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BHARTIYA SKILL DEVELOPMENT UNIVERSITY
SCHOOL OF MANUFACTURING SKILLS
1ST SEMESTER, MAKEUP EXAMINATION
SUMMER SEMESTER, B.VOC. PROGRAM
SESSION 2018-2019

Course Code: POL100[illegible]
Time (Minutes): 60

Course Name: Measuring
Maximum Marks: 20

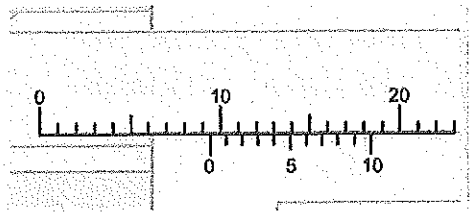
Instructions:

1. Attempt all questions.
2. Use of Calculators is prohibited.
3. Section A contains 10 Questions. Each question carries 0.5 Mark.
4. Section B contains 06 Questions. Each question carries 1 Mark.
5. Section C contains 03 Questions. Each question carries 3 Marks.

Section- A

1. Feeler gauge is the type of ....
    a. Dimensional gauge
    b. Form gauge
    c. Limit gauge
    d. None of these
2. Which one of the following is not a part of a micrometer?
    a. Thimble
    b. spindle
    c. Thumb
    d. Anvil
3. The difference between maximum and minimum limits of size is known as .....
    a. Tolerance
    b. Deviation
    c. Allowance
    d. None of these
4. Which grade of slip gauge is used in measuring module?
    a. K grade
    b. 00 grade
    c. 0 grade
    d. 1 grade

5. What is the reading of a Vernier caliper shown below?



a. 6.50mm
b. 9.90mm
c. 9.04mm
d. 9.4 mm

6. Which measuring tool can be used to measure 20.030 mm?
   a. Vernier Callipers.
   b. Micrometer.
   c. Slip gauge
   d. Plug gauge
7. Material of a measuring tool should be...
   a. Softer than the work piece.
   b. Harder than the work piece.
   c. Same hardness as of work piece
   d. None of the above.
8. What is the use of Ratchet?
   a. Fine movement.
   b. To limit the measuring force.
   c. Both fine movement and two limit the measuring force.
   d. None of these
9. Snap gauge is used to....
   a. Measure internal dimension
   b. Measure external dimension
   c. Measure internal and external dimension
   d. None of these
10. Accuracy of a standards to calibrate a measuring instrument should be...
    a. 1/10th of least count of measuring instrument.
    b. Less than 1/10th of least count of measuring instrument.
    c. More than 1/10th of least count of measuring instrument.
    d. Maximum 1/10th of least count of measuring instrument.

Section- B

11. Define Accuracy.
12. What is calibration?
13. Write down the different parts of bevel protractor with their application.
14. Which factors should we consider to select measuring tool?
15. Define the following terms:
    a) One meter b) Basic size c) Actual size
16. Write down the three application of slip gauge.

Section C

17. Explain different types of errors in measurement.
18. Define Least count. Calculate the least count of Vernier caliper which has 50 divisions on secondary scale. Write down its formula.
19. Define gauging and explain different types of gauges with the help of flow chart

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1ST SEMESTER, MAKEUP EXAMINATION
SUMMER SEMESTER, B.VOC. PROGRAM
SESSION 2018-2019

Course Code: POL1001
Time (Minutes): 60

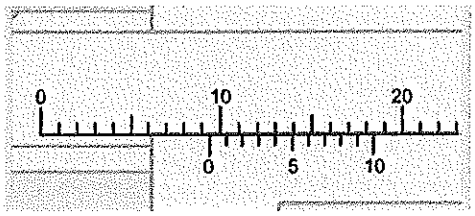
Course Name: Measuring
Maximum Marks: 20

Instructions:

1. Attempt all questions.
2. Use of Calculators is prohibited.
3. Section A contains 10 Questions. Each question carries 0.5 Mark.
4. Section B contains 06 Questions. Each question carries 1 Mark.
5. Section C contains 03 Questions. Each question carries 3 Marks.

Section- A

1. Feeler gauge is the type of ....
   Ans. Dimensional gauge
2. Which one of the following is not a part of a micrometer?
   Ans. Thumb
3. The difference between maximum and minimum limits of size is known as .....
   Ans. Tolerance
4. Which grade of slip gauge is used in measuring module?
   Ans. 0 grade
5. What is the reading of a Vernier caliper shown below?



Ans .9.4 mm

6. Which measuring tool can be used to measure 20.030 mm.

Ans.Slip gauge

7. Material of a measuring tool should be...

Ans.Harder than the work piece.

Question Paper

8. What is the use of Ratchet?

Ans.Both fine movement and two limit the measuring force.

9. Snap gauge is used to....

Ans.Measure external dimension

10. Accuracy of a standards to calibrate a measuring instrument should be...

Ans.More than 1/10th of least count of measuring instrument

Section- B

11. Define Accuracy. (1 Mark)

Ans. Accuracy is how close a measured value is to the true value.

