



School of Manufacturing Skills

Session: 2020-21 (Winter Semester)

B. Voc. Program, I Semester,

1st In-Sem. Examination

Course Code: SMS1101

Time: 1 Hour

Course Name: Assembly and Measuring

Max. Marks: 20

Instruction:

1. Attempt all questions.
2. Use of Calculators is Prohibited.
3. Section A contains 05 Questions. Each question carries 1 Mark.
4. Section B contains 03 Questions. Each question carries 2 Marks.
5. Section C contains 03 Questions. Each question carries 3 Marks.

Section – A

05X01 = 05 Marks

1. 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.
2. Sensory inspection is a type of.
 - a) Subjective measurement
 - b) Objective measurement
 - c) A & B Both
 - d) None of the above
3. Example of semisolid lubricant is:
 - a) Mineral oil
 - b) Grease
 - c) Graphite
 - d) Vegetable oil
4. Non-metallic gaskets are made up of
 - a) Wood & Brass
 - b) Aluminum & Rubber
 - c) Rubber & Asbestos
 - d) All of the above



5. Which measuring instruments can be used to measure internal diameter of 20.015 mm?

- a) Digital Vernier calipers
- b) Micrometer.
- c) Hole test Micrometer
- d) Plug gauge

Section – B

03X02 = 06 Marks

- 6. Write the difference between measuring instruments and gauges.
- 7. Write the parts name of Depth Vernier calipers
- 8. What is oil seal and write the two function?

Section – C

03X03 = 09 Marks

- 9. Explain different types of errors in measurement.
- 10. Calculate the least count of Vernier caliper which has 50 divisions on secondary scale and also write its formula.
- 11. Write any two advantages and disadvantages of deep groove ball bearing.



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Answer Key

Section – A

1. Material of a measuring tool should be...
 - b) Harder than the work piece.
2. Sensory inspection is a type of-
 - a) Subjective measurement
3. Example of semisolid lubricant is-
 - b) Grease
4. Non-metallic gaskets are made up of-
 - c) Rubber & Asbestos
5. Which measuring instruments can be used to measure internal diameter of 20.015 mm?
 - c) Hole test Micrometer

Section – B

6. What is difference between measuring instruments and gauge?

S.No.	Gauges	Measuring instruments
1.	Gauge are used to check the work piece	Instruments are used to measure the work piece
2.	This is used for mass production mainly	Instruments are used for bought out inspection
3.	Gauges have fix dimension or fix Value	Instruments have variable dimension or value

7. Write the parts name of Depth Vernier calipers.

Ans.

- Beam
- Main Slider
- Auxiliary Slider
- Clamping screw
- Main Scale

Vernier scale
 Base
 Reference Surface
 Measuring surface
 Fine feed screw

8.

An oil seal is a mechanical device, which is used to prevent leakage of fluid between two machine components

Function of the oil seal-

To prevent leakage of expensive lubricating oils from the transmission system.

To prevent the entry of foreign particles like dust or abrasive material into the operating system

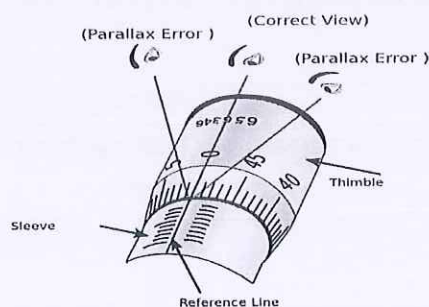
Section – C

9. Explain different types of errors in measurement.

Error - 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 work piece 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



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10. Calculate the least count of Vernier caliper which has 50 divisions on secondary scale with write down the formula.

Ans:- **Formula:**

L.C = One values of smallest division on main scale / Total division on secondary scale

OR

L.C = Main scale division – Vernier scale division

Calculate least count:

$$L.C = 1 / 50 = 0.02\text{mm}$$

Or

$$L.C = 1 - 0.98 = 0.02\text{mm}$$

11.

S.No.	ADVANTAGES	DISADVANTAGES
	<p>a. Relatively large size of balls, these bearings have high load carrying capacity.</p> <p>b. Due to point contact between the balls and races, frictional loss and temperature rise is less.</p>	<p>a. Not self-aligning, accurate aligning between shaft and housing bore is required.</p> <p>b. Poor rigidity compared to roller bearing.</p>

