet valve
    b) Slide valve
    c) Monostable valve
    d) All of the above

Section – B

04X04 = 16 Marks

11. Define Pneumatics
12. Explain with the help of neat sketch the *Construction*, *Working* and *Function* of *Timer.*
13. Draw flow diagram for the types of compressor.
14. Draw the Symbol of Quick Exhaust Valve. Also write its function.

Section – C

04X06 = 24 Marks

15. Explain any five differences between Pneumatic System and Hydraulic System.
16. Explain the pressure regulator valve and also draw its symbol.
17. Explain any two types of Air dryers.
18. What is Air Production system? Explain all the components of Air production system.

SET-B

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

End-Sem. Examination

Course Code: SMS1304 **Time: 2 Hour**

Course Name: Pneumatics **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. The Function of Tank is to-
   a) maintain a pressure range
   b) drain water content
   c) prevents from pressure fluctuation
   d) remove dust particles from air
2. In Isochoric process, at constant volume-
   a) Pressure is directly proportional to temperature
   b) Pressure is inversely proportional to temperature
   c) Temperature is proportional to volume
   d) Volume is directly proportional to pressure
3. OR element is also known as-
   a) Dual pressure valve
   b) Shuttle valve
   c) Flow control valve
   d) Memory valve
4. In pneumatic the volume flow of air is expressed in term of:
   a) M^3/s
   b) L/m
   c) Both a and b
   d) None of above
5. When PV=Constant, if we increase the volume then pressure will.....?
   a) Remains constant
   b) Decrease
   c) Increase
   d) none of these

6. Fluid power system is based on:
   a) Bernoulli's principle
   b) Gas law
   c) Avogadro's law
   d) Pascal law
7. SI unit of pressure:
   a) N/m^2
   b) bar
   c) Pascal
   d) All of above
8. Which air we control in METER IN method?
   a) Control to air that going to actuator
   b) Control to air that coming from actuator
   c) Both of above
   d) None of above
9. A piston Diameter of 20mm is lifting two blocks of mass 10kg each. Then how much pressure is required in bar?
   a) 5.00 bar
   b) 0.624 bar
   c) 6.24 bar
   d) None of above
10. The power source in pneumatics system is_____
    a) Air receiver
    b) Compressor
    c) Valve
    d) Muffler

Section – B

04X04 = 16 Marks

11. Draw the symbol of Pressure Switch and Pressure Regulator.
12. What is the difference between Bistable and Monostable valves.
13. Draw the symbol of air compressor and electric motor and write their function.
14. Write down any five advantages of using atmospheric air in Pneumatics.

Section – C

04X06 = 24 Marks

15. Explain Bernoulli's principle and its equation.
16. Define any two actuator mountings and also explain their types with diagram.
17. Describe the rotary type actuator and their types.
18. Covert the following units:
    a) 1 bar = _____ N/m2
    b) 1 MPa = _____ bar
    c) 1 atm = _____ bar
    d) 1 bar = _____ PSI
    e) 1 N/m^2 = _____ Pa

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

SET-A

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

End-Sem. Examination

Course Code: SMS1305 **Time: 2 Hour**

Course Name: Material Science **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. Steel is an ___of iron
   a) Composite
   b) Alloy
   c) Neither Composite nor alloy
   d) Both a & b
2. "S 235 JRC+C" defines the material
   a) Copper
   b) Aluminum
   c) Brass
   d) None of these
3. Basic oxygen process is used for producing
   a) Steel
   b) Cast iron
   c) Aluminium
   d) None of the above
4. To improve the high temperature resistance property of a steel, which of the following alloying element is induced
   a) Nickel
   b) Cobalt
   c) Manganese
   d) Chromium
5. Reinforced plastics is an example of
   a) Alloy
   b) Steel
   c) Composite
   d) None

6.What is carbon percentage for low carbon steel?

a) 2-4%

b) 4-6.67%

c) 0.6-2%

d) 0-0.3%

7.Which one is a mechanical property of material?

