

BSNL TTA Question Paper-Instruments and Measurement Specialization 2007

(1) Instrument is a device for determining

- (a) the magnitude of a quantity
- (b) the physics of a variable
- (c) either of the above
- (d) both (a) and (b)

(2) Electronic instruments are preferred because they have

- (a) no indicating part
- (b) low resistance in parallel circuit
- (c) very fast response
- (d) high resistance in series circuit
- (e) no passive elements.

(3) A DC wattmeter essentially consist of

- (a) two ammeters
- (b) two voltmeters
- (c) a voltmeter and an ammeter
- (d) a current and potential transformer

(4) Decibel is a unit of

- (a) power
- (b) impedance
- (c) frequency
- (d) power ratio

(5) A dc voltmeter may be used directly to measure

- (a) frequency
- (b) polarity
- (c) power factor
- (d) power

(6) An accurate voltmeter must have an internal impedance of

- (a) very low value
- (b) low value

- (c) medium value
- (d) very high value

(7) The insulation resistance of a transformer winding can be easily measured with

- (a) Wheatstone bridge
- (b) megger
- (c) Kelvin bridge
- (d) voltmeter

(8) A 100 V voltmeter has full-scale accuracy of 5%. At its reading of 50 V it will give an error of

- (a) 10%
- (b) 5%
- (c) 2.5%
- (d) 1.25%

(9) You are required to check the p. f. of an electric load. No p.f. meter is available. You would use:

- (a) a wattmeter
- (b) a ammeter, a voltmeter and a wattmeter
- (c) a voltmeter and a ammeter
- (d) a kWh meter

(10) The resistance of a field coil may be correctly measured by using

- (a) a voltmeter and an ammeter
- (b) Schering bridge
- (c) a Kelvin double bridge
- (d) a Maxwell bridge

(11) An analog instrument has output

- (a) Pulsating in nature
- (b) Sinusoidal in nature
- (c) Which is continuous function of time and bears a constant relation to its input
- (d) Independent of the input quantity

(12) Basic charge measuring instrument is

- (a) Duddel's oscillograph
- (b) Cathode ray oscillograph
- (c) Vibration Galvanometer
- (d) Bailastic Galvanometer
- (e) Battery Charging equipment

(13) A.C. voltage can be measured (using a d.c. instrument) as a value obtained

- (a) by subtracting the d.c. reading from it's a.c. reading.
- (b) Using the output function of the multimeter
- (c) By using a suitable inductor in series with it
- (d) By using a parallel capacitor with it
- (e) None of the above

(14) A moving coil permanent magnet ammeter can be used to measure

- (a) D. C. current only
- (b) A. C. current only
- (c) A. C. and D. C. currents
- (d) voltage by incorporating a shunt resistance
- (e) none of these

(15) Select the wrong statement

- (a) the internal resistance of the voltmeter must be high
- (b) the internal resistance of ammeter must be low
- (c) the poor overload capacity is the main disadvantage of hot wires instrument
- (d) the check continuity with multimeter, the highest range should be used.
- (e) In moving iron voltmeter, frequency compensation is achieved by connecting a capacitor across its fixed coil.

(16) Which of the following instrument is suitable for measuring both a.c. and d.c. quantities.

- (a) permanent magnet moving coil ammeter.
- (b) Induction type ammeter.
- (c) Quadrant electrometer.
- (d) Moving iron repulsion type ammeter.
- (e) Moving iron attraction type voltmeter.

(17) Swamping resistance is used in moving coil instruments to reduce error due to

- (a) thermal EMF
- (b) temperature
- (c) power taken by the instrument
- (d) galvanometer sensitivity.

(18) A power factor meter is based on the principle of

- (a) electrostatic instrument
- (b) Electrodynamic instrument

- (c) Electro thermo type instrument
- (d) Rectifier type instrument.

(19) A potentiometer recorder is used for

- (a) AC singles
- (b) DC signals
- (c) both (a) and (b)
- (d) time varying signals
- (e) none of these.

(20) Transformers used in conjunction with measuring instruments for measuring purposes are called

- (a) Measuring transformers
- (b) transformer meters
- (c) power transformers
- (d) instrument transformers
- (e) pulse transformers.

(21) Leakage flux in an electrical machine is measure by

- (a) Ballistic galvanometer
- (b) Flux meter
- (c) Either (a) or (b)
- (d) Vibration galvanometer
- (e) CRO

(22) A C.R.O. is used to indicate

- (a) supply waveform
- (b) magnitude of the applied voltage
- (c) B.H. loop
- (d) all of these
- (e) Magnitude of the current flowing in it.

