



RAN - 1803000201030091



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**F. Y. B. Sc. (Sem. - I) Examination**

**March - 2023**

**Electronics : Paper - I**

**Basic Electrical Circuits**

**[ Total Marks: 50**

**સૂચના : / Instructions**

(1)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.  
**Fill up strictly the details of signs on your answer book**

Name of the Examination:

**F. Y. B. Sc. (Sem. - I)**

Name of the Subject :

**Electronics : Paper - I Basic Electrical Circuits**

Subject Code No.: **1803000201030091**

Seat No.:

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Student's Signature

- (2) Figure on right indicate full marks.
- (3) Non programmable Calculator is allowed.
- (4) All symbols and abbreviation have their usual meanings.
- (5) Assume Data if necessary.

***O.M.R. Sheet ભરવા અંગેની અગત્યની સૂચનાઓ આપેલ  
O.M.R. Sheetની પાછળ છાપેલ છે.***

***Important instructions to fillup O.M.R. Sheet  
are given on back side of the provided O.M.R. Sheet.***

**Section - I**

**Each question carries 1 marks**

**(20)**

- Q. 1.** For  $P = V^2/R$ , a increase in resistance should produce.
- a) A decrease in power                      b) An increase in power  
c) An increase in Voltage                  d) A decrease in current
- Q. 2.** When a 1  $\mu\text{F}$  capacitor is connected to a 2 kHz source, what is its capacitive reactance?
- a) 0.796  $\Omega$                                       b) 796.10  $\Omega$   
c) 79.61 $\Omega$                                       d) 7.96  $\Omega$
- Q. 3.** To make a N-type Extrinsic semiconductor \_\_\_\_\_ impurities are dopped.
- a) Trivalent                                      b) Tetravalent  
c) Pentavalent                                  d) None
- Q. 4.** As a capacitor is being charged, current flowing into the capacitor will \_\_\_\_\_ and voltage will \_\_\_\_\_.
- a) Increase, increase                          b) Decrease, decrease  
c) Increase, decrease                          d) Decrease, increase
- Q. 5.** A color code of orange, orange, orange, silver is for what Ohmic value and Tolerance?
- a) 33K $\Omega$ , +/- 5%                              b) 33K $\Omega$ , +/- 10%  
c) 22K $\Omega$ , +/- 10%                              d) 22K $\Omega$ , +/- 5%
- Q. 6.** The value of which component depends on Dielectric material, Spacing between the plates and area of plates overlapping.
- a) Capacitor                                      b) Resistor  
c) Inductor                                        d) Transformer

**Q. 7.** With Ohm's law:

- a) Resistance is directly  $\alpha$  to voltage
- b) Current is directly  $\alpha$  to resistance
- c) Voltage is indirectly  $\alpha$  to power
- d) Current is inversely  $\alpha$  to resistance

**Q. 8.** According to Norton's theorem, any network with two open terminals can be replaced by - \_\_\_\_\_ source in \_\_\_\_\_ with a single Resistance  $R_N$ .

- a) Current, parallel
- b) Current, series
- c) Voltage, series
- d) Voltage, parallel

**Q. 9.** Potentiometer is \_\_\_\_\_ terminal component and used to change.

- a) 3, Voltage
- b) 4, Current
- c) 2, Current
- d) 2, Voltage

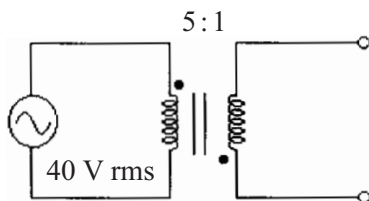
**Q. 10.** A Capacitor stores 0.20  $\mu$  Coulomb of charge at 5 Volts. Its Capacitance is

- a) 0.04 F
- b) 0.4  $\mu$ F
- c) 0.04  $\mu$ F
- d) 4  $\mu$ F

**Q. 11.** A voltage is induced in a transformer secondary winding by the action of the:

- a) Secondary magnetic field
- b) Primary turns ratio
- c) Primary magnetic field
- d) Secondary counter emf

**Q. 12.** What is the secondary voltage in the given circuit?



- a) 8 v rms out of phase
- b) 200 v out of phase
- c) 200 v in phase
- d) 8 v rms in phase

- Q. 13.** The Energy band of Valance band and Conduction band in Conductor, semiconductor and Insulator is \_\_\_\_\_ respectively.
- a) Little apart, Overlap, Far apart    b) Far apart, Overlap, Little apart  
 c) Overlap, Little apart, Far apart    d) Little apart, Far apart, Overlap
- Q. 14.** In a series electronic circuit with  $E = 15 \text{ V}$ ,  $R_1 = 6 \Omega$  and  $R_2 = 5 \Omega$  the current is equal to
- a) 1.36 A                                      b) 0.136 A  
 c) 1.36 mA                                     d) 0.00136
- Q. 15.** Three capacitor of value  $1 \mu\text{F}$ ,  $3 \mu\text{F}$  and  $8 \mu\text{F}$  are connected in series, what is its total Capacitance :
- a) 6.66  $\mu\text{F}$                                     b) 0.66  $\mu\text{F}$   
 c) 12  $\mu\text{F}$                                         d) 0.12  $\mu\text{F}$
- Q. 16.** How is a  $3.9 \text{ k}\Omega \pm 5\%$  resistor color-coded?
- a) Red, white, red, Gold                    b) Red, white, red, Silver  
 c) Red, white, red                            d) All
- Q. 17.** \_\_\_\_\_ is often used to analyze multiple source circuit.
- a) Thevenin's Theorem                        b) Superposition Theorem  
 c) Norton's Theorem                            d) Kirchhoff's Law
- Q. 18.** With Ohm's law, if voltage increases and the current increases:
- a) Can't say  
 b) Resistance increases  
 c) Resistance remains the same  
 d) Resistance decreases







**SPACE FOR ROUGH WORK**