12. What is calibration? (1 Mark)

Ans. The process to find out the error in a measuring instrument is called calibration.

13. Write down the different parts of bevel protractor with their application. (0.12x8= 1 Mark)

i. Adjustable beam
ii. solid beam
iii. magnification glass
iv. clamp screw for Adjustable beam
v. clamp screw for main scale
vi. main scale for reading in degree
vii. Auxiliary scale for reading arc minute
viii. It used to measure angle

14. Which factors should we consider to select measuring tool? (0.12x7= 1 Mark)

- Range
- Tolerance value
- Geometry/design
- Least count
- Availability
- Application
- Error

15. Define the following terms: (0.33x3=1 Mark)

a) One meter - one meter is the distance that light travels in a vacuum in one 299,729,458 of a second

b) b) Basic size - It is the size of a part with all limits of variation are determined.

c) c) Actual size - Measured size of the finished part after machining

Question Paper

16. Write down the three application of slip gauge. (0.25x4= 1 Mark)

Ans.

- Slot measurement
- It used with sine bar
- It used with dial indicator
- It used in calibration

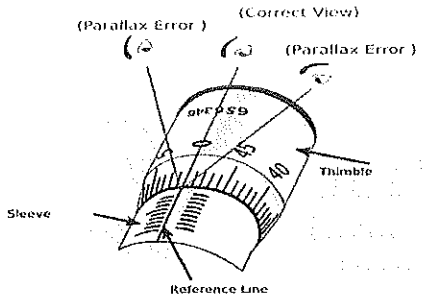
Section C

17. Explain different types of errors in measurement. **(0.75x4= 03 Marks)**

Ans. - it is the difference between measured value and true value

Types of Error

A. **Parallax Error** –Parallax error is the shift in apparent position of an object due to different viewing position. When we have to take reading from an instrument or do some measurements then different viewing position will give different readings leading to an error. This could be removed by keeping our eyes in front of the thing to be viewed.



B. **Tilt Error** - This error occur due to having play between slider and beam. When we applied excessive force on slider to clamp the workpiece then slider may displace from it's original position this lead to error in measuring instruments. To avoid this error, we should apply limited force on jaws.

C. **Cocking Error**- when we measure the distance between reference face and measuring face of the work piece or measuring instruments then the reference faces and measuring faces of workpiece and measuring instrument should be parallel if it is not then it will show wrong value.

D. **Dirt or Burrs Error** –it is caused by dirt and burr on the work piece and measuring instruments.

18. Define Least count. Calculate the least count of Vernier caliper Which has 50 divisions on secondary scale. Write down its formula. **(1x3= 03 marks)**

Ans. Least count is the Minimum value that can be measured by measuring tool

$$\text{Least Count} = \frac{Value\ of\ One\ division\ on\ main\ Scale}{Total\ no.of\ division\ on\ vernier\ Scale} = \frac{1}{50}$$

= 0.02mm

= 20 μm

19. Define gauging and explain different types of gauges with the help of flow chart. **(0.5+2+0.5 = 03 marks)**

Ans. Gauging is a process of inspection in which we compare the work piece which is to be inspected with measuring tool. In this process we don't get numerical value. For Example: Checking of hole with plug gauge

Types of gauges

Dimension Gauge- Dimension gauges are usually supplied in sets and, depending on the gradation, increase in size by a specific value from one gauge to the next.

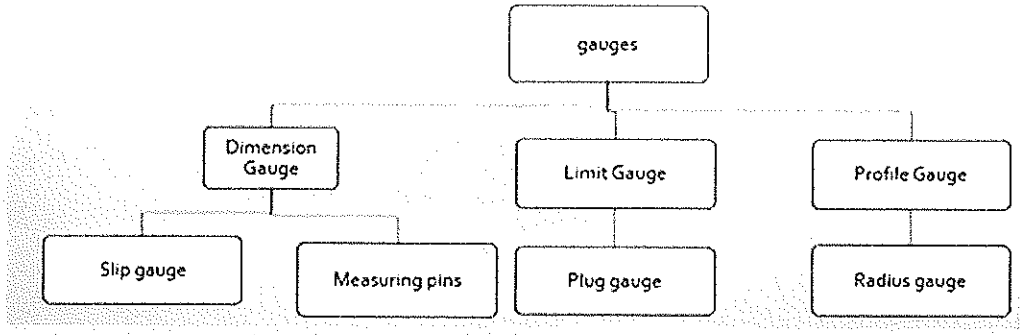
For example, feeler gauge and slip gauge.

Limit Gauge - limit gauge is used to check the limit dimensions of shafts and holes

- Shafts are checked using ring gauges or snap gauges.
- hole sizes are checked with plug limit gauges

Profile gauge- profile gauge are used to examine angle, radil, screw threads and other profile using the light gap method.