a) Heat conductivity

b) Corrosion resistance

c) Thermal conductivity

d) Brittleness

8.Pig iron is manufactured from which furnace?

a) Blast furnace

b) Cupola furnace

c) Pudling furnace

d) None of them

9.Which one is an artificial material?

a) Granite

b) Glass

c) Graphite

d) Wood

10.What is carbon percentage for steel?

a) 2-4%

b) 4-6.67%

c) 6-10%

d) 0-2%

Section – B

04X04 = 16 Marks

11. Difference between alloy & composite material.
12. What is a pig iron?
13. What is natural & artificial material?
14. Write a short note on quenching agent used in heat treatment.

Section – C

04X06 = 24 Marks

15.Describe physical properties of material?

16.Write a short note on followings?

a) Casting

b) Forging

c) Heat treatment

17.Explain the process of manufacturing of pig iron with suitable diagram.

18.Describe the followings?

a) White cast iron

b) Heat resistance cast iron

c) Corrosion resistant cast iron

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

SET-B

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

End-Sem. Examination

Course Code: SMS1305 **Time: 2 Hour**

Course Name: Material Science **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. Which one is a physical property of material?
   a) Machine ability
   b) Heat resistance
   c) Density
   d) Cast-ability
2. Circulating air has the most general quenching agent. It is used to----------?
   a) cool Cast iron
   b) cool mild steel
   c) cool high alloy steel
   d) none of these
3. Plain carbon & low alloy steel are tempered at-------?
   a) 100-200c
   b) 200-350c
   c) 400-500c
   d) 0-100c
4. Which one is a chemical property of material?
   a) Density
   b) Viscosity
   c) Strength
   d) Scaling
5. Which one is not a natural material?
   a) Granite
   b) Wood
   c) Graphite
   d) Ceramics

6. What is the carbon percentage for cast iron?
   a) 0-0.3%
   b) 0.5-1%
   c) 1-1.5%
   d) more than 2%
7. Thermal conductivity measures the ability of material ----------?
   a) to conduct electricity
   b) to conduct heat
   c) to conduct force
   d) to conduct stress
8. Plastics deformation happen when-
   a) material return to original shape
   b) material don't return to its primary shape
   c) both a & b
   d) none of the above
9. Which one is not a mechanical property of material?
   a) brittleness
   b) Hardness)
   c) Viscosity
   d) Elasticity
10. White cast iron usually are-
   a) very soft
   b) very hard
   c) easily machine able
   d) none of these

Section – B

04X04 = 16 Marks

11. Difference between alloy & cast iron.
12. Describe mechanical properties of material.
13. Write a short note on hardening distortion and hardening cracks?
14. What is heat treatment? Mention name of different heat treatment processes.

Section – C

04X06 = 24 Marks

15. Describe production properties of material?
16. Write a short note on followings:
    a) Natural Material
    b) Artificial Material
    c) Composite Material
17. Explain the Basic oxygen process of extracting pig iron with suitable diagram.
18. Describe the followings:
    a) Annealing
    b) Quenching
    c) Hardening

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

SET-A

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

End-Sem. Examination

Course Code: SMS1307 **Time: 2 Hour**

Course Name: Manufacturing Processes **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. Which of the following processes is not the type of bulk forming process in the metal forming?
   a) Bending
   b) Rolling
   c) Forging
   d) Extrusion
2. The work-piece is passed through the die and takes the cross-section of the die opening. It is a pull process known as
   a) Bulk forming
   b) Bending process
   c) Wire drawing process
   d) Forging
3. Forging is a forming process in which thickness of the metal plate is decreased by increasing its length.
   a) True
   b) False
4. Replica of the final product is known as
   a) Mould
   b) Pattern
   c) Flask
   d) Runner
5. Wax pattern is used in
   a) Die Casting
   b) Slush Casting
   c) Centrifugal Casting
   d) Investment Casting

