

Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year SemesterVI

Course Code: MEC 601 and Course Name: Metrology & Quality Engineering

Time: 1hour

Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	An instrument with a range of 0-10 bar is used for measuring pressure. If the expected value of reading is between 0 and 1 bar then the instrument will give
Option A:	More accurate readings than the instrument with range of 0-5 bar
Option B:	Less accurate readings than the instrument with range of 0-5 bar
Option C:	Accuracy of reading will be same for both the instruments with range of 0-10 bar
Option D:	Accuracy of reading will be same for both the instruments with range of 0-5 bar
Q2.	An instrument with high precision implies
Option A:	High accuracy
Option B:	Low accuracy
Option C:	Does not imply anything about measurement accuracy
Option D:	medium accuracy
Q3.	Calibration of instrument is an important consideration in measurement system. The errors due to instruments being out of calibration can be rectified by
Option A:	Increasing the frequency of recalibration
Option B:	Increasing the temperature coefficient
Option C:	Increasing the susceptibility of measuring instrument
Option D:	Decreasing the frequency of recalibration
Q4.	Limit of 50 mm hole is $ES=+0.025$ and $EI=+0.002$ mm the maximum and minimum hole size will be
Option A:	Max 50.02 mm, Min 49.998mm
Option B:	Max 50.025 mm, Min 50.002mm
Option C:	Max 49.998 mm, Min 50.002mm
Option D:	Max 49.990 mm, Min 49.975mm
Q5.	Johansson mickrocator is a type of
Option A:	Mechanical optical comparator
Option B:	Mechanical comparator
Option C:	Optical comparator
Option D:	Electrical comparator

Q6.	Overall magnification of optical comparators is given as
Option A:	$(4 d / f) \times (\text{magnification of eye piece})$
Option B:	$(2 f / d) \times (\text{magnification of eye piece})$
Option C:	$(4 f / d) \times (\text{magnification of eye piece})$
Option D:	$(2 d / f) \times (\text{magnification of eye piece})$
Q7.	Which principle does Taylor-Hobson-Talysurf tester work on?
Option A:	Capacitive demodulating principle
Option B:	Intensity modulating principle
Option C:	Inductive modulating principle
Option D:	Carrier modulating principle
Q8.	Which of the following is the incorrect condition for a perfectly flat surface when tested for interferometry?
Option A:	Monochromatic light is used.
Option B:	Viewing angle should be greater than 0°
Option C:	Optical flats are important in light wave measurement.
Option D:	For perfect flat surface alternate light and dark bands are observed.
Q9.	If the angle between optical flat and surface to be tested is very small, then what is the difference of separation between optical flat and surface between two similar adjacent fringes?
Option A:	λ
Option B:	$\lambda/2$
Option C:	$\lambda/3$
Option D:	$3\lambda/2$
Q10.	Tomlinson recorder is used to measure surface
Option A:	Curvature
Option B:	Finish
Option C:	Perpendicularity
Option D:	Flatness
Q11.	Which among the following machines can inspect geometric features of different components?
Option A:	Thread gauge
Option B:	Coordinate Measuring Machine
Option C:	Lathe Machine
Option D:	Milling Machine
Q12.	From the following, which one is not a method to find effective thread diameter?
Option A:	Thread micrometer
Option B:	Two wire method
Option C:	Three wire method
Option D:	The v-piece method

Q13.	In order to measure the chordal thickness of a gear using a gear caliper, the position of the blade is set to.....
Option A:	the entire depth of the gear tooth
Option B:	addendum of the gear tooth
Option C:	dedendum of the gear tooth
Option D:	top surface of the gear tooth
Q14.	Tool Maker's Microscope is used for.....
Option A:	Surface measurement
Option B:	Roughness measurement
Option C:	Speed measurement
Option D:	Thread measurement
Q15.	SPMM is
Option A:	Special Pattern Moving Machine
Option B:	Special Purpose Molding Machine
Option C:	Special Purpose Measuring Machine
Option D:	Special Purpose Molding Mechanism
Q16.	What is profile error?
Option A:	The minimum distance of any point on the profile of tooth form and normal to the design profile when the two coincide at the reference circle
Option B:	The minimum distance of any point on the profile of tooth form and parallel to the design profile when the two coincide at the reference circle
Option C:	The maximum distance of any point on the profile of tooth form and parallel to the design profile when the two coincide at the reference circle
Option D:	The maximum distance of any point on the profile of tooth form and normal to the design profile when the two coincide at the reference circle
Q17.	What is the nature of the graph between cumulative pitch error and length of thread in case of progressive pitch error?
Option A:	Straight line
Option B:	Parabolic
Option C:	Hyperbolic
Option D:	Exponential
Q18.	"Quality is conformance to requirements" this statement is given by?
Option A:	Juran
Option B:	Deming
Option C:	Taguchi
Option D:	Crossby
Q19.	According to ISO 8402, what is Quality?
Option A:	Quality is the minimum loss imparted by the product to society from the time the product is dispatched.

Option B:	Quality is correcting and preventing loss, not living with loss
Option C:	Quality is totality of features and characteristics of product or service that bear on its ability to satisfy stated or implied needs.
Option D:	Quality in the essence is the way of managing the way of organization
Q20.	Six-sigma methodology was first developed by?
Option A:	Motorola
Option B:	Bell Laboratories
Option C:	Ford Motors
Option D:	Tata Motors
Q21.	Quality is having relation with variability.
Option A:	Quality is opposite of variability
Option B:	Quality is proportional to variability
Option C:	Quality is reciprocal of variability
Option D:	Quality is synonym of variability
Q22.	Which of these is not a correct statement for Acceptance Sampling?
Option A:	Concerned with inspection of products
Option B:	Concerned with decision making regarding products
Option C:	One of the oldest aspects of quality assurance
Option D:	One of the oldest aspects of quality control
Q23.	A decision rule to accept or reject a lot based on the results of one random sample is called a:
Option A:	Single-sampling plan
Option B:	Sequential-sampling plan
Option C:	Double-sampling plan
Option D:	Random-sampling plan
Q24.	Which test can be performed without skilled labour?
Option A:	Dye penetrant testing
Option B:	Visual testing
Option C:	Ultrasonic testing
Option D:	Magnetic particle test
Q25.	Which among the following is the last step in magnetic particle test method?
Option A:	observation and inspection
Option B:	circular magnetization
Option C:	demagnetization
Option D:	Magnetization