

These are sample MCQs to indicate pattern, may or may not appear in examination

University of Mumbai

Online Examination 2020

Program: BE Automobile Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester: V

Course Code

Time: 1 hour

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

Course Name Mechanical Measurements & Control

Max. Marks: 50

| Sr. No. | Questions | Option_1 | Option_2 | Option_3 | Option_4 |
|---------|---|----------------------------------|---|---|-------------------------------|
| 1 | The degree of perfection used in instruments, the methods and the observations, is known as | precision | accuracy | least count | error |
| 2 | The degree of closeness of the Measured value of a certain quantity with its true value is known as | accuracy | precision | standard | sensitivity |
| 3 | The intermediate stage of an instrument is used to | sense the primary (input) signal | indicate and record the measurement | amplify and transmit the secondary signal | only indicate the measurement |
| 4 | The temperature measurement by a thermocouple is | primary measurement | secondary measurement | tertiary measurement | immediate measurement |
| 5 | The reliability of an instrument mean | The life of the instrument | The degree of repeatability within specified limits | The time interval between two responses of the instrument | true value of the input |
| 6 | Capacitive transducer displays _____ | non-linear behaviour | linear behaviour | exponential behaviour | tangential behaviour |
| 7 | Which of the following uses displacement to pressure conversion? | Flapper nozzle system | Gyroscope | Viscometer | Vibrometer |

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|----|--|--|--|--|--|
| 8 | Which of the following represents the correct relation between pressure and displacement in flapper nozzle system? | Inverse proportionality | Direct proportionality | Equal | Unequal |
| 9 | Following is not a type of strain gauge | Foil type | Semiconductor | Opticle | Wire wound |
| 10 | Which of the condition is applicable for flapper nozzle system? | Measuring air should be of free from dust and of constant pressure | Measuring air should be of free from dust and of variable pressure | Measuring air should be free from dust | Measuring air must be of constant pressure |
| 11 | Which of the following instrument is flow rate meter? | Reciprocating piston meter | Tilting trap meter | Venturi meter | Rotating vane meter |
| 12 | Change in resistance by change in temperature. This is working principle of: | Thermopile | Thermistor | Piezoelectric sensor | load cell |
| 13 | Thermocouple works on which of the following effect? | Seeback effect | Hall effect | Peltier effect | Thomson effect |
| 14 | Which instrument measures pressure with change in electrical resistance? | Bourdon tube | Bellows | Strain gauge | Diaphragm |
| 15 | Which of the following is used in pressure measuring instruments? | Non-elastic member | Elastic member | bendable member | non-bendable member |
| 16 | Poles of the system on s-plane are represented by | small circle | large circle | cross mark | positive sign |
| 17 | Laplace transform of unit step function is | K | 1 | 1/s | K/s |
| 18 | Transient response analysis is done for | Stable sytem | Unstable system | Conditionally stable | Marginally |
| 19 | Velocity error constant of a system is measured when the input to the system is unit _____ function. | Parabolic | Ramp | Impulse | Step |
| 20 | The steady state acceleration error for Type 1 system | 0 | Infinite | unity | constant |
| 21 | Transfer function, when the bode diagram is plotted should be of the form | (1+T) | (1+S) | (Ts) | (1+Ts) |

| | | | | | |
|----|--|---|--|--|---|
| 22 | Gain margin expressed in decibels is | Positive if K_g greater than 1 and negative for K_g less than 1 | Negative if K_g greater than 1 and negative for K_g less than 1 | Always zero | Infinity for K_g equal to 1 |
| 23 | Intersection with imaginary axis in root locus plots is determined by | Polar plot | Routh's criterion | Nyquist criterion | Bode Plot |
| 24 | Which one of the following is not the property of root loci? | The root locus is symmetrical about imaginary axis | They start from the open loop poles and terminate at the open loop zeros | The breakaway points are determined from $dK/ds = 0$ | Segments of the real axis are the part of the root locus if and only if the total number of real poles and zeros to their right is odd. |
| 25 | When the number of poles is equal to the number of zeroes, how many branches of root locus tends towards infinity? | 1 | 2 | 0 | Equal to number of zeroes |