For example, Radius gauges, thread gauges.



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SCHOOL OF MANUFACTURING SKILLS
1st SEMESTER, MAKEUP EXAMINATION
WINTER SEMESTER, B.VOC. PROGRAM
SESSION 2018-2019

Course Code: POL1005
Time (Minutes): 60

Course Name: Conventional Turning
Maximum Marks: 20 Marks

Instructions:

1. Attempt all questions.
2. Use of Calculators is Prohibited.
3. Section A contains 10 Questions. Each question carries 0.5 Mark.
4. Section B contains 06 Questions. Each question carries 1 Marks.
5. Section C contains 03 Questions. Each question carries 3 Marks.

Section-A **(10x0.5= 5 Marks)**

1. Which one is the correct answer?
   a) Vc = $\frac{\pi dn}{1000}$ cm/min
   b) Vc = $\frac{\pi dn}{1000}$ mm/min
   c) Vc = $\frac{\pi dn}{1000}$ m/min
   d) Vc = $\frac{\pi dn}{1000}$ $m/sec.$

2. Which thread is capable to bear heavy load in both direction?
   a) V – shaped Threads
   b) Acme Threads
   c) Knuckle Threads
   d) Buttress Threads

3. What is the normal clearance angle in tool?
   a) 55° to 80°
   b) 11° to 15°
   c) 6° to 8°
   d) 8° to 12°

4. What is the use of rake angle in a tool?
    a) Chips removal
    b) Provide space between work piece and tool
    c) To give relief
    d) None of these
5. What is the formula for minimum depth of cut?
    a) 3/2rd of Nose radius
    b) 4/3rd of Nose radius
    c) 1/3rd of Nose radius
    d) 2/3rd of Nose radius
6. Pitch is defined as
    a) The distance between two consecutive threads
    b) The distance between major diameter to minor diameter
    c) The distance between major diameter to Pitch circle diameter
    d) The diagonal Distance between flank face to root
7. Why do we use coolant?
    a) To increase tool life
    b) To improve the surface finish of the work piece
    c) To reduce the surface temperature of the work piece
    d) All of the above
8. Use of tailstock in lathe machine?
    a) Supporting long shaft
    b) Drilling
    c) A & B Both
    d) Grooving
9. Why we make undercut in thread?
    a) Thread tool relaxation & Self-looking.
    b) To clean the face
    c) To reduce the diameter
    d) None of the above
10. What is the full form of DRO?
    a) Digital run out
    b) Direct reading out
    c) Digital read out
    d) Distance read out

Section- B (06x1= 6 Marks)

11. Why do we do centering of turning tools before machining? (with a sketch)
12. Which are the five operations that are carried on lathe? Define one operation.
13. If cutting velocity (Vc) is 30 m/min & work piece diameter is 7cm. Calculate the rpm for facing of Aluminum work piece.
14. Write a short note on Acme thread along with a figure.
15. Which angle mainly influences chip formation?
16. What is the formula for maximum feed rate?

Section- C (03x3=9 Marks)

17. Define Average roughness value (Ra) and Average maximum height of the profile (Rz). For which value is greater for the same surface roughness?
18. Calculate the following parameter for External Thread M20.
    a. Pitch
    b. Major Diameter
    c. Thread Depth
    d. Minor Diameter
    e. Required Chamfer
19. Explain at least 6 components of lathe machine.

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1st SEMESTER, MAKEUP EXAMINATION
WINTER SEMESTER, B.VOC. PROGRAM
SESSION 2018-2019

Course Code: POL1005
Time (Minutes): 60

Course Name: Conventional Turning
Maximum Marks: 20 Marks

Instructions:

1. Attempt all questions.
2. Use of Calculators is prohibited.
3. Section A contains 10 Questions. Each question carries 0.5 Marks.
4. Section B contains 06 Questions. Each question carries 1 Marks.
5. Section C contains 03 Questions. Each question carries 3 Marks.

Section-A

1. Which one is correct answer?

   Ans. (C) Vc = $\frac{\pi dn}{1000}$ m/min

2. Which thread is capable to bear heavy load in both direction?

   Ans. (B) Acme thread.

3. What is the normal clearance angle in tool?

   Ans. (C) 6° *to* 8°

4. What is the use of rake angle in a tool?

   Ans. (A) Chip removal

5. What is the formula for minimum depth of cut?

   Ans. (D) 2/3rd of Nose radius.

6. Pitch is defined as

   Ans. (A) Distance between two consecutive thread.

7. Why do we use coolant?

   Ans. (D) All of the above

8. Use of tailstock in lathe machine?

   Ans. (C) A & B Both

9. Write the importance of undercut in thread?

   Ans. (A) Thread tool relaxation & Self-looking.

10. What is the full form of DRO?

    Ans. (C) Digital read out.

