THEORY 1st - IN-SEM EXAMINATION			
SESSION: 2022-23 (SUMMER SEMESTER)			
B.Voc	**Semester**	1st	
Course name / Module	**Assembly & Measuring**		
Course code	**SMS1101**		
Date			
Name of the Student		**Reg. No.**	

INSTRUCTIONS
• Maximum Marks: **20**
• Duration of Examination: **01 Hour**
• Attempt all questions.
• Use of calculator is prohibited.
• Use the pencil and scale for drawing diagrams.
• Write the Name and Registration Number on the sheet correctly.

1. Section A	**05×1 = 05**

1. Jam Nut is also called-
    a) Lock nut
    b) Castle nut
    c) A & B both
    d) None of the above
2. Which measuring tool can be used to measure outer dimension of 20.030 mm?
    a) Vernier Caliper
    b) Micrometer
    c) Slip gauge
    d) Plug gauge
3. The joints which can be assembled and dismantled whenever required-
    a) Temporary Joint
    b) Rivet joint
    c) A & B Both
    d) None of the above
4. Plug gauge is the type of-
    a) Dimensional gauge
    b) Form gauge
    c) Limit gauge
    d) None of these
5. Set screw is used to-
    a) Prevent the relative motion between two part
    b) Prevent loosening of threads between the nut and screw

c) a & b Both

d) None of the above

2. Section B	03×02 = 06

6. What is lubrication and what are the objectives of lubrication?
7. What is the difference between accuracy and precision?
8. Write down the Advantages and Disadvantages of v-belt over flat belt drive.

3. Section C	03×03 = 09

9. Write down the different parts of micrometer with their application.
10. What is gear? Explain the spur gear.
11. Write any 4 safety precautions while using slip gauge.

Ans Sheet

School of Manufacturing Skills

THEORY 1st - IN-SEM EXAMINATION			
SESSION: 2022-23 (SUMMER SEMESTER)			
B.Voc	**Semester**	1st	
Course name / Module	**Assembly & Measuring**		
Course code	**SMS1101**		
Date			
Name of the Student		**Reg. No.**	

INSTRUCTIONS
• Maximum Marks: **20** • Duration of Examination: **01 Hour** • Attempt all questions.
Answer Key

1. Section A	05×1 = 05

1. Jam Nut is also called-
   - **a) Lock nut**
   - b) Castle nut
   - c) A & B both
   - d) None of the above
2. Which measuring tool can be used to measure outer dimension of 20.030 mm?
   - a) Vernier Caliper
   - **b) Micrometer**
   - c) Slip gauge
   - d) Plug gauge
3. The joints which can be assembled and dismantled whenever required-
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5. Set screw is used to-
   - a) Prevent the relative motion between two part
   - b) Prevent loosening of threads between the nut and screw
   - **c) a & b Both**
   - d) None of the above

2. Section B	03×02 = 06

6. What is lubrication and what are the objectives of lubrication?

Ans. Lubrication is science of reducing friction by application of suitable substance called lubricant between the rubbing surfaces of bodies having relative motion.

Objectives:

- To reduce friction.
- To carry away heat generated due to friction.
- To reduce/prevent wear.
- Protection against corrosion.

7. What is the difference between accuracy and precision?

Ans. Accuracy is how close a measured value is to the actual (true) value.
Precision is how close the measured values are to each other.

8. Write down the Advantages and Disadvantages of v-belt over flat belt drive.

Ans.

Advantages

- Friction is high due to wedge action, results in power transmitting capacity.
- Slip is negligible due to wedge action.
- Can operate vertically also.

Disadvantages

- Cost is high, creep is high.
- Construction is complicated.

3. Section C	03×03 = 09

9. Write down the different parts of micrometer with their application.

Ans.

