

Model Paper “Fundamental of Basic Electricity & Electronics”
For Diploma in Computer Hardware & Network Engineering
(Semester-I) Annual Examination 2015 & Onwards

Objective
Part-A

Roll No. _____

Time: 30 Mins

Marks: 15

Note: This Part is compulsory. It should be attempted on question paper and returned to the supervisory staff after the prescribed time. Cutting, overwriting and use of lead pencil is not allowed. Supervisory staff is required to attach it with the answer book.

Q. 1: Choose the Correct answer and encircle it.

- 1: What are the basic three electrical quantities?
A. Resistance, capacitance, inductance B. Power, Voltage, Conductance
C. Voltage, Current, Resistance (Impedance) D. Current, reluctance, inductance
- 2: Resistivity of a wire depends on
A. Length B. Material C. Cross section area D. None of the these
- 3: Kirchoff's second law is based on law of conservation of
A. Charge B. Energy C. momentum D. Mass
- 4: Ampere second could be the unit of
A. Power B. Conductance C. Energy D. Charge
- 5: The resistance of a 100 w 200 v lamp is
A. 100 ohm B. 200 ohm
C. 400 ohm D. 1600 ohm
- 6: Ohm's law is not applicable to
A. DC circuit B. High current
C. small resistors D. Semi conductors
- 7: Which of the following capacitors is polarized?
A. Ceramic B. Mica
C. Electrolytic D. Plastic film
- 8: A magnetic field has
A. Line of forces B. Polar field
C. Line of reluctance D. Magnitomotive force
- 9: When a diode is forward biased the voltage across it
A. Is inversely proportional to the current
B. Is directly proportional to the current
C. Remain approximately
D. Is directly proportional to the source voltage
- 10: A transistor in common emitter mode has
A. A high input resistance and low output resistance
B. A medium input resistance high output resistance
C. A very low input resistance and a low output resistance.
D. A high input resistance and high output resistance
- 11: The majority charge carriers in the emitter of an NPN transistor are
A. Pentavalent atoms B. Trivalent atoms
C. Electrons D. Holes
- 12: Which of the following is an active device?
A. An electric bulb B. A diode
C. A BJT D. A transformer
- 13: Ohm is the unit of
A. Resistance (R) B. Inductive reactance (X_L)
C. Capacitive Resistance (X_C) D. All of these
- 14: In an SCR the holding current is
A. More than latching current B. Less than latching current
C. Equal to latching current D. Very small
- 15: A resistor with colour bands red, violet, green and black will have a value
A. 27 k \pm 10% K B. 2.7 M \pm 20% K
C. 270 K \pm 5% K D. 2.7 K \pm 2% K

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Subjective
Part-B

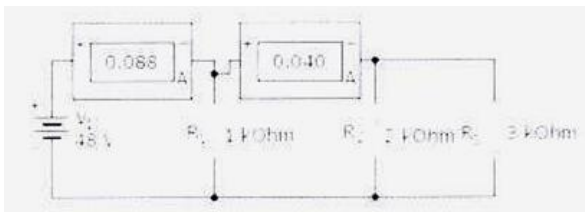
Time: 2:30 Hours

Marks: 60

SECTION-I

Q. 1 Write the short answer to any Eighteen (18) from the following questions. 18 x 2 = 36

- 1- Define voltage?
- 2- Define current?
- 3- What is meant by electrical power?
- 4- State Ohm’s law?
- 5- Three 10 KΩ resistors are connected in series A 20KΩ resistor connected in parallel across one of the 10 KΩ resistor. The voltage source is 24 V. What is the total current in the circuit.
- 6- Convert 0.16 mA to microamperes
- 7- The current through R1 will be



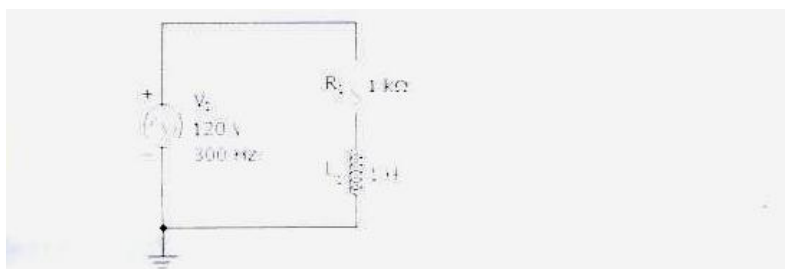
- 8- What is the total resistance



- 9- What is the peak to peak voltage of the waveform in the given circuit?



- 10- Write an equation that represents the relationship between charge, capacitance and voltage for capacitor
- 11- Define dielectric constant
- 12- Define magnetic flux
- 13- Find VR and VL



(Contd.....P-2)

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- 14- Add 21mA and 8000A and express the result in milli amperes.
- 15- Write down the primary function of the bias circuit
- 16- Differentiate between magnetic field and magnetic flux
- 17- Define the electromagnetic induction
- 18- Write down the causes of eddy current losses
- 19- Write down the use of fuse units
- 20- What is meant by colour coding of resistor
- 21- Define PN junction diode
- 22- Define LC filter
- 23- Write down the difference between switch and amplifier
- 24- Define TRIAC?
- 25- What is UJT?
- 26- What is meant by transistor biasing.
- 27- Define SI units

SECTION-II

Note: attempt any three (3) questions

3x8=24

- Q. 2: a) Write down the difference between analog and digital meter
b) Write the uses of voltmeter and ammeter
- Q. 3: Explain half and full wave bridge rectifier
- Q. 4: Explain the construction and behavior of diode
- Q. 5: Explain the construction and working of F.E.T
- Q. 6: What is meant by SCR explain its construction

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