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**BEE-042**

# DIPLOMA IN MECHANICAL ENGINEERING (DME)

## Term-End Examination

## December, 2019

### BEE-042 : ELECTRONICS

*Time : 2 Hours* *Maximum Marks : 70*

***Note** : Question No. 1 is compulsory. Attempt **five** questions in all. Use of scientific calculator is permitted.*

1. State True *or* False for the following questions : 7×2=14

   (a) A Zener diode utilizes forward characteristics for its operation.

   (b) The most commonly used transistor configuration is common emitter configuration.

   (c) SCR is a bidirectional device.

(d) The binary number 10101 is equivalent to decimal number 21.

(e) A flip-flop can store binary information.

(f) An insulator has a large 'forbidden energy gap'.

(g) BJT can be used as a switch.

2. (a) Draw and explain full wave bridge rectifier. 7

(b) Explain, how Zener diode maintains constant voltage across the load. 7

3. (a) Compare the salient features of a PNP-type transistor with that of a NPN-type transistor. 7

(b) Describe the operation of half adder. Also, write its truth table. 7

4. (a) Explain the construction and working of TRIAC. Also, draw its I-V characteristics. 8

(b) Explain the following static performance parameters : 6

(i) Accuracy

(ii) Sensitivity

(iii) Drift

5. (a) What is a transducer ? Classify different transducers. 7

(b) What is a digital voltmeter ? Discuss the various types of digital voltmeter. 7

6. (a) With the help of block diagram, explain construction and working of a strip chart recoder. 7

(b) Explain clamper with its circuit diagram. Also, draw its input and output voltage wave form. 7

7. Write short notes on any *two* of the following : 7 each

(a) Microcomputer

(b) AM Radio Receiver

(c) RVDT (Rotary Variable Differential Transducer)