Ratchet- used to apply constant and limited measuring force and also used for fine movement.
Thermal insulation pad- does not allow transferring the body heat to micrometer.
Anvil and spindle- Anvil used to support the work piece and create reference face and spindle create measuring face, it consists linear and rotational motion.
Measuring scale- works on the pitch principle or can be defined as one rotation of circular scale gives one division linear movement on main scale.
Frame – it is required for providing support to all components of micrometer.

10. What is gear? Explain the spur gear.

Ans. Gears are toothed wheels which transmit power and motion by successive engagement of teeth.

They are generally used when the distance between the shafts is less.
Spur gear
Teeth are parallel to axis of shaft.
Impose radial load on shafts.
Can be used only where shafts are parallel.

11. Write any 4 safety precautions while using slip gauge.

Ans.

- It should not be fallen down, even not on the soft floor.
- Clean the measuring surface before measuring.
- After use apply Vaseline on measuring surface.
- Take out only blocks which is to be used.

THEORY 1st - IN-SEM EXAMINATION			
SESSION: 2022-23(SUMMER SEMESTER)			
B.Voc	**Semester**	1st	
Course name / Module	Handskills		
Course code	SMS1102		
Date			
Name of the Student		**Reg. No.**	

INSTRUCTIONS

- Maximum Marks: **20**
- Duration of Examination: **01 Hour**
- Attempt all questions.
- Use pencil and scale for drawing diagram.
- Use of calculator is completely prohibited.

1. Section A	**05×1 = 05**

1. What will be the effect of clearance angle if it is kept zero?
   a) The friction will be more and the surface quality will be bad
   b) Chips will break very easily
   c) Tool will penetrate deeper
   d) None of the above
2. The size of the wedge angle mainly affects-
   a) Chip formation
   b) Friction between the tool and workpiece
   c) Strength of the tool
   d) All the above
3. Which of the following process has the undefined tool geometry?
   a) Chiseling
   b) Drilling
   c) Grinding
   d) Sawing
4. The clearance angle is denoted by-
   a) gamma
   b) Beta
   c) Alpha
   d) Theta
5. Which scriber tool is used avoid damaging the surface while marking the soft surface?
   a) Brass needle
   b) Steel needle
   c) Pencil
   d) Height Gauge

2. Section B	03×02 = 06

6. Explain the tool geometry.
7. Write the definition of scribing and punching.
8. Write the any six scribing tool and accessories.

3. Section C	03×03 = 09

9. Write the factors which affects the penetration of cutting wedge
10. Differentiate between Positive and Negative rake angles.
11. Write any five occupational safety considered in the workshop.

Ans Sheet

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School of Manufacturing Skills

THEORY 1st - IN-SEM EXAMINATION			
SESSION: 2022-23(SUMMER SEMESTER)			
B.Voc	**Semester**	1st	
Course name / Module	Handskills		
Course code	SMS1102		
Date			
Name of the Student		**Reg. No.**	

INSTRUCTIONS
• Maximum Marks: **20**
• Duration of Examination: **01 Hour**
• Attempt all questions.
Answer Key

1. Section A	05×1 = 05

1. What will be the effect of clearance angle if it is kept zero?
   - **a) The friction will be more and the surface quality will be bad**
   - b) Chips will break very easily
   - c) Tool will penetrate deeper
   - d) None of the above
2. The size of the wedge angle mainly affects-
   - a) Chip formation
   - b) Friction between the tool and workpiece
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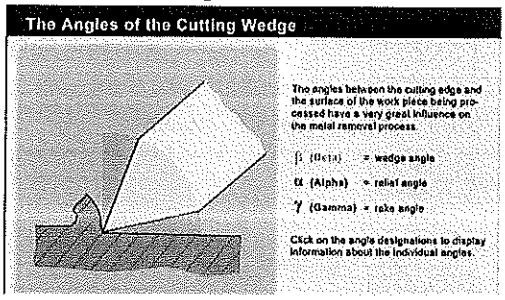
5. Which scriber tool is used avoid damaging the surface while marking the soft surface?
   - a) Brass needle
   - b) Steel needle
   - **c) Pencil**
   - d) Height Gauge