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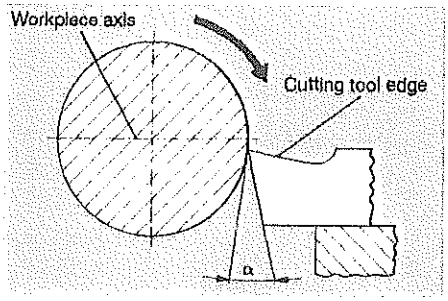
Section- B

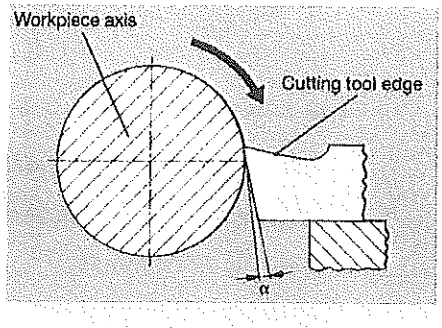
11. Why do we do centering of turning tools before machining? (with a sketch) (0.33x3=1 Mark)

Ans.

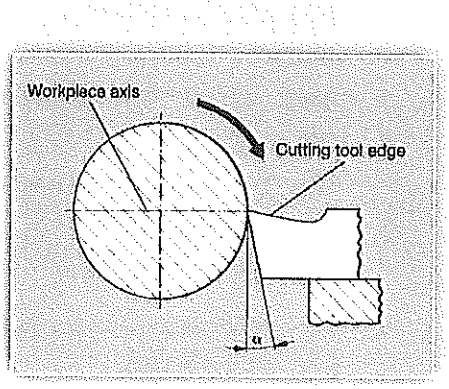
Positioning the tool below the mid-point of the workpiece increases the clearance angle and reduces the rake angle; the tool will catch and cause an uneven surface to be produced.



Positioning the tool above the mid-point of the workpiece reduces the clearance angle and increases the rake angle; the lathe tool will dig in.



Optimum machining is only possible when the lathe tool is accurately aligned to the mid-point of the workpiece, as the clearance and rake angles are then in the correct relationship to the workpiece.



12. Which are the five operations that are carried on lathe? Define one operation. (0.2x5=1 Mark)

Ans. **Turning**

Facing

Grooving

Boring

Threading: - Threading is an operation of to cut the thread in cylindrical work piece. For this we have to engage the carriage on the lead screw.

For threading we will use 2 K tool.

For threading we have to calculate

Major Diameter,

Minor Diameter,

Pitch Circle diameter,

Thread depth

Chamfer calculation

Helix Angle etc.

Step to perform Threading operation

1) First calculate all parameters according to drawing
2) Perform the turning operation and make major diameter according to calculation.
3) Perform the chamfering operation.
4) Clamp the threading tool and provide helix angle
5) Perform the threading operation according the calculation with Minimum RPM.
6) Check the threads with the help of thread gauge.

13. If cutting velocity (Vc) is 30 m/min & workpiece diameter is 7cm. Calculate the rpm for facing of Aluminum work piece.

Ans. $V_C = \frac{\pi dn}{1000}\ m/min$

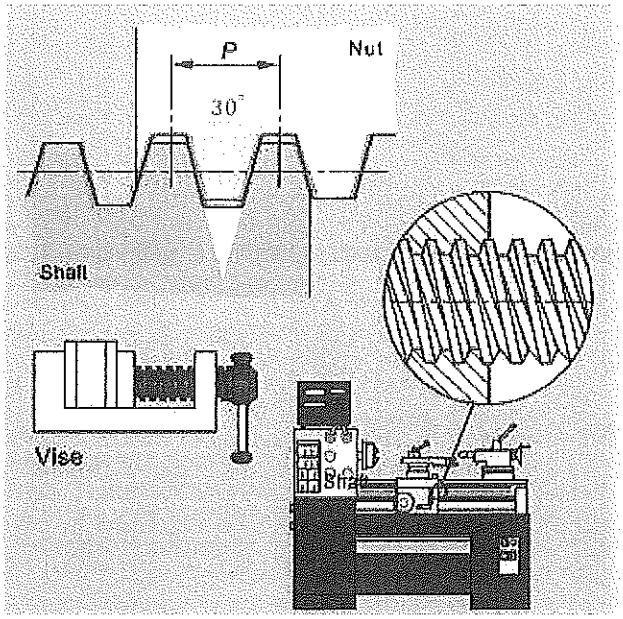
$= \frac{3.14X70Xn}{1000}\ m/min$

= 135 rpm

= 270 RPM Approx. (RPM Double for facing opreation)

14. Write a short note on Acme thread along with a figure.

Ans.



Cross Section

Acme Thread

Acme threads have a small thread angle of 30°.

This results in a low frictional force.

Acme threads are capable of bearing heavy loads in both directions.

This cross section is used with threads for adjustment.

Acme threads are used to clamp work pieces and to adjust slides on machine tools.

15. Which angle mainly influences chip formation?

    Ans. Rake angle mainly influences chip formation.

