

87/2015

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. Which among the following is a passive device?  
(A) Transistor (B) Vacuum Tube  
(C) Triac (D) Capacitor
2. Tachometer is used to measure :  
(A) Vibration (B) Acceleration  
(C) Force (D) Angular Velocity
3. The ratio of output change to the input change of the instrument is called :  
(A) Precision (B) Accuracy  
(C) Sensitivity (D) Reproducibility
4. Digital system usually operates on :  
(A) Binary system (B) Octal system  
(C) Decimal system (D) Hexadecimal system
5. The most suitable device used for measuring temperature of furnace is :  
(A) Thermistor (B) Pyrometer  
(C) Thermocouple (D) RTD
6. The purpose of ratchet mechanism in a micrometer is to :  
(A) Maintain uniform measuring pressure  
(B) Lock the dimension  
(C) Avoid wear of screw thread  
(D) Impart Motion
7. Charge amplifiers are used to amplify the output signal of :  
(A) Resistive transducer (B) Capacitive transducer  
(C) Hall effect transducer (D) Inductive transducer

8. Current transformers are used for extending the range of :
- (A) Volt meter (B) Energy meter  
(C) Pressure coil of wattmeter (D) Ammeter
9. SI Unit of force is :
- (A) Newton (B) Kilogram  
(C) Gram (D) Milligram
10. The device used for static leveling of machinery is :
- (A) Gauge block (B) Snap gauge  
(C) Ring gauge (D) Spirit level
11. Recorder used to record one variable against another variable is :
- (A) Galvanometric recorder (B) X-Y recorder  
(C) Strip chart recorder (D) Circular chart recorder
12. Which among the following is a discontinuous mode controller?
- (A) Proportional controller (B) Integral controller  
(C) ON-OFF controller (D) Derivative controller
13. A photoemissive cell is used to convert intensity of electromagnetic radiation into a change in :
- (A) Voltage (B) Resistance  
(C) Current (D) Power
14. A pressure to current converter converts pressure signal from 3-15 psi into :
- (A) 0-20 mA (B) 0-20 A  
(C) 4-20 mA (D) 4-20 A
15. A hair spring attached to the moving system is to produce :
- (A) Controlling torque (B) Deflecting torque  
(C) Damping torque (D) Balancing torque
16. The span of a voltmeter having a range from -20 to 120 volt is :
- (A) 120 V (B) 100 V  
(C) -20 V (D) 140 V

17. A Binary number with 4 bits is called :
- (A) Byte (B) Nibble  
(C) Octal (D) None of the above
18. Vacuum pressure is measured by using :
- (A) Bellows pressure gauge (B) Bourdon tube pressure gauge  
(C) Strain gauge (D) Pirani guage
19. The equivalent resistance of 2 ohm and 3 ohm resistors when connected in parallel is :
- (A) 1.2 ohm (B) 1.5 ohm  
(C) 5 ohm (D) 1.66 ohm
20. The Strain gauge which can be detached from the test specimen and used again is :
- (A) Semiconductor gauge (B) Metal foil gauge  
(C) Unbonded gauge (D) Bonded gauge
21. Arrangement used to convert linear motion into a rotary motion is :
- (A) Combination of spur gears (B) Bevel gears  
(C) Rack and pinion (D) Worm and worm wheel
22. SI Unit of temperature is :
- (A) Celcius (B) Fahrenheit  
(C) Rankine (D) Kelvin
23. A change of pH value of 1 unit represents a change of hydrogen ion concentration by a ratio of :
- (A) 0.1 (B) 1  
(C) 10 (D) 100
24. PID Controller is also known as :
- (A) Floating controller (B) Three-mode controller  
(C) Discontinuous controller (D) Two position controller
25. Frequency of direct current is :
- (A) Zero (B) 50 Hz  
(C) 60 Hz (D) 120 Hz