2. Section B	03×02 = 06

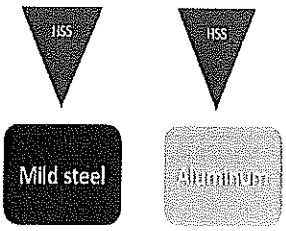
6. Explain the tool geometry.
   There are three cutting angle of the cutting edge
   1. Wedge angle
   2. Rake angle
   3. Relief angle



7. Write the definition of scribing and punching.
   Scribing: It is a process to transfer the drawing dimensions and contours onto the workpiece.
   Punching: It is process to make a conical depression onto the workpiece surface.
8. Write the any six scribing tool and accessories.
   Pencil
   Brass Needle
   Steel Needle
   Vernier Height gauge
   Marking T Rule
   Divider

3. Section C	03×03 = 09

9. Write the factors which affects the penetration of cutting wedge.
   Wedge angle
   Cutting material
   Applied force
   Work piece material

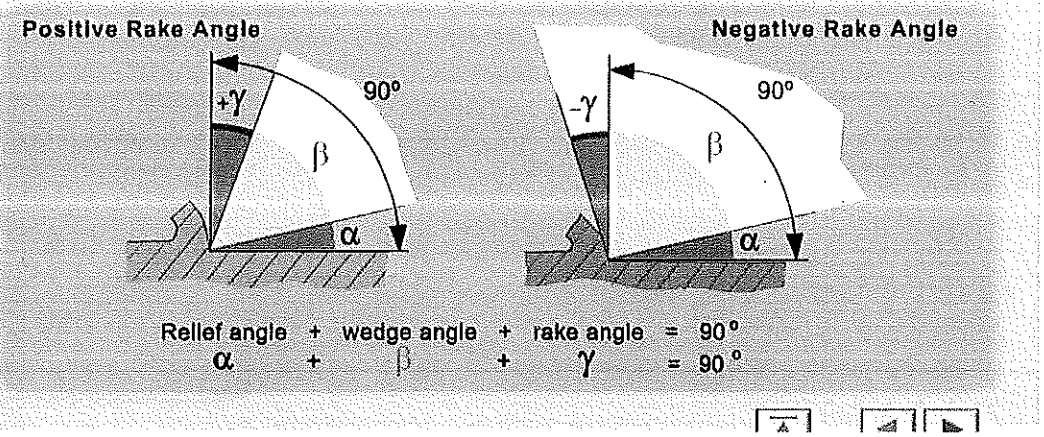


10. Differentiate between Positive and Negative rake angles.

The Angles of the Cutting Wedge

The sizes of the wedge and rake angles depend primarily on the material of the work piece being processed. The following principle applies: the harder the work piece material, the bigger the wedge angle must be. The relief, wedge and rake angles add up to a right angle (90°).

If the relief angle and wedge angle total more than 90°, then the rake angle will be negative.



11. Write any five occupational safety considered in the workshop.

Ans.

- Clamp the work piece firmly in the vice
- Prevent the saw from the slipping off by filing a notch
- Reduce the pressure before separating the work piece
- Deburr the work piece after sawing
- Check for a solid seating of the file handle
- Damaged file handle is to be replaced immediately
- Wear the safety shoes during the filling
- Use the safety glasses for the eye protection.
- Don't wear the jewelleries.
- Don't remove the chips with your finger, use the brush to remove chips.
- Deburr the work piece on all sides.

THEORY 1st - IN-SEM EXAMINATION			
SESSION: 2022-23(SUMMER SEMESTER)			
B. Voc/M. Voc	**B.Voc.**	**Semester**	
Course name / Module	Handskills		
Course code	MCS1110		
Date			
Name of the Student		**Reg. No.**	

INSTRUCTIONS

- Maximum Marks: **20**
- Duration of Examination: **01 Hour**
- Attempt all questions.

