## M.Sc.(Physics) (CBCS Pattern) Sem-III PSCPHYT11-4 - Paper-XI - Core Elective E1.4 : Applied Electronics-I

P. F Tin	Pages : ne : Thi	2 ree Hours $3812*$ GUG/W/22/11 Max. Marks	. <b>301</b> : 80
		Either:	
1.	a)	Draw the block diagram of a typical operational amplifier and explain the function of each block.	6
	b)	Discuss the open loop configuration of operational amplifier.	2
	c)	Explain the following terms in Op-Ampi)Input bias currentii)Input offset currentiii)Input offset currentiv)Common mode rejection ratio (CMRR)	8
		OR	
	e)	Explain construction and working of astable multivibrator with suitable diagram.	8
	f)	State Barkhausen criterion for oscillation. Explain the working of Wien bridge oscillator with suitable diagram.	8
		Either:	
2.	a)	What is amplitude modulation? How does amplitude modulated waves generated? Explain the process of demodulation of amplitude modulated waves.	8
	b)	What is DSBSC modulation? Explain the coherent detection of DSBSC waves.	8
		OR	
	e)	Explain fresenel zone problem and ground reflection with respect to micro wave communications.	8
	f)	Explain in detail Frequency Division Multiplexing (FDM).	8
		Either:	
3.	a)	Draw a gray diagram of 8085 microprocessor and explain its working.	8
	b)	Describe digital in analogue converters and how it is been used as dual slop converters.	8
		OR	
	e)	Write an assembly language program to find the largest number in a data array.	8
	f)	Discuss Read Only Memory (ROM) and Random Access Memory (RAM) along with their applications.	8

## Either:

4.	a)	What is microwave device? Explain the construction and working of magnetrons.	8
	b)	Discuss the principle and operation of Klystrons.	8
		OR	
	e)	Explain the working of Helix travelling wave tubes.	8
	f)	<ul> <li>Write note on-</li> <li>i) IMPATT diode</li> <li>ii) TRAPATT diode</li> </ul>	8
5.		All questions are compulsory.	
		a) Explain how operational amplifier is used as buffer amplifier.	4
		b) Why modulation is necessary in communication? Define modulation index.	4
		c) Differentiate between Ladder and weighted registers.	4
		d) Explain velocity modulation.	4

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