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COURSE NAME: Electronics Devices and Circuits

COURSE CODE: ETUA21184

(PATTERN 2018)

Q.NO	Sub Q.NO	Marking Scheme	Marks	Difficulty Level	Cognitive level	CO Mapping
Q1	a)	Circuit diagram and explanation of working of Center Tapped Full-Wave Rectifier. [4] $V_{p(sec)} = 1.414 V_{rms} = 1.414(12\text{ V}) = 17\text{ V}$ $V_{p(out)} = V_{p(sec)} - 1.4\text{ V} = 17\text{ V} - 1.4\text{ V} = 15.6\text{ V}$ $PIV = V_{p(out)} + 0.7\text{ V} = 15.6\text{ V} + 0.7\text{ V} = 16.3\text{ V}$ [4]	[8]	M	Comprehension	CO1
	b)	Explain the working of Capacitor Filter with neat circuit diagram and waveform for Half Wave Rectifier. [4] $V_{p(pri)} = 1.414 V_{rms} = 1.414(120\text{ V}) = 170\text{ V}$ $V_{p(sec)} = n V_{p(pri)} = 0.1(170\text{ V}) = 17.0\text{ V}$ $V_{p(rect)} = V_{p(sec)} - 1.4\text{ V} = 15.6\text{ V}$ $V_{r(pp)} = 0.591\text{ V}$ $V_{DC} = 15.3\text{ V}$ $r = V_{r(pp)} / V_{DC} = 0.039$ [4]	[8]	M	Comprehension	CO1
Q2	a)	R_B or $R_{th} = 9.09\text{ K}\Omega$, V_B or $V_{th} = 1.818\text{ V}$ $I_B = 78.78\text{ }\mu\text{A}$, $I_{CQ} = 3.93\text{ mA}$, $V_{CEQ} = 11.72\text{ V}$ and $S = 33.02$	[8]	M	Knowledge	CO2
	b)	Draw the Hybrid Model of transistor for CE configuration and give the significance of four hybrid parameters. [4] $Derivation S = \frac{1 + \beta}{1 + \beta \left(\frac{R_E}{R_E + R_{th}} \right)}$ [4]	[8]	H	Comprehension/ Application	CO2
Q3	a)	Draw output characteristic and transfer characteristic for n-channel JFET	[4]	M	Comprehension	CO3
	b)	Ans: $I_D = 1.51\text{ mA}$ $V_{DS} = 8.63\text{ V}$ $V_{GS} = -2.26\text{ V}$	[4]	H	Comprehension	CO3