1. Section A (05 objective type questions, each question carries 01 mark)	**05×1 = 05**

1. Convert 32.5 mm into cm.
   (a) 3250
   (b) 32500
   (c) 3.250
   (d) 0.325
2. 1 inch = ...mm.
   (a) 25.4
   (b) 24.5
   (c) 2.45
   (d) 2.54
3. 2cm =.....μ.
   (a) 200
   (b) 2000
   (c) 20000
   (d) 200000
4. Dimension can be measured with the help of the vernier calliper.
   (a) Depth
   (b) Outer Diameter
   (c) Inner Diameter
   (d) All of the above
5. Deburring tool is used for.
   (a) Remove burrs for the edges or holes
   (b) For marking on workpieces
   (c) To guide the drill
   (d) None of the above

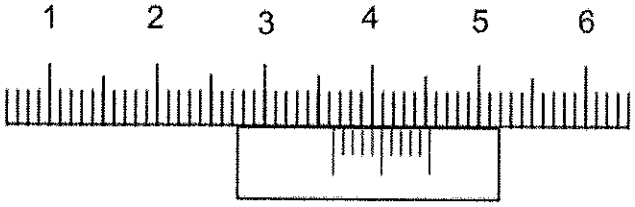
2. Section B (03 short answer type questions, each question carries 02 marks)	**03×02 = 06**

1. What is least count?
2. What is tolerance?
3. Write down the 10 Tools names that you have in your workstation.

3. Section C (03 long type questions, each question carries 03 marks)	**03×03 = 09**

1. Read the following Vernier calliper measurements. (The scales have been enlarged for easier reading.) The Vernier calliper is calibrated in metric units

(a)



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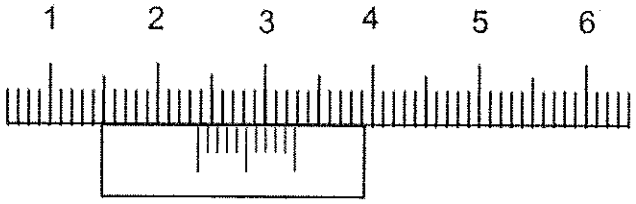

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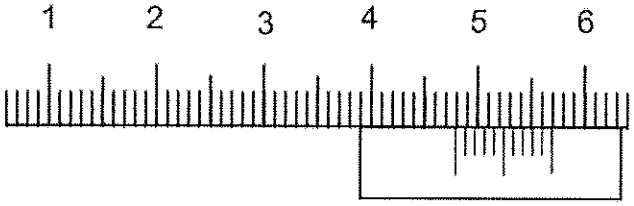

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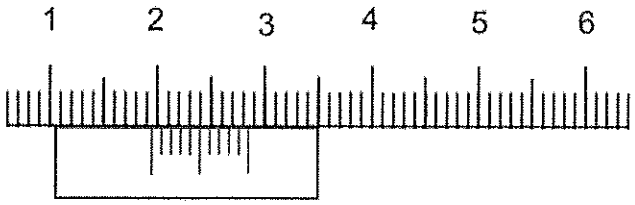

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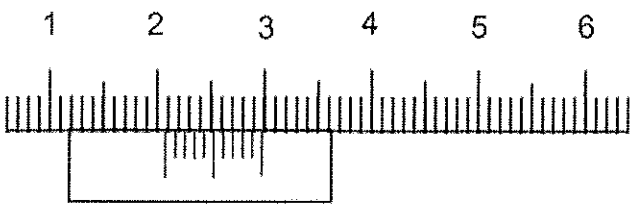

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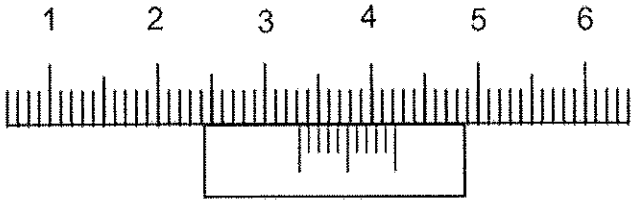


