Test No. 2 Physics (Chapter 13) Class: Second Year Total Marks= 40

Name of the Student: _____

Question No. 1. Encircle the correct option. (20)

(1) Whenever current is drawn from a cell, it terminal potential difference and EMF become
a. same b. different c. zero d. negative

(2) Electrical current is measured in
a. coulomb/volt b. volt/coulomb c. coulomb/second d. second/coulomb

(3) A rheostat can operate as a
a. transformer b. amplifier c. oscillator d. potential divider

(4) The value of temperature coefficient of resistance of most thermistors is
a. positive b. negative c. zero d. infinity

(5) If the conductivity of the material is small then it is
a. a conductor b. a poor conductor c. a very good conductor d. an insulator

(6) The power output of a lamp is 6 W. Hw much energy does the lamp give out in 2 minutes
a. 3 J b. 12 J c. 120 J d. 720 J

7) Thermistor is
a. a resistor b. thermally sensitive resistor c. adiabatic resistor d. an isothermal resistor

(8) Electrical energy is measured in
a. watt b. horse power c. kilowatt d. kilowatt hour

(9) Heating effect produce in the conductor due to flow of current is given by
a. IRt^2 b. IR^2t c. I^2Rt d. I^2/Rt

(10) Maximum power delivered by battery is
a. $P_{max} = E/4r$ b. $P_{max} = 4E^2/r$ c. $P_{max} = 4r / E^2$ d. $P_{max} = E^2/4r$

(11) Current flows in the gases due to
a. electrons only b. electrons and ions c. positive and negative ions d. electrons and holes

(12) A wire of resistance R is cut into two equal parts, its resistance becomes R/2. What happens to resistivity,
a. double b. same c. half d. one forth

(13) Tolerance for silver band is
a. ± 10% b. ± 5% c. +20 % d. - 20%

(14) Graphical representation of Ohm's law is
a. parabola b. hyperbola c. curve line d. straight line

(15) The drift velocity of electrons in a conductor is of the order of
a. 10^{-2} m/s b. 10^{-3} m/s c. 10^{-4} m/s d. 10 m/s

(16) The color code for carbon resistances usually consists of
a. 2 bands b. 3 bands c. 4 bands d. 7 bands

(17) The numerical value of green colour in colour code carbon resistor is
a. 3 b. 4 c. 5 d. 6

(18) The resistance of open circuit is
a. zero b. maximum c. infinite d. 100%

(19) Reciprocal of resistance is called
a. resistance b. resistivity c. conductivity d. conductance

(20) which one of the following is used to determine emf of the cell
a. galvanometer b. ohm meter c. ammeter d. potentiometer

Question No. 2 Write short answers of any six of the following. 2x6=12

i. Why does the resistance of a conductor rise with temperature?
ii. Describe a circuit which will give a continuously varying potential.
iii. Do bends in a wire affect its electrical resistance? Explain.
iv. What are the difficulties in testing whether filament of a light bulb obeys Ohm's law?
v. Explain why the terminal potential difference of a battery decreases when the current drawn from it is increased?
vi. Is the filament resistance lower of higher in a 500 W, 220 V light bulb than in a 100 W, 220 V bulb?
vii. State Kirchhoff's 1st and 2nd rule.
viii. Write down the value of R_{eq} for three resistors R_1, R_2 and R_3 when joined in **a)** series and **b)** in parallel.

Question No. 3 a. Define and explain potentiometer. How can it be used to find potential difference of a cell? **(5)**

a. A charge of 90 C passes through a wire in 1 hour 15 min. what is the current in the wire? **(3)**

OR

Question No. 4 a. What is Wheatstone bridge? How can it be used to determine an unknown resistance? **(5)**

b. The potential difference between the terminals of a battery in an open circuit is 2.2 V. When it is connected across a resistance of 5.0 ohm, the potential falls to 1.8 V. Calculate current and internal resistance of the battery. **(3)**