

ELECTRONICS AND COMMUNICATION ENGINEERING

QUESTION BANK

Course Title: Electronics Devices and Circuits

Course Code:25EC303

Regulation: NR25

UNIT-V

SPECIAL PURPOSE DIODES, FETS AND ADVANCE FETS

Part –A(Short Answer Questions)				
S.No	Questions	BT	CO	PO
1	Define SCR.	L2	5	1
2	Draw the symbol of SCR.	L2	5	1
3	What is latching current in SCR?	L2	5	1
4	What is holding current in SCR?	L2	5	1
5	Define Tunnel diode.	L2	5	1
6	What is negative resistance region in Tunnel diode?	L2	5	1
7	Define Varactor diode.	L2	5	1
8	State any two applications of a Varactor diode.	L2	5	1
9	Define Photo diode.	L2	5	1
10	What is dark current in a Photo diode?	L2	5	1
11	Define Solar Cell.	L2	5	1
12	State the principle of operation of a Solar Cell.	L2	5	1
13	Define LED.	L2	5	1
14	State two advantages of LEDs.	L2	5	1
15	Define Schottky diode.	L2	5	1
16	State the advantages of Schottky diode.	L2	5	1
17	Define JFET.	L2	5	1
18	Why is JFET called a voltage controlled device?	L2	5	1
19	Define pinch-off voltage.	L2	5	1
20	Define transconductance of JFET.	L2	5	1
21	Define MOSFET.	L2	5	1
22	Differentiate between enhancement and depletion MOSFET.	L3	5	2
23	What is FinFET?	L2	5	1
24	State two advantages of FinFET.	L2	5	1
25	What is CNTFET?	L2	5	1
26	What is ballistic transport in CNTFETs?	L2	5	1
27	State one advantage of CNTFET over CMOS.	L2	5	1
28	Compare CMOS and FinFET.	L3	5	2
29	Compare FinFET and CNTFET.	L3	5	2
30	State applications of advanced transistor devices.	L2	5	1
Part– B(Long Answer Questions)				
S.No	Questions	BT	CO	PO
1	Explain the construction, operation and V-I characteristics of SCR.	L3	5	2
2	Explain the construction, operation and characteristics of Tunnel diode.	L3	5	2
3	Explain the construction, operation and applications of Varactor diode.	L3	5	2
4	Explain the construction, operation and characteristics of Photo diode.	L3	5	2

5	Explain the construction and working principle of Solar Cell.	L3	5	2
6	Explain the construction, operation and characteristics of LED.	L3	5	2
7	Explain the construction, operation and characteristics of Schottky diode.	L3	5	2
8	Explain the structure and operation of JFET with characteristics.	L4	5	2
9	Draw and explain the drain and transfer characteristics of JFET.	L4	5	2
10	Explain the structure and operation of Enhancement MOSFET.	L3	5	2
11	Explain the structure and operation of Depletion MOSFET.	L3	5	2
12	Compare Enhancement and Depletion MOSFETs.	L4	5	2
13	Draw and explain the drain and transfer characteristics of MOSFET.	L4	5	2
14	Explain the 3D structure and scaling advantages of FinFETs.	L3	5	2
15	Explain the structure, fabrication and ballistic transport mechanism of CNTFETs.	L4	5	2
16	Compare CMOS, FinFET and CNTFET technologies.	L4	5	2
17	Discuss the advantages, limitations and applications of FinFETs.	L4	5	2
18	Discuss the advantages, limitations and applications of CNTFETs.	L4	5	2
19	Explain why advanced devices are replacing conventional CMOS technology.	L4	5	2
20	Compare JFET, MOSFET, FinFET and CNTFET devices.	L4	5	2

***Blooms Taxonomy Level (BT)** (L1–Remembering; L2–Understanding; L3–Applying; L4 – Analyzing; L5 – Evaluating; L6 – Creating)

Course Outcomes (CO)

Program Outcomes (PO)

Prepared By:

HOD, ECE