2. Find the least count of the following vernier calliper.
   (a) 50^{th} vernier calliper
   (b) 20^{th} vernier calliper
   (c) 10^{th} vernier calliper
   (d) 100^{th} vernier calliper

3. Draw a neat labelled diagram of a vernier calliper. Name its main parts and state their functions.

THEORY 1st - IN-SEM EXAMINATION			
SESSION: 2022-23(SUMMER SEMESTER)			
B. Voc/M. Voc	**B. Voc**	**Semester**	
Course name / Module	Hand skills		
Course code	MCS1110		
Date			
Name of the Student		**Reg. No.**	

INSTRUCTIONS

- Maximum Marks: **20**
- Duration of Examination: **01 Hour**
- Attempt all questions.

Answer Key

1. Section A (05 objective type questions, each question carries 01 mark)	**05×1 = 05**

1. Convert 32.5 mm into cm.
   (a) 3250
   (b) 32500
   (c) 3.250
   (d) 0.325
2. 1 inch = ...mm.
   (a) 25.4
   (b) 24.5
   (c) 2.45
   (d) 2.54
3. 2cm =.....µ.
   (a) 200
   (b) 2000
   (c) 20000
   (d) 200000
4. Dimension can be measured with the help of the vernier calliper.
   (a) Depth
   (b) Outer Diameter
   (c) Inner Diameter
   (d) All of the above
5. Deburring tool is used for.
   (a) Remove burrs for the edges or holes
   (b) For marking on workpieces
   (c) To guide the drill
   (d) None of the above

2. Section B (03 short answer type questions, each question carries 02 marks) **03×02 = 06**

1. What is least count?

Ans: The smallest value that can be measured by a measuring instrument is called its least count.

2. What is tolerance?

Ans: Tolerance is the total amount a dimension may vary and is the difference between the upper (maximum) and lower (minimum) limits. Because it is impossible to make everything to an exact size, tolerances are used on production drawings to control the parts.

3. Write down the 12 Tools names that you have in your workstation.

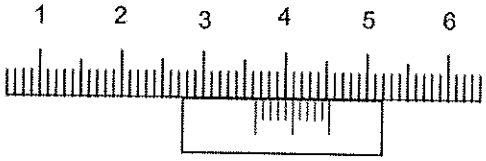
Ans:

Scriber, Files, Deburring tool, Marking Gauge, Protector, Divider, steal ruler, Radius gauge, Centre punch Hammer, Flat edge square, Hack Saw.

3. Section C (03 long type questions, each question carries 03 marks) **03×03 = 09**

1. Read the following Vernier calliper measurements. (The scales have been enlarged for easier reading.) The Vernier calliper is calibrated in metric units

(a)



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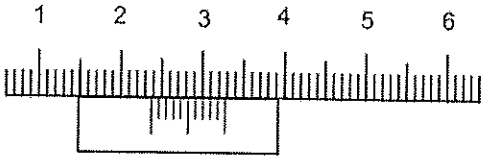

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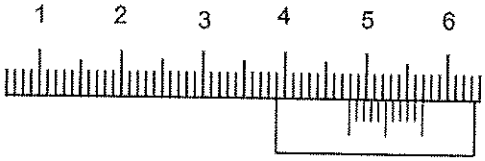
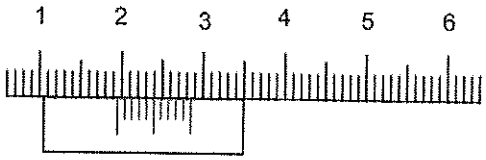


(d)



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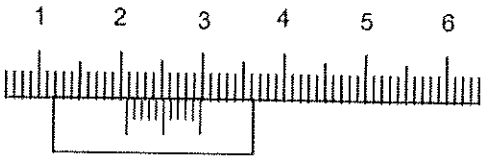