16. What is the formula for maximum feed rate?

    Ans. ½ of Nose radius.

Section- C

17. Define Average roughness value (Ra) and Average maximum height of the profile (Rz). Which value is greater for the same surface roughness?

    Ans.

    R_a= Mean Peak to Valley Height

    The Mean Peak to Valley Height (R_a) is the mean of all deviations in the roughness profile from the median line. It is given in Microns.

    R_Z= Averaged peak to valley Height

    The Averaged peak to valley Height is mean figure obtained from five successive individual Sections. For this purpose an assessment length (l_e) divided up into five equal measurement section. This distance between highest and lowest profile point is then measured for each section. This distance is referred to as the individual peak to valley height (Z). The formula for calculating the mean peak to valley height is as follow

    R_Z= 1/5 (Z_1+Z_2+Z_3+Z_4+Z_5)

    For same surface roughness R_Z value is greater.

18. Calculate the following parameter for External Thread M20. (0.2x5=1 Mark)

a. Pitch
b. Major Diameter
c. Thread Depth
d. Minor Diameter
e. Required Chamfer

Ans.

a. Pitch = 2.5 mm

b. Major Diameter = Nominal dia. – 10% of pitch
= 20 – 0.25
= 19.8mm (approx.)

c. Thread Depth = 0.614 X pitch
= 0.614 X 2.5
= 1.535mm (Radially)
Thread depth (diametrically) = 2 X 1.535
= 3.1mm (approx.)

d. Minor Diameter = Major dia. – thread depth
= 19.8 – 3.1
= 16.7mm

e. Required Diameter = $\frac{major\ dia.-minor\ dia.}{2}$ + 0.5
= $\frac{19.8-16.7}{2}$ +0.5
= 2mm (approx.)

19. Explain at least 6 components of lathe machine. (0.15x6= 1 Mark)

Ans. 1.) **Lathe bed** – The lathe bed is fixed to the lathe frame and made of grey cast iron which is extremely rigid and vibration free.

2.) **Head stock** – The headstock is used to transmit working energy to the work piece.

3.) **Tailstock** – The tailstock serves as a steady for long work piece and is also used for holding tools.

4.) **Saddle-** The longitudinal slide runs on the guide ways of the lathe bed. It can move by hand or through lead screw or feed shaft.

5.) **Cross Slide-** The cross slide is driven by threaded spindle. For transverse movement cross slide is required.

6.) **Compound Slide-** The adjustable top slide carries the tool post or tool rest. For precise movement we can use compound slide.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1ST SEMESTER, MAKEUP EXAMINATION
SUMMER SEMESTER, B.VOC. PROGRAM
SESSION 2018-2019

Course Code: POL1006
Time (Minutes): 60

Course Name: Pneumatics
Maximum Marks: 20

Instructions:

1. Attempt all questions.
2. Use of Calculators is prohibited.
3. Section A contains 10 Questions. Each question carries 0.5 Mark.
4. Section B contains 06 Questions. Each question carries 1 Mark.
5. Section C contains 03 Questions. Each question carries 3 Marks.

Section- A

1. When PV=Constant, if we increase the volume then pressure will-
    a) Remains constant
    b) Decrease
    c) Increase
    d) none of these
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. Air dryer is used to-
    a) Supply mechanical power to compressor
    b) Transform the electrical energy to mechanical energy
    c) Remove dust particles from air
    d) Remove moisture content from air
4. What type of Refrigerant we are using in our Dryer?
    a) R22
    b) R34a
    c) R134a
    d) R34

5. What is L in FRL unit-
    a) Lubricant
    b) Liquid
    c) Lubricator
    d) Lubrication
6. Bistable valve is also known as-
    a) Dual pressure valve
    b) Shuttle valve
    c) Flow control valve
    d) Memory valve
7. The Fluid use to transmit power in Pneumatics is-
    a) Air
    b) Water
    c) Oil
    d) Liquid
8. A hydraulic system operates at a pressure up to-
    a) 10-12 bar
    b) 7-8 bar
    c) 400 bar
    d) 700 bar
9. Fluid power system is based on-
    a) Bernoulli's principle
    b) Gas law
    c) Avogadro's law
    d) Pascal law
10. 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

Section- B

11. Name the device used to quickly exhaust the air from actuator.
12. Covert the following units:
    - 1 bar = _____ N/m^2
    - 1 MPa = _____ bar
    - 1 atm = _____ bar
    - 1 bar = _____ PSI
13. Define Compressor.
14. Draw flow diagram for the types of compressor.
15. Define Pneumatics.
16. Draw the symbol of Single acting and Double acting cylinder.

Section C

17. Write down any six advantages of using compressed air in Pneumatics.
18. Explain Bernoulli's principle. Also write the equation.
19. A 20mm diameter piston is lifting 30kg block of material. If the piston lifts 3 blocks of material at once. Then calculate the required pressure in bar.

