



School of Manufacturing Skills
Session: 2021-22 (Summer 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. Section A contains 05 Questions. Each question carries 1 Mark.
3. Section B contains 03 Questions. Each question carries 2 Marks.
4. 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. Radius gauge is type of:
 - a) Form gauge.
 - b) Limit gauge.
 - c) Dimensional gauge
 - d) Both form and limit gauge.
4. Which one of the following is not a part of a micrometer?
 - a) Thimble
 - b) Spindle
 - c) Probe
 - d) Anvil
5. Which measuring instrument can be used to measure internal diameter of 20.015 mm?
 - a) Digital Vernier calipers
 - b) Micrometer.
 - c) Hole test Micrometer
 - d) Plug gauge



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Section – B

03X02 = 06 Marks

6. Write the difference between measuring instruments and gauges.
7. Explain the Bevel protractor with its parts name.
8. Write at least two applications of dial indicator

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 4 Safety precautions while using slip gauge.



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Answer Key

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.**
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Section – B

03X02 = 06 Marks

6. Write the difference between measuring instruments and gauges.

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. Explain the Bevel protractor with its parts name.

Ans. It is used to measure the angle of mechanical parts

PARTS

1. Main scale
2. Solid beam
3. Adjustable measurement beam
4. Clamp screw
5. Secondary scale

Lest count

Value of one division on mane scale /total number of division on secondary scale

$$1/12=60'/12=5'$$

8. Write at least two applications of dial indicator.

Ans. Check the run out of shaft.
Check the Flatness of surface.

Section – C

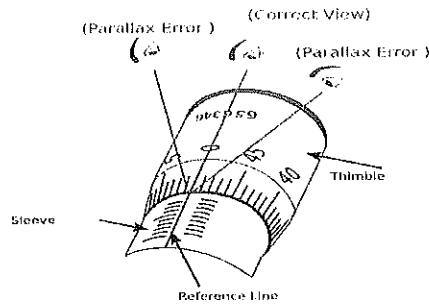
03X03 = 09 Marks

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 occurs due to having play between slider and beam. When we applied excessive force on slider to clamp the workpiece then slider may displace from its 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

10. Calculate the least count of Vernier caliper which has 50 divisions on secondary scale and also write its 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. Write any 4 Safety precautions while using slip gauge.

Ans.

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

