University of Engineering & Management, Kolkata

Term - II Examination, October - November, 2021

Programme Name: B.Tech in Computer Science **Semester: 3rd**

Course Name: Analog Electronic Circuits

Course Code: ESC301

Full Marks: 100 **Time: 3 hours**

GROUP A (20 Marks)

Answer the following questions. Each question is of 2 marks.

1.	i)	Define the Purpose of regulators in a circuits	2
	ii)	Describe the riple factor of a full wave rectifier.	2
	iii)	Relate the necessity of Transistor Amplifiers in Electronics	2
	iv)	Illustrate the importance of bias stabilization	2
	v)	Illustrate Why does an op-amp have high CMRR.	2
	vi)	Demonstate a voltage follower	2
	vii)	Examine what is a differential amplifier	2
	viii)	Define an oscillator .	2
	ix)	State the Barkhausen criterion for oscillation.	2
	x)	Classify the meaning of negative feedback?	2

GROUP B (30 Marks)

Answer the following questions. Each question is of 5 marks.

2.		**i)**	Contrast the differences between filters and regulators.	**3**
		ii)	Explain whether a Reguator can convert ac to dc or not.	**2**
3.		**i)**	Summerize Q point.	**2**
		ii)	Classify the factors on which it depends on.	**3**
4.		**i)**	On the output characteristics of BJT, show the region of operation of (i) an amplifier (ii) a switch.	**5**
5.	**A.**	**i)**	Judge biasing of BJT and defend need for biasing.	**5**
			OR	
	B.	**i)**	Explain Load Line.	**3**
		ii)	Memorize its Importance	**2**
6.	**A.**	**i)**	If ADM = 20000 and CMRR = 80 dB. Then decide the value of ACM	**5**

OR

	B.	**i)**	Explain open loop and close loop configuration of an op amp	**5**
7.	**A.**	**i)**	Define feedback factor or feedback ratio.	**5**

OR

	B.	**i)**	Discover the advantages of multivibrator	**5**

GROUP C (50 Marks)

Answer the following questions. Each question is of 10 marks.

8.		**i)**	Explain the superiority of Voltage divider bias over all other biasing techniques.	**5**
		ii)	Solve the purpose of use of Transformers in Power supply circuits with suitable mathematical expression.	**5**
9.		**i)**	Extract the full working principle of a Half wave rectifier with suitable diagram and explain the ripple factor of it.	**10**
10.	**A.**	**i)**	Correlate between 7812 , 7912 ic series.	**5**
		ii)	Describe the advantages of IC regulators in voltage regulation over series and shunt regulators.	**5**

OR

	B.	**i)**	Show, the reason for fixing the operating point in the middle of the load line	**5**
		ii)	Classify the reason why voltage divider bias or self bias is better compare to another biasing technique	**5**
11.	**A.**	**i)**	Extract the full working principle of a Half wave rectifier with suitable diagram and explain the ripple factor of it.	**10**

OR

	B.	**i)**	Demonstrate biasing of BJT and explain need for biasing.	**10**
12.	**A.**	**i)**	Explain the block diagram of op-amp.	**5**
		ii)	Discover any 5 ideal characteristics of op-amp.	**5**

OR

	B.	**i)**	Design a subtractor circuit using OPAMP	**5**
		ii)	Draw the equivalent circuit of OPAMP and explain.	**5**

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