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Course Code: POL1006
Time (Minutes): 60

Course Name: Pneumatics
Maximum Marks: 20

Instructions:

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3. Section A contains 10 Questions. Each question carries 0.5 Mark.
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5. Section C contains 03 Questions. Each question carries 3 Marks.

Section- A

1. When PV=Constant, if we increase the volume then pressure will- 0.5 Mark
   b) Decrease
2. In Isochoric process, at constant volume- 0.5 Mark
   a) Pressure is directly proportional to temperature
3. Air dryer is used to- 0.5 Mark
   d) Remove moisture content from air
4. What type of Refrigerant we are using in our Dryer? 0.5 Mark
   c) R134a
5. What is L in FRL unit- 0.5 Mark
   c) Lubricator
6. Bistable valve is also known as- 0.5 Mark
   d) Memory valve
7. The Fluid use to transmit power in Pneumatics is- 0.5 Mark
   a) Air
8. A hydraulic system operates at a pressure up to- 0.5 Mark
   a) 10-12 bar
9. Fluid power system is based on- 0.5 Mark
   d) Pascal law
10. The Function of Tank is to- 0.5 Mark
    c) prevents from pressure fluctuation

Section- B

11. Name the device used to quickly exhaust the air from actuator. 1 Mark

    Ans. Quick Exhaust Valve

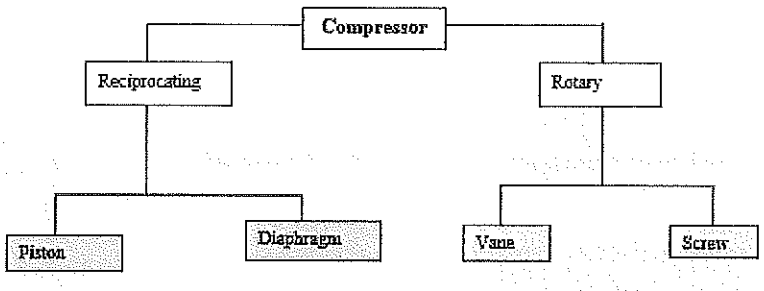
12. Covert the following units: 0.25 x 4 = 1 Mark

    - 1 bar = 10^5 N/m^2
    - 1 MPa = 10 bar
    - 1 atm = 1 bar
    - 1 bar = 14.5 PSI

13. Define Compressor. 1 Mark

    Ans. A compressor is a mechanical device that increases the pressure of a gas by reducing its volume. It converts power (using an electric motor, diesel engine, etc.) into potential energy stored in pressurized air.

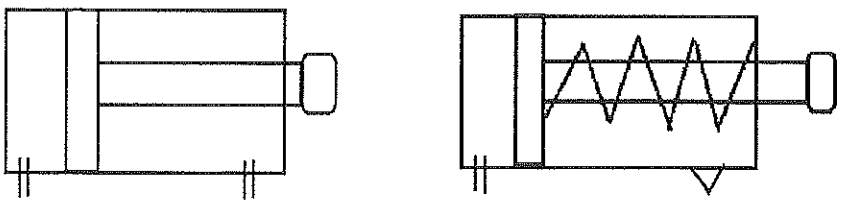
14. Draw flow diagram for the types of compressor. 0.16 x 6 = 1 Mark



15. Define Pneumatics. 1 Mark

    Ans. Pneumatic is the branch of fluid power system in which power is transmitted by using dry compressed air.

16. Draw the symbol of Single acting and Double acting cylinder. 0.5x2=1 Mark



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Section C

17. Write down any six advantages of using compressed air in Pneumatics. 0.5x6=3 Marks

Ans.

- Availability: Air is available everywhere and can be compressed with a portable compressor so most factories and industries use this for many activities.
- Storage: It is easily stored in tanks in large volume.
- Simplicity of Design: Most pneumatic components are of simple design and structure.
- Easy to Work: Pneumatic components have simple control and are easily fitted to provide automation.
- Choice of Movement: It provides both linear movement and angular rotation with continuously variable operational speeds.
- Economy: Low installation cost and low maintenance cost as no service is required.
- Reliability: High system reliability because pneumatic components have a long working life.
- Resistance to Environment: High temperature, dust and corrosive atmosphere does not affect it while many other systems may get affected.
- Environmentally Clean: It is clean and does not cause any pollution.
  Safety: No fire hazards and pneumatic components do not produce heat.

18. Explain Bernoulli's principle. Also write the equation. 1.5x2=3 Marks

Ans. 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.