6. In which part of the metal casting process the metal is poured the molten metal
   a) Runner
   b) Gate
   c) Sprue
   d) Basin
7. Which of the following is not type of temporary joints?
   a) Fastening
   b) Coupling
   c) Press fit
   d) Key joint
8. The flask of casting process is divide into two parts cope and drag
   a) true
   b) False
9. What is the full form of ECM?
   a) Electric composition machining
   b) Electro composition machining
   c) Electro chemical machining
   d) Electric chemical machining
10. What is the full form of BCM?
   a) Bio composition machining
   b) Bio chemical machining
   c) Beam chemical machining
   d) Beam chemical machining

Section – B

04X04 = 16 Marks

11. Define the non-conventional machining and also classify it in details.
12. Write the difference between hot working and cold working process (any six)
13. Define the following:
   b) Bulk forming
   c) Sheet metal forming
   d) Powder metallurgy forming
14. Explain the investment casting with diagram.

Section – C

04X06 = 24 Marks

15. Define metal casting process and write the basic six steps for casting.
16. Define the following with diagram.
   a. Pattern
   b. Runner
   c. Gate
   d. Drag & Cope
17. Write the definition of the Joining and Welding Process. Also describe the oxy-fuel welding in details with diagram.
18. Explain the resistance and MAG welding process with diagram.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

SET-B

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

End-Sem. Examination

Course Code: SMS1307 **Time: 2 Hour**

Course Name: Manufacturing Processes **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. Rolling is a forming process in which thickness of the metal plate is decreased by increasing its length.
   a) True
   b) False
2. Which of the following processes is not the type of bulk forming process in the metal forming?
   a) Bending
   b) Rolling
   c) Forging
   d) Extrusion
3. Nature of force applied in bulk forming is
   a) Compressive
   b) Tensile
   c) Shear
   d) All of the above
4. Process in which sheet metal is stretched into the desired part shape is called
   a) Bulk forming
   b) Bending process
   c) Deep drawing process
   d) Forging
5. Which of the following metal forming processes is best suitable for making the wires?
   a) Forging
   b) Extrusion
   c) Drawing
   d) Rolling

6. Deformation refers to the use of raw materials for forming which have low surface area to volume ratio.
   a) Sheet forming
   b) Bulk forming
   c) Powder forming
   d) None of the above
7. Which of the following casting techniques is the best technique for casting tubes and hollow pipes?
   a) Die Casting
   b) Slush Casting
   c) Centrifugal Casting
   d) Investment Casting
8. The part of the casting system from which the molten enters into mould.
   a) Runner
   b) Gate
   c) Sprue
   d) Basin
9. Which of the following is a type of temporary joints?
   a) Fastening
   b) Coupling
   c) Rivet
   d) Welding
10. A process in which the metal is deformed plastically to get into the desired shape.
   a) Casting
   b) Welding
   c) Machining
   d) Forming

Section – B

04X04 = 16 Marks

11. Explain the EDM process in details.
12. Write the short on following:
   b) MIG welding
   c) Casting
   d) Forging
13. Define Manufacturing Process and also classify it with neat and clean chart?
14. Explain the casting defects.

Section – C

04X06 = 24 Marks

15. What do you understand by grinding process? Explain
16. Write the definition of the Joining and Welding Process. Also describe the oxy-fuel welding in details with diagram.
17. Explain the water jet and abrasive jet machining.
18. Draw the chart for classification of welding process

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SET-A

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

End-Sem. Examination

Course Code: SMS1308 **Time: 2 Hour**

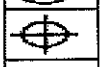
Course Name: Metrology & Measuring Instruments **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

1. Diameter of Reference sphere used for calibration in CMM.
   a) 25.000 mm
   b) 29.000 mm
   c) 29.900 mm
   d) 29.999 mm
2. Full form of SPA3
   a) Servo Power Amplifier
   b) Servo pack Amplifier
   c) Service position Amplifier
   d) Service power Amplifier
3. Controller used in CMM
   a) Renishaw
   b) Siemens
   c) Fanuc
   d) Mitsubishi
4. How many standards used for length measurements?
   a) 5
   b) 2
   c) 3
   d) 4
5. Which symbol is used for Position?
   a) 
   b) 
   c) 
   e) None of the above

