

# 1190

Code : 15EC21T

Register  
Number

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II Semester Diploma Examination, Nov./Dec. 2017

## BASICS OF SEMICONDUCTOR DEVICES

Time : 3 Hours ]

[ Max. Marks : 100

- Note :** (i) Answer any **six** (6) questions from **Part-A**. ( $6 \times 5 = 30$  marks)  
(ii) Answer any **seven** (7) questions from **Part-B**. ( $7 \times 10 = 70$  marks)

### PART - A

6 × 5 = 30

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1. Compare the features of insulator and semiconductor with energy level diagram. **5**  
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2. Explain how the transistor can work as a switch. **5**  
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3. Compare CB and CE transistor configuration. **5**  
Diploma Question Papers [2015-19]
4. Distinguish between BJT and FETS. **5**  
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5. Explain the constructional features of JFET. **5**
6. Explain the holding and latching currents of SCR. **5**
7. Define SSI, MSI, LSI and VLSI. **5**
8. Explain the term photo-emissive, photo-conductive and photo-voltaic effect. **5**
9. List the applications and advantages of LED. **5**

10. Sketch V-I characteristics of PN junction diode with circuit in both FB and RB mode. 10
11. (a) Explain how zener diode can act as a voltage regulator. 5  
(b) Explain Avalanche Breakdown. 5
12. (a) Explain the working principle of NPN transistor. 5  
(b) Define Alpha and Beta deduce the relation between them. 5
13. (a) Explain the working principle of PNP transistor with neat diagram. 5  
(b) Explain the application of transistor as a switch. 5
14. (a) Explain the operation of N-channel JFET with diagram. 5  
(b) Define :  
(i) Drain resistance  
(ii) Trans conductance
15. (a) List the features of CMOS. 5  
(b) Explain the working of CMOS inverter. 5
16. (a) Describe the construction of UJT. 5  
(b) List the features of GUNN diode. 5
17. (a) Explain the working principle of SCR with neat diagram. 5  
(b) Sketch and discuss the V-I characteristics of DIAC. 5
18. Describe the steps in fabricating monolithic IC's with diagram. 10
19. (a) Write a note on solar cell. 5  
(b) Write the advantages of Opto-couplers. 5

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