University of Engineering & Management, Kolkata

Term - I Examination, August - September, 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 Filters in a circuits	**2**
	ii)	Describe the riple factor of a Half wave rectifier.	**2**
	iii)	Classify the types of rectifiers used for ac to dc conversions.	**2**
	iv)	Relate the necessity of Transistor Amplifiers in Electronics	**2**
	v)	Classify the types of Transistor Biasing.	**2**
	vi)	Summarize the application of Q point in brief	**2**
	vii)	Explain the full form of Voltage gain in amplifier.	**2**
	viii)	Teach the function of R and C in Amplifiers	**2**
	ix)	Describe the equation for inductive reactance	**2**
	x)	Relate the function of regulation in power supply.	**2**

GROUP B (30 Marks)

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

2.	**i)**	Describe the working principle of a Step Down Transformer with characteristic equations.	**5**
3.	**i)**	Contrast the differences between filters and regulators.	**3**
	ii)	Explain whether a Reguator can convert ac to dc or not.	**2**
4.	**i)**	Summerize Q point.	**2**
	ii)	Classify the factors on which it depends on.	**3**
5. A.	**i)**	Sketch the Ripple factor of a Half wave and full wave rectifier.	**5**

OR

	B.	**i)**	Explain Load Line.	**3**
		ii)	Memorize its Importance	**2**
6.	**A.**	**i)**	Relate the differences between IC regulators and series and shunt regulators	**5**

OR

	B.	**i)**	Contrast the differences between Q point and Operating Point	**5**
7.	**A.**	**i)**	Sketch the diagram of a Seriest regulator and explain its operation	**5**

OR

	B.	**i)**	categorize IC regulators.	**3**
		ii)	Contast the differences between 78XX and 79XX IC regulators	**2**

GROUP C (50 Marks)

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

8.		**i)**	Define the importance of Basing and explain its classifications.	**5**
		ii)	Interpret the circuit diagram of a fixed bias circuit and explain its operation.	**5**
9.		**i)**	Relate why emitter bias is called a self bias.	**5**
		ii)	Sketch the details of a emitter biasing circuit and explain its operation.	**5**
10.	**A.**	**i)**	Compare between Self bias and fixed bias.	**5**
		ii)	Illustrate the circuit diagram of a voltage divider bias and explain its operation	**5**

OR

	B.	**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**
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)**	Illustrate Op amp based series Voltage regulator and explain its operation.	**10**

12.	**A.**	**i)**	Correlate between 7812 and 7912 ic series.	**5**
		ii)	Describes the advantages of IC regulators in voltage regulation over series and shunt regulators.	**5**
			OR	
	B.	**i)**	Classify and summerize the working principles of a Pi filter with suitable diagram and mathematical equations.	**8**
		ii)	Define capacitive reactance.	**2**

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