

## 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) Electrodynamometer 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) electrodyamometer 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

