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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 II		Bipolar Junction Transistor	Marks - 14	
S. N.	MSBTE Board Asked Questions	Exam Year	Marks	
1.	List any two BJT biasing circuits with respect to operating point.	S-18	02M	
2.	Define alpha and beta of a transistor and state the relation between them.	S-18	04M	
3.	Define Transistor. State its type.	W-18	02M	
4.	Explain with a neat circuit diagram of voltage divider bias method for biasing a transistor	W-18	02M	
5.	Explain the operating principle of PNP transistor	W-18	04M	
6.	In CE configuration if $\beta=99$ leakage current $I_{CEO}=50 \mu A$ . If base current is 0.5mA. Determine $I_C$ and $I_E$ . Derive relation between $\alpha$ & $\beta$	W-18	06M	
7.	Sketch symbol of NPN and PNP transistor	S-19	02M	
8.	Define following terms related to BJT: Current Gain in CE configuration (Beta) Types of reverse break down V. I. Characteristic Material.	S-19	04M	
9.	Sketch the input and output characteristics of CB configuration. Label it.	S-19	04M	
10.	Draw symbol of NPN and PNP transistor.	W-19	02M	
11.	Sketch input and output characteristics of CE configuration Label various regions on characteristics.	W-19	04M	

12.	Derive the relationship between $\alpha$ and $\beta$ of a transistor.	W-19	04M
13.	Sketch the experimental setup for CB transistor configuration.	W-19	04M
14.	If $\alpha$ of a transistor is 0.9; Calculate $\beta$ .	W-19	04M
15.	Explain the circuit diagram, voltage divider biasing method and state its two advantages.	W-19	06M
16.	Define transistor & state its types	S-22	02M
17.	Describe operation of voltage driver biasing with neat diagram.	S-22	04M
18.	Explain working of NPN transistor with neat labelled diagram.	S-22	04M
19.	Compare CB, CE & CC configuration of transistor on the basis of any four factors.	S-22	04M
20.	In CE configuration of LED & write advantages, disadvantages and applications of it (each two points). Derive relation between $\alpha$ & $\beta$ .	S-22	06M
21.	Define Operating point and give its significance	W-22	02M
22.	Draw the circuit diagram of transistor in CE configuration and explain its output characteristics.	W-22	04M
23.	Draw the circuit of base bias with emitter feedback and describe its operation.	W-22	04M
24.	Explain the terms w.r.t. BJT biasing: Stabilization Thermal runaway	W-22	04M
25.	Calculate the emitter current in the voltage divider circuit shown in Fig. Also find the value of $V_{CE}$ and collector Potential $V_C$ .	W-22	04M
26.	Justify the use of CE configuration in transistor amplifiers with respect to their DC load line & operating point.	W-22	06M

27.	Draw symbols of NPN and PNP transistor.	W-23	02M
28.	The common base dc current gain ( $\alpha$ ) of a transistor is 0.967. if the emitter current is 10 mA, calculate the value of base current.	W-23	04M
29.	With the help of neat diagram, explain voltage divider biasing of a transistor.	W-23	04M
30.	Derive the relationship between $\alpha$ and $\beta$ of a transistor	W-23	04M
31.	Compare CB, CE and CC configuration (any six points)	W-23	06M

**Thank You**

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