5777

M. Tech. EXAMINATION, May 2019

(Third Semester)

(B. Scheme) (Re-appear)

(MSN)

MSN727

ADVANCED ELECTRONICS

Time : 3 *Hours*]   [*Maximum Marks :* 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions. All questions carry equal marks.

1. Draw and explain the VI characteristics of a pn junction.   **20**

2. Write short notes on the following : **6+6+8=20**

   (a)   Breakdown Voltage

   (b)   Knee voltage

   (c)   Limitations in the operating conditions of *p-n* junction.

3. Discuss the following in context with carbon based electronics :   **5+5+5+5=20**

   (a)   CNT-FET

   (b)   CNT-Interconnect

   (c)   CNT-RAM

   (d)   CNT-Sensor.

4. Discuss the following with neat and clean diagram :   **10+10=20**

   (a)   Nano MOSFET

   (b)   Nano FET.

5. List various types of humidity sensors and discuss materials used for the fabrication of humidity sensors. Discuss the advantages of using mesoporous materials for humidity sensors.   **20**

6. Discuss the principle of data storage and explain the phenomena of data storage in hard disks and optical disks.   **20**

7. What are the Inorganic-Organic hybrid materials ? Discuss their advantages and applications.   **20**

8. Explain the working principle and synthesis techniques of organic light emitting diodes along wtih neat and clean diagrams.   **20**