(23) An oscillator is a

- (a) an amplifier having feedback network
- (b) a high gain amplifier
- (c) a wide band amplifier
- (d) a untuned amplifier
- (e) None of these

(24) Distortion can be measured by

- (a) Wave meter
- (b) Digital filters
- (c) Wein bridge circuit
- (d) Bridge T filter circuit

(25) Series connected Q- meter is preferable for measurement of components having

- (a) high impedance
- (b) low impedance
- (c) both (a) and (b)
- (d) high frequency
- (e) low capacitance

(26) A potentiometer is

- (a) an active transducer
- (b) a passive transducer
- (c) a secondary transducer
- (d) a digital transducer
- (e) a current sensing transducer

(27) The basic components of a digital voltmeter are:

- (a) A/D converter and a counter
- (b) A/D converted and a rectifier
- (c) D/A converter and a counter
- (d) Ramp generator and counter
- (e) Comparator

(28) Which of the following electrical equipment cannot convert ac into dc

- (a) diode
- (b) converter
- (c) transformer
- (d) mercury arc rectifier

(29) Voltage measurement are often taken by using either a voltmeter or

- (a) an ammeter
- (b) an ohmmeter
- (c) an oscillator
- (d) a watt-meter

(30)The electric device which blocks DC but allows AC is called:

- (a) capacitance

- (b) inductor
- (c) an oscilloscope
- (d) a watt-meter

(31) The range of an ammeter can be extended by using a

- (a) shunt in series
- (b) shunt in parallel
- (c) multiplier in series
- (d) multiplier in parallel

(32) A device that changes one form of energy to another is called

- (a) rheostat
- (b) oscillator
- (c) transducer
- (d) varicap

(33) Aquadag is used in CRO to collect

- (a) primary electron
- (b) secondary electron
- (c) both primary and secondary
- (d) none of above

(34) A vertical amplifier for CRO can be designed for

- (a) only a high gain
- (b) only a broad bandwidth
- (c) a constant gain time bandwidth product
- (d) all of the above

(35) One of the following is active transducer

- (a) Strain gauge
- (b) Selsyn
- (c) Photovoltaic cell
- (d) Photo emissive cell

(36) The dynamic characteristics of capacitive transducer are similar to those of

- (a) low pass filter
- (b) high pass filter
- (c) band pass filter
- (d) band stop filter

(37) Thermocouples are

- (a) passive transducers
- (b) active transducers
- (c) both active and passive transducers
- (d) output transducers

(38) The size of air cored transducers as compare to iron core counter part are

- (a) bigger
- (b) smaller
- (c) same

(39) From the point of view of safety, the resistance of earthing electrode should be:

- (a) low
- (b) high
- (c) medium
- (d) the value of resistance of electrode does not effect the safety

(40) In CRT the focusing anode is located

- (a) between pre accelerating and accelerating anodes
- (b) after accelerating anodes
- (c) before pre accelerating anodes
- (d) none of above

(41) Which transducer converts heat energy into electrical energy

- (a) I. V. D. T.
- (b) thermocouple
- (c) photoconductor
- (d) none of the above

(42) Which of photoelectric transducer is used for production of electric energy by converting solar energy

- (a) photo emission cell
- (b) photo diode
- (c) photo transistor
- (d) both (b) and (c)

(43) Which of the following instruments consumes maximum power during measurement?

- (a) induction instruments
- (b) hot wire instruments
- (c) thermocouple instruments
- (d) electro dynamometer instruments

(44) Which of the following meters has the best accuracy

- (a) moving iron meter
- (b) moving coil meter
- (c) rectifier type meter
- (d) thermocouple meter

(45) The function of the safety resistor in ohm meter is to

- (a) limit the current in the coil
- (b) increase the voltage drop across the coil
- (c) increase the current in the coil
- (d) protect the battery

(46) Which of the following instruments is free from hysteresis and eddy current losses?

- (a) M.I. instrument
- (b) electrostatic instrument
- (c) electrodynamicometer type instrument
- (d) all of these

(47) The dielectric loss of a capacitance can be measured by

- (a) Wien bridge
- (b) Owen bridge
- (c) Schering bridge
- (d) Maxwell bridge

(48) Reed frequency meter is essentially a

- (a) recording system
- (b) deflection measuring system
- (c) vibration measuring system
- (d) oscillatory measuring system

(49) In measurements made using a Q meter, high impedance elements should preferably be connected in

- (a) star
- (b) delta
- (c) series
- (d) parallel

(50) A digital voltmeter measures

- (a) peak value
- (b) peak-to-peak value

(c) rms value

(d) average value