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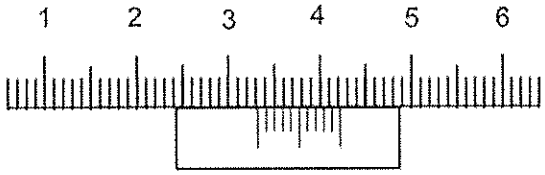


Ans:

a)3.64

b)2.37

c)4.79

d)1.94

e)2.08

f)3.33

2. Find the least count of the following vernier calliper.

(a) 50^{th} vernier calliper

(b) 20^{th} vernier calliper

(c) 10^{th} vernier calliper

(d) 100^{th} vernier calliper

Ans:

(a) 0.02mm

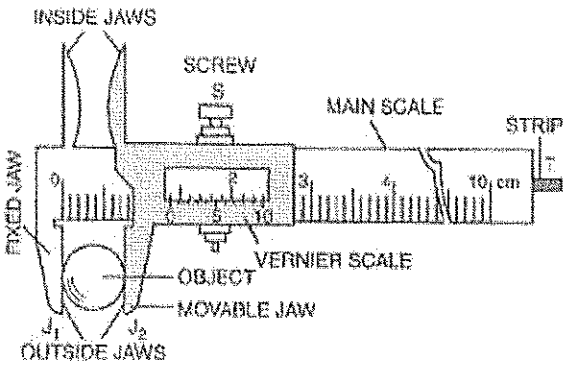
(b) 0.05mm

(c) 0.1mm

(d) 0.01

3. Draw a neat labelled diagram of a vernier calipers. Name its main parts and state their functions.

Ans:



Lower Jaws:

The upper jaws are the most prominent feature of a vernier caliper. These jaws are designed to grip objects firmly between them for measurement. One of the jaws is fixed and attached to the main scale of the caliper

while the other one is attached to the vernier scale and is movable. The lower jaws allow the vernier caliper to measure outer dimensions of objects such as the length, width or diameter.

Upper Jaws:

The upper jaws are smaller in size and are attached to the upper portion of the vernier caliper. Similar to the lower jaws, one of these jaws is fixed and the other is movable. The difference between them and the lower jaws is that the upper jaws are used for measuring inside dimensions of hollow objects such as inside diameters of pipes, lengths and widths of boxes etc. The jaws are placed inside the place to be measured and then opened till they touch the edges and the reading is taken at that point.

Depth Rod:

The depth rod is another useful feature of the vernier caliper which can be used to measure the depths of holes or steps. The depth rod is a thin rod located at the end of the main scale. To measure with the depth rod, the edge of the main scale is placed on the top surface of the hole and then the jaws are opened. As the jaws are opened, the depth rod slides out with the main scale. The depth rod is extended till it touches the bottom of the hole and the reading is taken as usual.

Main Scale:

The main scale is the large scale which runs along the body of the vernier caliper. It is graduated either in centimetres and millimetres or inches depending on the type of units it is built for. In SI units the lowest graduation of the main scale is normally 1mm. The main scale is stationary.

Vernier Scale:

The Vernier scale is the defining component of the caliper and what gives it its name. The vernier caliper is a smaller scale attached to the main scale and can move along the main scale as the jaws are opened or closed. The vernier scale provides accuracy to the reading of the main scale by further dividing the lowest reading of the main scale into increments. In a metric caliper, the vernier scale is divided into 50 increments each representing 0.02 mm.

Thumb Screw:

The thumb screw is located at the bottom of the vernier scale. Its purpose is to provide a grip for the user to slide the jaws easily and adjust the position of the jaws and depth rod while maintaining a firm grip on the object.

Lock Screw:

The lock screw is used to fix the position of the jaws once the object is positioned properly so that readings can be taken without the fear of spoiling the position.