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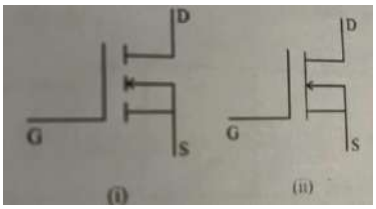
312314 - Basic Electronics (Sem II)

As per MSBTE's K Scheme

AO/ DE/ EJ/ ET/ EX/ IC/ IE/ IS/ MU/ TE

Unit IV	Field Effect Transistor	Marks - 14

S. N.	MSBTE Board Asked Questions	Exam Year	Marks
1.	Sketch the symbol of P-channel and N-channel depletion type MOSFET.	S-18	02
2.	State different methods of biasing of FET.	S-18	02
3.	A JFET has I_{DSS} = 10mA, V_P = -5 volts, gmo= 2ms. Calculate the trans-conductance and drain current of the JFET for V_{GS} =-2.5 volts.	S-18	04
4.	Draw the constructional details of N-channel MOSFET. State its working principle.	S-18	04
5.	Explain drain characteristics of JFET with ohmic region, saturation region, cut off region and break down region.	S-18	06
6.	State application of FET.	W-19	02
7.	Name the components of following symbol 	W-19	02
8.	Compare EMOSFET & DMOSFET	W-19	04
9.	Compare BJT & JFET with reference tofollowing point: Symbol Transfer characteristics I/P impedance	W-19	04

	Application		
10.	With neat circuit diagram and mathematical expressions, explain the self biasing used in FET.	W-19	06
11.	State function of 'Gate', 'Source' and 'Drain' terminals of FET.	S-19	02
12.	List out any two applications of FET.	S-19	02
13.	Derive relationship between trans-conductance (gm), amplification factor (μ) and drain reistance (γd) of FET.	S-19	04
14.	Compare BJT with FET on the basis of Symbol Input impedance Thermal stability Charge carrier Polarity	S-19	04
15.	With neat constructional diagram explain operation of Depletion type N-channel MOSFET.	S-19	06
16.	State any two applications of FET.	W-20	02
17.	Sketch the drain characteristics of N-channel MOSFET.	W-20	02
18.	Define with respect to FET:- Static drain resistance Dynamic resistance Trans conductance Pinch-OFF voltage	W-20	04
19.	State advantages of MOSFET over JFET.	W-20	04
20.	Sketch construction of N-channel JFET and explain it's operating principle.	W-20	06
21.	State types of JFET and draw its symbol with terminal names.	S-22	02
22.	State any two application of FET.	S-22	02
23.	A JFET has a drain current of 5 mA. If I_{DSS} = 10 mA & V_{GS}(off) -6V. Find the value of (i) V_{GS} (ii) V_P	S-22	04
24.	Draw & explain the drain & transfer characteristics of N-channel JFET.	S-22	06
25.	List two applications of FET	W-22	02
26.	Name two types of JFET & draw their symbols.	W-22	02
27.	Draw the output characteristics of JFET and describe the	W-22	04

	salient points related to it.		
28.	State the working principle of E-MOSFET and draw and explain its constructional sketch	W-22	06
29.	Sketch the circuit diagram of common sources FET amplifier and explain its working principle. State any two applications.	W-23	06
30.	List semiconductor materials used in LED	W-23	02
31.	State any two advantages of FET.	W-23	02
32.	Draw transfer characteristics of N-channel JFET	W-23	02
33.	For a JFET, the maximum value of drain current I_{DSS} =6 mA and pinch off voltage V_P= -4.5 V. Determine I_D at V_{GS} =-2V.	W-23	04
34.	Describe the workingof N-channel E-MOSFET with neat constructional diagram and VI characteristics.	W-23	06
35.	Sketch circuit diagram of common source FET Amplifier. State working principle of it.	W-23	06

Thank You

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