1430

Code : 15EC-21-T

Register Number | | | | | | | |

II Semester Diploma Examination, April/May-2016

BASICS OF SEMICONDUCTOR DEVICES

Time : 3 Hours | **| Max. Marks : 100**

Note : (i) Answer any **six** questions from Part – **A** (**5 × 6 = 30** marks).

(ii) Answer any **seven** questions from Part – **B** (**10 × 7 = 70** marks)

PART – A

1. Define conductor, insulator and semiconductor with energy level diagrams. **5**

2. Explain in brief the different modes of operation of transistor with diagrams. **5**

3. Compare CB & CE transistor configurations. **5**

4. List the applications of JFET. **5**

5. Explain the basic steps involved in the preparation of monolithic IC. **5**

6. Explain the physical structure of FET with a diagram. **5**

7. List the features of LED. **5**

8. Write a short note on solar cells. **5**

9. Explain the working principle of TRIAC. **5**

PART – B

10. Explain the method of finding V-I characteristics of a P-N junction diode. **10**

11. (a) Explain Zener breakdown. **4**

(b) Explain the application of diode as **6**

(i) Switch

(ii) Voltage regulator

[Turn over

12. (a) Define input characteristics of NPN transistor. Explain the method of finding input characteristics in CB mode. 5

(b) Explain the working principle of PNP transistor with a neat diagram. 5

13. (a) Explain the method of finding output characteristics of common emitter NPN transistor. 5

(b) Explain the application of transistor as a switch. 5

14. Explain the physical structure of N channel JFET with a neat diagram. 10

15. (a) Define pinch off voltage and compare MOSFET and JFET. 6

(b) Explain with a diagram the operation of N channel enhancement MOSFET. 4

16. (a) Explain the working principle of UJT with a neat diagram. 6

(b) List the features of varactor diode. 4

17. (a) Explain the working principle of SCR with a neat diagram. 5

(b) Explain the working principle DIAC with a neat diagram. 5

18. Explain the fabrication of Monolithic IC's with diagrams. 10

19. (a) List the features of LASER and MASER. 6

(b) Define : 4

(i) Photo Emission

(ii) Photoconduction