University of Mumbai
Examination 2020 under cluster 4 (PCE)

Program: BE Mechanical Engineering
Curriculum Scheme: **Rev 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.	The purpose of measuring instruments is to
Option A:	Allow measurement to be made
Option B:	transmit the information
Option C:	Change signals
Option D:	Receive the information
Q2.	What is the length of the Imperial standard yard?
Option A:	38 m
Option B:	38 mm
Option C:	38 inches
Option D:	38 cm
Q3.	Which errors are also known as cumulative errors?
Option A:	Random error
Option B:	Systematic errors
Option C:	Gross errors
Option D:	System interaction errors
Q4.	Basic size in hole basis system is equal to
Option A:	maximum hole size
Option B:	upper deviation which is zero
Option C:	minimum hole size
Option D:	minimum shaft size
Q5.	Which of the following is true for interference fit?
Option A:	Shaft is always smaller than the hole
Option B:	Shaft is always bigger than the hole
Option C:	Interference fits have shaft and hole of same dimension
Option D:	Hole is bigger than the shaft
Q6.	According to Taylor's principle, GO gauges are designed to check
Option A:	maximum metal condition
Option B:	minimum metal condition
Option C:	shaft diameter
Option D:	thread diameter

Q7.	Which of the following is a comparator?
Option A:	Dial Indicator
Option B:	Micrometer
Option C:	Weighing Balance
Option D:	Slip gauges
Q8.	When fringe pattern exhibits the movement of fringes towards the center the surface is
Option A:	Concave
Option B:	Convex
Option C:	Flat
Option D:	Tapered
Q9.	In Interference of light cosφ value ranges from;
Option A:	-1 to 1
Option B:	-2 to 2
Option C:	-3 to 3
Option D:	-3π to 3π
Q10.	10-point heights of irregularities means;
Option A:	Average difference between 10 highest peaks
Option B:	Average difference between 10 highest peaks and 10 deepest valleys
Option C:	Average difference between 10 deepest valleys
Option D:	Average difference between 5 highest peaks and 5 deepest valleys
Q11.	In interference of light bright fringe will be observed at path difference of;
Option A:	2λ
Option B:	$\lambda/2$
Option C:	$3\lambda/2$
Option D:	$5\lambda/2$
Q12.	The straight edges in a screw thread which connect the crest with the root are called as;
Option A:	Flank
Option B:	Pitch
Option C:	lead
Option D:	Addendum
Q13.	The part to ensure that all measurements are made at the same pressure in a floating carriage micrometer is called as;
Option A:	Top slide
Option B:	Lower slide
Option C:	Fiducial indicator
Option D:	Vee pieces
Q14.	The expression for the diameter of the best size wire in the best wire method of

	determining effective diameter of thread is _____ where p is the pitch and x is the included angle of the thread.
Option A:	d = (p/4) sec (x/2
Option B:	d = (p/2) cosec (x/2)
Option C:	d = (p/2) cot (x/2)
Option D:	d = (p/2) sec (x/2)
Q15.	Fiducial indicators contain
Option A:	Calibrated scale
Option B:	Single index mark
Option C:	Micrometer screw movement
Option D:	Optical head
Q16.	Tool makers micrometer can't be used for measuring
Option A:	Gear teeth profile
Option B:	Included angle of thread
Option C:	Pitch of thread
Option D:	Minor diameter
Q17.	The following is a non-contact type method of measurement of screw thread parameters
Option A:	Profile projector
Option B:	Bench micrometer
Option C:	Thread pitch gauge
Option D:	Thread micrometer
Q18.	Low cost, higher volume items requires
Option A:	No inspection
Option B:	Little inspection
Option C:	Intensive inspection
Option D:	100% inspection
Q19.	Which of the following option involves material and component control?
Option A:	Development of standards
Option B:	Development of specification
Option C:	Quality control
Option D:	Feedback
Q20.	The four categories of costs associated with product quality costs are :
Option A:	External failure, internal failure, repair, and appraisal
Option B:	Warranty, product liability, training, and appraisal
Option C:	External failure, internal failure, prevention, and appraisal
Option D:	External failure, internal failure, prevention, and inspection
Q21.	The dividing lines between random and non-random deviations from mean of

	the distribution are known as;
Option A:	Upper control limit
Option B:	Lower control limit
Option C:	Control limits
Option D:	Two sigma limits
Q22.	Central tendency of a process is monitored in
Option A:	Range chart
Option B:	Mean chart
Option C:	p-chart
Option D:	c-chart
Q23.	In phase I application of x and R chart, the control limits obtained from the equations are treated as _____
Option A:	Final limits
Option B:	Trial limits
Option C:	Warning limits
Option D:	Pattern limits
Q24.	Maximum data handling analysis load is observed in
Option A:	single sampling plan
Option B:	double sampling plan
Option C:	sequential sampling plan
Option D:	Cluster sampling
Q25.	Which of these would decrease the probability of making a Type II error?
Option A:	increasing the sample size
Option B:	reducing the fraction defective
Option C:	increasing the AQL
Option D:	reducing the LTPD

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	A
Q2.	C
Q3.	B
Q4	C
Q5	B
Q6	A
Q7	A
Q8.	A
Q9.	A
Q10.	D
Q11.	A
Q12.	A
Q13.	C
Q14.	D
Q15.	B
Q16.	A
Q17.	A
Q18.	B
Q19.	C
Q20.	C
Q21.	C
Q22.	B
Q23.	B
Q24.	C
Q25.	A