Registration No : | | | | | | | | | | |

Total Number of Pages : 02 **B.Tech**
BE2101

2nd Semester Back Examination 2018-19
BASIC ELECTRONICS
BRANCH : CHEM, CIVIL, CSE, ECE, EEE, ELECTRICAL, IT, MECH
Time : 3 Hours
Max Marks : 70
Q.CODE : F112
Answer Question No.1 which is compulsory and any FIVE from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions :** **(2 x 10)**

a) What do you mean by break region of a diode?
b) Why the gain of an amplifier reduces at very high and very low frequency?
c) State and explain Bark-Hausen criterion.
d) What is the difference between combinational and sequential circuit?
e) Why common collector configuration is called an emitter follower circuit? Comment.
f) Write down the relationship between I_{CO} and I_{CEO}.
g) Compare the advantages and disadvantages between center- tapped and bridge type full wave rectifier.
h) What is the relationship between the period of a waveform and its frequency?
i) What do you mean by digital logic invertors? Mention two ICs used as digital logic invertors.
j) Define CMRR and Slew rate of an Op-Amp. Mention its significance.

Q2 **a)** What is Lissajous method? Does Lissajous method require sweep signal? State and explain the function of the sweep signal in an oscilloscope. Justify the answer with a suitable block diagram or graph. **(5)**
b) Draw a crystal controlled oscillator circuit. Also state its advantages and disadvantages. **(5)**

Q3 **a)** Draw and explain a small signal high frequency CE model of a transistor. **(5)**
b) Explain the operation of a full wave bridge rectifier with its input and output waveforms. **(5)**

Q4 **a)** What do you mean by binary number system? What are the advantages of actual and Hexadecimal number systems and which system is used most commonly? **(5)**
b) How the transistor can be used as an amplifier in CE configuration? Explain with proper diagram. **(5)**

Q5 **a)** What is a signal generator? Explain the operation of a signal generator with a neat block diagram. **(5)**

b) Differentiate between static and dynamic RAM. **(5)**

Q6 Implement a full adder circuit using two 4:1 multiplexers. **(10)**

Q7 Draw and explain the circuit of a basic differentiator. What are the limitation of this circuit and how these are overcome in practical differentiator circuit? **(10)**

Q8 **Write short answer on any TWO :** **(5 x 2)**

a) Small signal analysis.

b) Feedback amplifier.

c) AF signal generator.