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

19. A 20mm diameter piston is lifting 30kg block of material. If the piston lifts 3 blocks of material at once. Then calculate the required pressure in bar. 3 Marks

Ans. P = F/A, F = (30*3) *9.81

= 882.90 N

$A = \pi/4*d^2$

$=\pi/4*(0.02)^2$

$=3.14*10^{-4}$

$P= 882.90 / 3.14*10^{-4}$

P= 28.11 bar

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BHARTIYA SKILL DEVELOPMENT UNIVERSITY
SCHOOL OF MANUFACTURING SKILLS
1ST SEMESTER, MAKEUP EXAMINATION
SUMMER SEMESTER, B.VOC. PROGRAM
SESSION 2018-2019

Course Code: POL1007
Time (Minutes): 60

Course Name: Welding
Maximum Marks: 20

Instructions:

1. Attempt all questions.
2. Use of Calculators is prohibited.
3. Section A contains 10 Questions. Each question carries 0.5 Mark.
4. Section B contains 06 Questions. Each question carries 1 Mark.
5. Section C contains 03 Questions. Each question carries 3 Marks.

Section- A

1. What is the most required thing in welding?
   a) Current
   b) Pressure
   c) Heat
   d) Electrode
2. Specify the code for MMA welding.
   a) 111
   b) 135
   c) 136
   d) 141
3. What type of current does a welding transformer supply?
   a) DC
   b) AC
   c) Both
4. Wire feeding system is used for .....
   a) Control the gas supply
   b) Adjust the voltage
   c) control the wire speed
   d) control the welding speed

5. Why must welders use a Welding Helmet?
   a) To aid visibility
   b) To protect their eyes when removing slag
   c) To protect their eyes from flashes
   d) To offer protection from radiation
6. In TIG welding, the time of gas flow after pressing the stop button is known as.....?
   a) Post flow time
   b) Pre flow time
   c) Down slop time
   d) Up slop time
7. For GMAW process, we use following current and polarity:
   a) DCEN
   b) DCEP
   c) PULSED DC
   d) Square wave AC
8. Which of the weld position is used to denote pipe to pipe welding?
   a) 3F
   b) 1G
   c) 2F
   d) 5F
9. Which of the following is not a PPE?
   a) Apron
   b) Hand gloves
   c) Wire brush
   d) Welding Helmet
10. In GTAW process, function of tungsten electrode is:
    a) To provide filler metal to the joint
    b) To provide shielding effect
    c) To conduct electric current to the arc
    d) To provide more penetration to the weld joint

Section- B

11. Write the steps for Tack Welding. (only name)
12. Write any three characteristics of electrode covering.
13. What is the meaning of term "protective gear"? Write name of four protective gears used in welding.
14. Write a short note on 'Metal Transfer in Welding.
15. List the advantages of Welding Inverter over other welding power sources.
16. What is meant by the term 'Welding defect?

Section C

17. Describe the designation of Mild steel electrode in MMA. Explain what do you by E6013.

18. Draw a design of the MIG / MAG welding System.

19. Describe representation of welding seam in drawing.

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5. Section C contains 03 Questions. Each question carries 3 Marks.

Section- A

1. What is the most required thing in welding?

   Ans. (c) Heat

2. Specify the code for MMA welding.

   Ans. (a) 111

3. What type of current does a welding transformer supply?

   Ans. (b) AC

4. Wire feeding system is used for .....

   Ans. (c) control the wire speed

5. Why must welders use a Welding Helmet?

   Ans. (d) To offer protection from radiation

6. In TIG welding, the time of gas flow after pressing the stop button is known as.....?
   a) Post flow time
7. For GMAW process, we use following current and polarity:
   Ans.(b) DCEP
8. Which of the weld position is used to denote pipe to pipe welding?
   Ans. (b) 1G

9. Which of the following is not a PPE?

Ans. (c) wire brush

10. In GTAW process, function of tungsten electrode is:

Ans.(c) To conduct electric current to the arc

Section- B

11. Write the steps for Tack Welding. (only name) (0.33x3=1 Mark)

Ans. Steps are:

a. Aligning
b. Clamping
c. Tack

12. Write any three characteristics of electrode covering. (0.12x8= 1 Mark)

Ans. Characteristics of electrode covering:

1. Provide a protective atmosphere.
2. Stabilize the arc.
3. Provide a protective slag coating to accumulate impurities, prevent oxidation, and slow the cooling of the weld metal.
4. Reduce spatter.
5. Add alloying elements.
6. Affect arc penetration
7. Influence the shape of the weld bead.
8. Add additional filler metal. (any 3)

13. What is the meaning of term "protective gear"? Write name of four protective gears used in welding.

Ans. Accessories that are used to protect the person doing any kind of work. Protective gear used in welding:

a. Hand gloves
b. Gloves
c. Apron
d. Safety shoes
e. Safety glass
f. Ear plug
g. Nose mask (any Four)

14. Write a short note on 'Metal Transfer in Welding. (0.25x4=1 Mark)

Ans. The gas metal arc welding (GMAW) process uses four basic modes to transfer metal from the electrode to the work piece. Each mode of transfer depends on the welding process, the welding power supply, and the consumable, and each has its own distinct characteristics and applications.

