

Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester VI

Course Code: MEC601 and Course Name: Metrology and Quality Engineering

Time: 1 hour

Max. Marks: 50

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

Q1.	Low accuracy measurements from a high precision instrument are normally caused by
Option A:	Bias in the measurement
Option B:	Human errors
Option C:	Instrumental defect
Option D:	Low temperature
Q2.	In which of the following length standards, parallax error is observed?
Option A:	line standard
Option B:	end standard
Option C:	Imperial standard
Option D:	Random error
Q3.	Match the following Group 1 items (Type of error) with Group 2 items (characteristics) and select the correct option 1. Gross error ----- A. Magnitude and direction vary 2. Systematic error ----- B. Caused by electrostatic fields 3. Random error ----- C. Human fault 4. Environmental error ----- D. Magnitude and direction are definite
Option A:	1-B, 2-A, 3-D, 4-C
Option B:	1-A, 2-C, 3-D, 4-B
Option C:	1-C, 2-D, 3-A, 4-B
Option D:	1-D, 2-A, 3-B, 4-C
Q4.	The secondary texture or waviness, or macro-error on surface results due to
Option A:	Normal action of the tool in production process
Option B:	Dominant direction of tool marks(Lay)
Option C:	Flaws in material
Option D:	Vibrations and non-uniformity in cutting tool
Q5.	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:	$(2 d / f) \times (\text{magnification of eye piece})$
Q6.	Which among the following is a type of direct measuring instrument of roughness?
Option A:	Micro interferometer
Option B:	Wallace surface dynamometer
Option C:	Profilometer
Option D:	Optical comparators
Q7.	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.
Q8.	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:	$3\lambda/2$
Q9.	Which of the following is true for Pneumatic sensitivity in pneumatic comparators?
Option A:	Directly proportional to operating pressure
Option B:	Inversely proportion to operating pressure
Option C:	Directly proportional to geometrical area of orifice
Option D:	Independent of area of orifice and operating pressure
Q10.	Working principle of interferometer
Option A:	Reflection of light
Option B:	Refraction of light
Option C:	Polarization of light
Option D:	interference of light
Q11.	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

Q12.	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
Q13.	When face width of gear is too large
Option A:	Gear will have poor capacity to absorb shock loads
Option B:	There will be a possibility of concentration of load at one end of gear tooth
Option C:	There will be problem in lubricating the gear
Option D:	Staking of teeth will occur
Q14.	CMM is
Option A:	Coordination Measuring Model
Option B:	Communication Measuring Machine
Option C:	Chord Measuring Machine
Option D:	Coordinate Measuring Machine
Q15.	Gear tooth Vernier caliper used for
Option A:	Pitch measurement
Option B:	Addendum Dia
Option C:	Dedendum Dia
Option D:	Chordal Thickness
Q16.	Which of the following machine is used for rolling tests?
Option A:	Parkinson's gear tester
Option B:	Tooth caliper
Option C:	Base pitch measuring instrument
Option D:	Involute profile testing machine
Q17.	Which of the following is true for the multiple start screw threads?
Option A:	It is produced by a single helical groove
Option B:	Grooves should be different in spacing
Option C:	It gives a quick transverse
Option D:	It is formed in a transverse section on a cylinder
Q18.	"Quality in the essence is the way of managing the way of organization" statement is given by ?
Option A:	Juran
Option B:	Deming
Option C:	Hoshin
Option D:	Feigenbaum
Q19.	PDCA is expanded as

Option A:	Plan-Define-Check-Analyze
Option B:	Plan-Define- Check -Act
Option C:	Plan-Do- Check -Act
Option D:	Plan-Do- Check -Analyze
Q20.	Quality characteristics are classified into variables and _____
Option A:	constants
Option B:	attributes
Option C:	standards
Option D:	specifications
Q21.	Which control chart pattern is/are used for assignable causes?
Option A:	Trend pattern
Option B:	C chart
Option C:	P chart
Option D:	nP chart
Q22.	The control chart used for the fraction of defective items in a sample is
Option A:	Range chart
Option B:	Mean chart
Option C:	p-chart
Option D:	c-chart
Q23.	X bar and R charts are _____ indicators of trouble.
Option A:	Trailing
Option B:	Inferior
Option C:	Leading
Option D:	Secondary
Q24.	The no-inspection alternative of sampling is used when _____
Option A:	The supplier's process is so good that defective units are never encountered
Option B:	The supplier's process is so bad that almost every unit is defective
Option C:	The component is extremely critical
Option D:	The component is moderately critical
Q25.	Generally, a _____ will increase the steepness of the OC curve.
Option A:	Increased acceptance level
Option B:	Larger batch or lot size
Option C:	Smaller sample size
Option D:	Infrequent inspection