Printed Pages: 02 **Sub Code: EBT203**

Paper Id: 154221 **Roll No.** | | | | | | | | | | |

B. TECH.
(SEM-II) THEORY EXAMINATION 2018-19
BASIC ELECTRICAL & ELECTRONICS ENGINEERING

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a. What is Active and passive elements?
b. Define the peak current in Diode.
c. What is Norton's Theorem?
d. Define the leakage reactance.
e. Write short notes on unilateral and bi-lateral elements.
f. What is the electro mechanical energy conversion principle?
g. Write a note on clamping circuits.
h. What is the significance of back emf in DC motor?
i. Write note on ideal voltage source.
j. What are the various losses in DC Machine?

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

a. Explain the operation of biased clipper and combination clipper.
b. With a suitable diagram explain the construction and working of *n* channel JFET. Also draw its drain and trans-conductance curves.
c. What are the types of single phase motors? Explain in detail the basic principle of operation of split phase capacitor start induction motor?
d. Explain the principle and construction of attraction and repulsion type M.I. instruments. Discuss their merits and demerits.
e. Draw and explain the various characteristic of DC motor, also enlist its applications.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the working of *p-n* junction diode in reverse and forward bias with the help of *V-I* characteristics curve.?
(b) A 230 volt DC Shunt motor takes 5 ampere current at no load and runs at 1000 rpm. Calculate speed when loaded and taking current of 30 amperes. The armature resistance and field resistance are 0.2 ohm and 230 ohm respectively.

4. Attempt any *one* part of the following: . 10 x 1 = 10

(a) Draw the block diagram of CRO and explain its working. How do you measure the voltage, frequency and phase using CRO?
(b) State and prove maximum power transfer theorem.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) Write the statement of
  (i) Thevenin's Theorem
  (ii) Superposition Theorem

(b) What is logic gate? .

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) What are the various filter circuits used in rectifiers? Compare their performance.

(b) What is the need of biasing a transistor? Explain the types of transistor.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is E.M.F.? Derive the EMF Equation of DC generator.

(b) Explain the following term in context with a semiconductor diode.
  (i) Potential Barrier
  (ii) Depletion Layer
  (iii) Breakdown voltage
  (iv) Peak inverse voltage
  (v) Knee voltage.