Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester VI

Course Code: MEC601 and Course Name: Metrology and quality engineering

Time: 1hour Max. Marks: 50

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| Q1.  | Clinometer is related with |
| Option A: | Engineer's parallels |
| Option B: | Angle gauges |
| Option C: | Bevel protractor |
| Option D:  | Spirit level |
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| Q2. | The purpose of ratchet screw in micrometer screw gauge is |
| Option A: | To lock a dimension |
| Option B: | To impart blow motion |
| Option C: | To maintain sufficient and uniform measuring pressure |
| Option D: | To take care of wear of screw threads |
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| Q3. | Which principle does Taylor-Hobson-Talysurf tester work on? |
| Option A: | Intensity modulating principle |
| Option B: | Carrier modulating principle |
| Option C: | Capacitive demodulating principle |
| Option D: | Inductive modulating principle |
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| Q4. | Which of the following can't fall under the head controllable errors? |
| Option A: | Calibration errors |
| Option B: | Environmental errors |
| Option C: | Avoidable errors |
| Option D: | Random errors |
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| Q5. | Tolerances are specified |
| Option A: | To obtain desired fits |
| Option B: | Because it is not possible to manufacture a size exactly |
| Option C: | To obtain high accuracy |
| Option D:  | To have proper allowance |
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| 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:  | Sine bar |
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| Q7.  | How is interference between shaft and hole calculated? |
| Option A: | Interference = maximum shaft – minimum hole |
| Option B: | Interference = minimum shaft – maximum hole |
| Option C: | Interference = minimum shaft + maximum hole |
| Option D:  | Interference = maximum shaft - minimum hole |
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| Q8.  | Which type of fringe is formed, if a path difference of  λ/2 is observed in an interference pattern? |
| Option A: | Dark fringe |
| Option B: | Bright fringe |
| Option C: | Both bright and dark fringe overlap |
| Option D:  | Unpredictable |
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| Q9. | A feeler gauge is used to check |
| Option A: | Radius |
| Option B: | Thickness of clearance. |
| Option C: | Unsymmetrical shape |
| Option D:  | Surface roughness |
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| Q10.  | Which type of comparator changes its magnification, when distance between cross strip hinge and knife edge is varied? |
| Option A: | Johansson mickrocator |
| Option B: | Solex pneumatic comparator |
| Option C: | Projector comparator |
| Option D:  | Sigma comparator |
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| Q11.  | A sine bar is specified by |
| Option A: | Its total length |
| Option B: | The centre distance between the two rollers |
| Option C: | The size of the rollers |
| Option D:  | The distance between rollers and upper surface |
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| Q12.  | Which among the following is an optical instrument? |
| Option A: | Techometer |
| Option B: | Autocollimator |
| Option C: | Sine bar |
| Option D: | Vernier calliper |
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| Q13. | The following is used to check the diameters of holes |
| Option A: | PLUG gauge |
| Option B: | Ring gauge |
| Option C: | Slip gauge |
| Option D:  | Standard screw pitch gauge |
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| Q14.  | Which of the following errors are also known as cumulative errors?  |
| Option A: | Random errors |
| Option B: | Systematic errors |
| Option C: | Gross errors |
| Option D:  | System interaction error |
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| Q15. | Moire fringes are observed when |
| Option A: | An optical flat is placed over smooth surface |
| Option B: | A microscope is used to observe surface texture |
| Option C: | Index grating is moved over scale grating |
| Option D:  | White light is diffused through \_ a prism |
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| Q16.  | The degree of closeness of the measured value of a certain quantity with its true value is known as |
| Option A: | Accuracy |
| Option B: | Precision |
| Option C: | Sensitivity |
| Option D:  | Standard |
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| Q17. | Which among the following is a type of control chart for variables? |
| Option A: |  C chart |
| Option B: | P chart |
| Option C: | X chart |
| Option D: | U chart |
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| Q18. | Which of the following statements is/are true? |
| Option A: | Parkinson's gear tester is used to measure variation in centre distance |
| Option B: | Tool maker's microscope is used to measure tooth thickness |
| Option C: | Teeth having wider flanks have less strength |
| Option D:  | Profile projector are used to check the strength |
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| Q19.  | Which of the following statements are true? |
| Option A: | Mechanical comparator are comples and difficult to use |
| Option B: | Parallax error is never observed in mechanical comparator |
| Option C: | Mechanical comparators are compact and easy to handle |
| Option D:  | Mechanical comparators have low inertia which makes them sensitive to vibrations |
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| Q20. | Johansson mickrocator is a type of |
| Option A: | mechanical optical comparator |
| Option B: | electrical comparator |
| Option C: | optical comparator |
| Option D: | mechanical comparator |
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| Q21. | Which one of the following is the least accurate measuring device |
| Option A: | Air gauge |
| Option B: | Steel scale. |
| Option C: | Optical projector |
| Option D:  | Vernier micrometer |
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| Q22.  | Error of measuring equipment is |
| Option A: | The closeness with which a measurement can be read directly from a measuring instrument. |
| Option B: | A measure of how close the reading is to the true size |
| Option C: | The difference between measured value and actual value |
| Option D:  | The smallest change in measurement that can be measured |
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| Q23. | Error of measurement = |
| Option A: | True value – Measured value |
| Option B: | Precision – True value |
| Option C: | Measured value – Precision |
| Option D:  | True value + Measured value |
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| Q24.  | Which of the following errors are regularly repetitive in nature |
| Option A: | Systematic errors |
| Option B: | Random errors |
| Option C: | Illegitimate errors |
| Option D:  | Controllable errors |
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| Q25. | Standards to be used for reference purposes in laboratories and workshops are referred to as |
| Option A: | Primary standards |
| Option B: | Secondary standards |
| Option C: | Tertiary standards |
| Option D:  | Working standards |