6. Full form of FCM:
   a) Floating carriage micrometer
   b) Fold carriage micrometer
   c) Flat carriage micrometer
   d) Fold carriage microscope
7. Formula for circular pitch Pc:
   a) $Pc = 2\pi D / Z$
   b) $Pc = \pi Z / D$
   c) $Pc = \pi D / Z$
   d) $Pc = 2\pi Z / D$
8. What is krypton – 86 value of red orange line?
   a) 1m = 1650786.78
   b) 1m = 1650763.73
   c) 1m = 1650794.90
   d) 1m = 1650911.88
9. The word metrology actually derives from the Greek words which are?
   a) Metro and logy
   b) Metron and logos
   c) Metro and logo
   d) Measure and logo
10. Travelling distance in Z Axis in CMM
   a) 500
   b) 400
   c) 600
   d) 450

Section – B

04X04 = 16 Marks

11. Write the various parts name of CMM.
12. Explain the classification of standards.
13. Differentiate between accuracy and precision.
14. Explain the types of sine bar.

Section – C

04X06 = 24 Marks

15. Write down the applications and advantages of CMM.
16. Draw symbols of the following given tolerances;
   a) Cylindricity
   b) Parallelism
   c) Total run out
   d) Perpendicularity
17. What is sine bar? Explain working principle of sine bar with diagram.
18. Explain the Gear terminology with diagram.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

SET-B

Registration No.: .....

School of Manufacturing Skills

Session: 2021-22 (Winter Semester)

B. Voc. Program, III Semester,

End-Sem. Examination

Course Code: SMS1308 **Time: 2 Hour**

Course Name: Metrology and Measuring Instruments **Max. Marks: 50**

Instructions:

1. Attempt all questions.
2. Section A contains 10 Questions. Each question carries 1 Mark.
3. Section B contains 04 Questions. Each question carries 4 Marks.
4. Section C contains 04 Questions. Each question carries 6 Marks.

Section – A

10X01 = 10 Marks

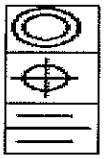
1. RF abbreviation is used for which bond type?
   a) Vitrified
   b) Resinoid
   c) Metal
   d) Fiber reinforced
2. For the structural steel which type of abrasive do we use?
   a) Diamond
   b) Boron nitride
   c) Aluminum oxide
   d) Silicon carbide
3. Formula Pc = π Z / D for:
   a) Circular pitch
   b) Major Diameter
   c) Minor Diameter
   d) Pitch angle
4. Travelling distance in X-Axis in CMM
   a) 500
   b) 400
   c) 600
   d) 450
5. 1m =1650763.73 value of the red-orange line for.
   a) Krypton - 75
   b) Krypton – 86
   c) Krypton - 68
   d) All of the above
6. What is the Reference object used for calibration in CMM?
   a) Cube

b) Sphere

c) Cylinder

d) None of the above

7. Which symbol is used for symmetricity:

a) 

b)

c)

e) None of the above

8. Coolant percentage is used for grinding:
   a) 1-2%
   b) 4-5%
   c) 6-8%
   d) Above 10 %
9. This ⌭ symbol is used for:
   a) Roundness
   b) Cylindricity
   c) True position
   d) Concentricity
10. In metrology words Metron and logos lectures from:
    a) German words
    b) Greek words
    c) Italian words
    d) None of the above

Section – B

04X04 = 16 Marks

11. Define grinding.
12. Write down the advantages of CMM.
13. Draw symbols of the following given tolerances;
    a) Roundness
    b) Angularity
14. What is a sine bar?

Section – C

04X06 = 24 Marks

15. Explain the pore structure in the grinding wheel.
16. Explain how Accuracy is different from precision?
17. Explain the following terms:
    a) Pitch circle
    b) Pitch circle diameter
    c) Addendum
    d) Dedendum
    e) Addendum circle
    f) Dedendum circle
18. Explain the different parts of CMM.