

Department of Mechanical Engineering
Innovative Teaching Methods

Activity Title	Quiz
Faculty Name/Department	Mr. Tharanikumar L / Mechanical Engineering
Mapped Course Name & Code	ME8501 Metrology and Measurements
Date	20-10-2022
Benefitted Students (Year / Sem / Dept)	III / V / Mech.
Topic	Surface Measurements
Description	I have tried to make the questions relevant toward the evaluation of the engineer who has a background in Metrology and Measurements. Saying that, knowing the answers to this quiz doesn't imply that one is capable of building accurate designing, merely that one is heading in the right direction and has a good sense of humor. <i>(Rule: No passing Questions)</i>
Course Outcomes (CO)	CO1: Describe the concepts of measurements to apply in various metrological instruments CO2: Outline the principles of linear and angular measurement tools used for industrial applications
Performance Indicator (PI)	1.3.1
Mail ID (for review)	mech.tharanikumar@msajce-edu.in
Activity Photos	 Siruseri, Tamil Nadu, India R6P9+Q6J, Siruseri, Tamil Nadu 600130, India Lat 12.835756° Long 80.218308° 17/10/22 10:18 AM GMT +05:30 Siruseri, Tamil Nadu, India R6P9+Q6J, Siruseri, Tamil Nadu 600130, India Lat 12.835756° Long 80.218308° 17/10/22 10:17 AM GMT +05:30

Topics/ Questions:**1. What is meant by roughness?**

- a) Minute succession of hills of different height
- b) Minute succession of valleys and hills of different height and varied spacing**
- c) Minute succession of valleys and hills of same height and same gap
- d) Minute succession of valleys of different depth

2. Surfaces produced by straight and cylindrical grinding tools tend to create which type of roughness?

- a) Regularly spaced but directional roughness
- b) Regularly spaced but non directional roughness
- c) Irregularly spaced but directional roughness**
- d) Irregularly spaced but non directional roughness

• 3. Which of the following is necessary for the complete study of surface roughness?

- a) Measurement of all the components of elements
- b) Analysis of all the component element
- c) Assessment of the effects of combined texture
- d) Measurement and analysis of all the components and assessment of combined texture**

• 4. Which of the following is true for measurement of surface roughness?

- a) 3 dimensional geometry can be easily measured
- b) Direction of measurement is perpendicular to the lay**
- c) Direction of measurement is parallel to the lay
- d) Direction of measurement is parallel to the direction of the predominant surface marking

5. How much a stylus instrument can be magnified to plot or find minute irregularities?

- a) 50 times
- b) 500 times
- c) 5000 times
- d) 50,000 times**

• 6. Which of the following is true about Tomlinson surface meter?

- a) It is a mechanical instrument
- b) It is an electrical instrument
- c) It is a mechanical cum optical instrument**
- d) It is an optical instrument

- **7. What do you mean by dominant spacing?**
 - a) **Distance between successive peaks when irregularities are comparatively uniform in shape and size**
 - b) Distance between middle point of successive hills when irregularities are comparatively uniform in shape and size
 - c) Distance between middle point of successive valleys when irregularities are comparatively uniform in shape and size
 - d) Distance between successive peaks when irregularities are regardless of shape and size
- **8. Which of the following is used for the direct measurement of surface quality and commonly used in U.S.A.?**
 - a) **Profilometer**
 - b) Tomlinson surface meter
 - c) Talysurf
 - d) Replica method
- **9. Which of the following parameter is important for specifying surface roughness?**
 - a) Size of irregularity
 - b) Spacing of irregularity
 - c) Height of irregularities
 - d) **Height, spacing and form of irregularities**
- 10. For checking the flatness, which of the following is used to mark the surface?**
 - a) Scriber
 - b) **Prussian blue**
 - c) Alcohol
 - d) Ruler
- 11. Determination of flatness using Prussian blue is used for which kind of surfaces?**
 - a) **Small surfaces**
 - b) Large surfaces
 - c) Both large and small surfaces
 - d) For surfaces with fine smoothness
- 12. When the flatness is measured with the use of optical flats, at what distance bands should be viewed?**
 - a) **Distance 10 times the diameter of optical flats**
 - b) Distance 5 times the diameter of optical flats
 - c) Distance 8 times the diameter of optical flats
 - d) Distance 2 times the diameter of optical flats
- 13. Which of the following option is true for given statements for flatness testing?**

Statement 1: Straight edges can be used to check flatness.

Statement 2: Single ended straight edge can be used to determine flatness of the

surface.

- a) T, T
- b) F, F
- c) T, F
- d) F, T

14. What is flatness error?

- a) Maximum separation of a pair of parallel planes which will contain all points on the surface
- b) Minimum separation of a pair of parallel planes which will contain all points on the surface**
- c) Minimum separation of a pair of perpendicular planes which will contain all points on the surface
- d) Maximum separation of a pair of perpendicular planes which will contain all points on the surface

15. Which of the following is true for testing flatness with optical flats?

- a) Too large angle of work with flat is desirable
- b) Number of bands appears is an indication of flatness
- c) Bands are viewed as perpendicularly as possible**
- d) Quartz flats are very sensitive to temperature changes

Marks:

Group Name (if ITM is a group activity)	Reg No.	Topic	Marks
TEAM A	311820114001	Metrology and Measurements. Surface Measurements	20
	311820114002		
	311820114003		
	311820114004		
	311820114005		
	311820114006		
TEAM B	311820114007		30
	311820114008		
	311820114009		
	311820114010		
	311820114011		
	311820114012		



TEAM C	311820114013	MOVED	10
	311820114014		
	311820114015		
	311820114016		
	311820114017		
	311820114018		
TEAM D	311820114302		20
	311820114303		
	311820114304		
	311820114305		
	311820114306		
	311820114307		
TEAM E	311820114308		10
	311820114309		
	311820114311		
	311820114312		
	311820114313		
	311820114314		
TEAM F	311820114315		15
	311820114316		
	311820114317		
	311820114318		
	311820114319		
	311820114320		
TEAM G	311820114321		05
	311820114322		
	311820114323		
	311820114701		



Outcomes:

Metrology and Measurements allows you understand various advanced measuring devices and machine tool metrology and to describe application of principle of metrology and measurements in industries. Understand and able to use various devices for measuring torque, force, strain, stress and temperature.

MSAJCE