26. Whenever the magnetic flux linked with a coil changes, an emf is induced in the conductor. This phenomenon is called :
- (A) Lenz's law (B) Electromagnetic induction  
(C) Mutual induction (D) Self induction
27. If a force  $F$  acting on a body moves it through a distance  $d$  in its direction, work done by the body is :
- (A)  $F \times d$  (B)  $F / d$   
(C)  $d / F$  (D)  $F + d$
28. An example of variable head flowmeter is :
- (A) Rotameter (B) Ultrasonic flowmeter  
(C) Turbine flowmeter (D) Venturimeter
29. The desired value of a controlled variable in a process control loop is called :
- (A) Measured value (B) Set point  
(C) True value (D) None of the above
30. A second order system is critically damped when the damping ratio is :
- (A) Unity (B) Less than unity  
(C) Greater than unity (D) Tends to infinity
31. The characteristics of zero order instrument is :
- (A) It has dynamic error (B) It has time lag  
(C) It has no time lag (D) It has static error
32. A photoelectric device in which resistance of the metal changes when radiation falls on it is :
- (A) Photoemissive cell (B) Photo voltaic cell  
(C) Photoconductive cell (D) Photo diode
33. The device which converts electrical energy into non electrical energy is known as :
- (A) Inverse transducer (B) Transducer  
(C) Secondary transducer (D) Active transducer

34. In moving coil galvanometer damping may be obtained by connecting \_\_\_\_\_ across the galvanometer.
- (A) Series resistance (B) Series capacitance  
(C) Shunt resistance (D) None of the above
35. Which among the following is not a precision instrument?
- (A) Vernier caliper (B) Inside micrometer  
(C) Outside micrometer (D) Steel rule
36. Pressure below the atmospheric pressure is known as :
- (A) Absolute pressure (B) Static pressure  
(C) Gauge pressure (D) Vacuum pressure
37. Among the following fundamental quantity is :
- (A) Speed (B) Velocity  
(C) Mass (D) Acceleration
38. The number of digits in a hexadecimal system is :
- (A) 16 (B) 12  
(C) 8 (D) 4
39. Which among the following is a volatile memory?
- (A) ROM (B) RAM  
(C) PROM (D) EEPROM
40. The algebraic difference between the upper and lower range value of the instrument is known as :
- (A) Range (B) Error  
(C) Deadzone (D) Span
41. Modulator/Demodulator for interfacing digital signals to analog systems is called :
- (A) Multiplexer (B) Multi vibrator  
(C) Modem (D) None of the above

42. Dead weight tester works on the principle of :
- (A) Pascal's law (B) Archemedi's principle  
(C) Boyle's law (D) Charle's law
43. Farad is the unit of :
- (A) Inductance (B) Capacitance  
(C) Current (D) Charge
44. The principle of operation of LVDT is based on :
- (A) Self inductance (B) Mutual inductance  
(C) Reluctance (D) Permeance
45. The ratio of velocity of light in vacuum to that in a medium is known as :
- (A) Refractive index (B) Critical angle  
(C) Snell's law (D) Specific rotation
46. A control system composed of two loops where the set point of the inner loop is the output of the controller of the outer loop is a :
- (A) Cascade control (B) Ratio control  
(C) Floating control (D) Discrete control
47. The material whose permeability changes when subjected to mechanical stress is a :
- (A) Piezoresistive material (B) Magnetic material  
(C) Magnetoresistive material (D) Magnetostrictive material
48. The splitting of composite beam of light into its constituent colours is known as :
- (A) Refraction (B) Interference  
(C) Diffraction (D) Dispersion
49. The energy produced by a liquid by virtue of its motion is called :
- (A) Kinetic energy (B) Potential energy  
(C) Pressure energy (D) Head energy

50. The primary schematic drawing used for laying out a process control installation is known as :
- (A) P and D (B) P and ID  
(C) PI and D (D) P and I
51. The cross section of bourdon tube is \_\_\_\_\_ in shape.
- (A) Circular (B) Rectangular  
(C) Elliptical (D) Octagonal
52. The difference between the measured value and true value is known as :
- (A) Correction (B) Error  
(C) Precision (D) Accuracy
53. A bistable device used for storing a bit of information is called :
- (A) Flip flop (B) Floppy disc  
(C) Flat pack (D) Encoder
54. A good control valve should have :
- (A) Low valve coefficient (B) High valve coefficient  
(C) Distortion (D) Cavitation
55. The pH value of pure water is :
- (A) 0 (B) 4  
(C) 7 (D) 14
56. Psychrometer is an instrument used to measure :
- (A) Pressure (B) Density  
(C) Humidity (D) Viscosity
57. Bidirectional flow can be measured using :
- (A) Venturimeter (B) Rotameter  
(C) Orificemeter (D) Electromagnetic flowmeter
58. The ratio of absolute viscosity to the density of the fluid is known as :
- (A) Fluidity (B) Kinematic viscosity  
(C) Viscosity index (D) None of the above