- Short – Circuit
- Globular
- Spray Arc
- Pulse

15. List the advantages of Welding Inverter over other welding power sources. (1 Mark)

Ans. Small setup, more portable and light weight and multi process welding capability

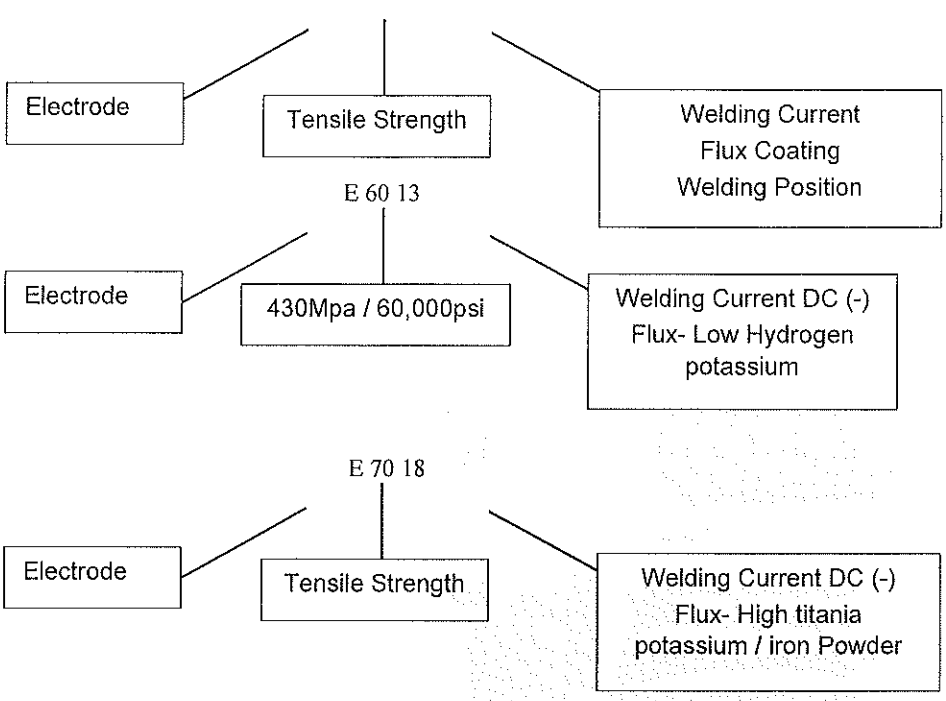
16. What is meant by the term 'Welding defect? (1 Mark)

Ans. A welding defect is any flaw that compromises the usefulness of a weldment

Section C

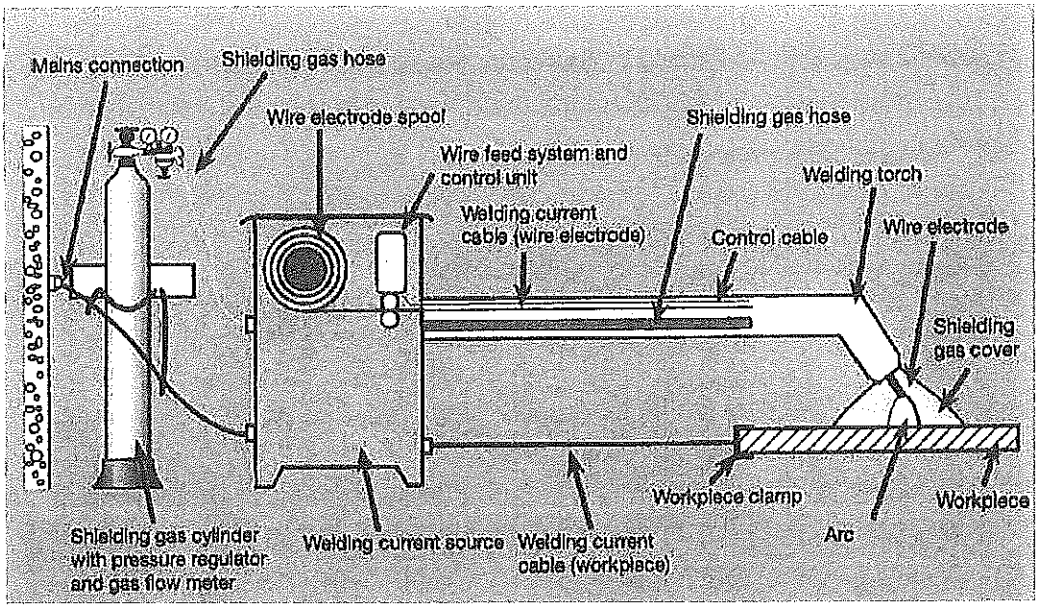
17. Describe the designation of Mild steel electrode in MMA. Explain what do you mean by E6013 & E7018

18. Ans.



19. Draw a design of the MIG / MAG welding System.

Ans.



19. Describe representation of welding seam in drawing.

Ans.

Arrow Line- Shows the welding Position

Reference Line (Solid) } **Their Intersection shows the plane of welding**

Dotted Reference Line }

Fork- Contain the supplementary Information of the welding