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Reg. No. : | | | | | | | | | | |

Question Paper Code : 53404

B.E./B.Tech. DEGREE EXAMINATION, NOV 2022

Third Semester

Electronics and Communication Engineering

15UEC304-ELECTRONIC CIRCUITS

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. The component used for compensation in a biasing circuit is CO1- R

   (a) Inductor (b) Thermistor (c) Diode (d) Both b & c

2. In a JFET, the amplification factor is μ and trans conductance g_m and Dynamic resistance is r_d are related as CO2- R

   (a) $\mu=g_m r_d$ (b) $\mu=g_m r_d^2$ (c) $\mu=g_m / r_d$ (d) $\mu=r_d / g_m$

3. The bandwidth in hertz of an amplifier with rise time t_r in seconds can be estimated as CO3- R

   (a) $BW=0.45/t_r$ (b) $BW=0.35/t_r$ (c) $BW=0.55/t_r$ (d) $BW=0.65/t_r$

4. The maximum theoretical efficiency for class B power amplifier is CO4- R

   (a) 36.2% (b) 78.5% (c) 60% (d) 43.5%

5. The overall performance of an amplifier can be improved by CO5- R

   (a) Using positive feedback (b) Increasing the input voltage

   (c) Removing the feedback (d) Using negative feedback

PART – B (5 x 3= 15 Marks)

6. Why temperature compensation is required. CO1- U

7. Why the common collector amplifier is used for impedance matching? CO2- U

8. Define bandwidth of an amplifier? CO3- R

9. Define conversion efficiency of a power amplifier CO4- R

10. List the advantages of negative feedback amplifier CO5- R

PART – C (5 x 16= 80Marks)

11.	(a)	Explain about the biasing stability of BJT with self bias or voltage divider bias method.	CO1- U	(16)
		Or		
	(b)	Explain about the different types of FET biasing in detail.	CO1- U	(16)
12.	(a)	Discuss about the voltage gain, current gain ,input impedance and output impedance for CE configuration mid based region.	CO2- Ana	(16)
		Or		
	(b)	Discuss about the methods of increasing input impedance using Darlington connection and Boot strapping.	CO2- Ana	(16)
13.	(a)	(i) Discuss the frequency response characteristics of RC coupled amplifier.	CO3- U	(8)
		(ii) Sketch the hybrid π model of the transistor and explain each parameter in the model.	CO3- U	(8)
		Or		
	(b)	Draw the circuit diagram, of a multistage CE amplifier and obtain the frequency response of the circuit.	CO3- U	(16)
14.	(a)	Explain with neat circuit diagram the working of a transformer coupled class A Power amplifier and give its advantages and disadvantages.	CO4- U	(16)
		Or		
	(b)	Explain the working of complimentary symmetry class B push pull power amplifier ,what are its merits ,demerits and applications.	CO4- U	(16)
15.	(a)	(i) Give the block diagram of feedback amplifier and discuss the effect of negative feedback with respect to closed loop gain, band width and distortion.	CO5- U	(12)
		(ii) Explain Nyquist criterion to analyze the stability of feedback amplifiers.	CO5- U	(4)
		Or		
	(b)	(i) Explain single tuned voltage amplifier and discuss its frequency response.	CO5- U	(8)
		(ii) Compare the different types of feedback in detail.	CO5- U	(8)