## M.Sc .(Physics) (CBCS Pattern) Third Semester PSCPHYT11-4 / PSCPHY11-4 : Applied Electronics-I (Elective)

P. Pages: 2 GUG/W/18/11301 Time : Three Hours Max. Marks: 80 All questions are compulsory. Notes : 1. Either: 1. a) Draw the circuit diagram of Weinbridge oscillator and explain it working. Obtain an 8 expression for frequency of oscillator. What is Op-Amp? Explain the use of operational amplifier as integrator, differentiator b) 8 amplifier. OR e) Explain: 8 Barkhausen criterion for oscillations. i) ii) Triangular wave generator What is multivibrator? Explain monostable multivibrator and its applications. 8 f) 2. Either: What is amplitude modulation? How does amplitude modulated waves generate? Give the 8 a) difference between modulation and demodulation. Discuss Fresnel zone problem and ground reflection with respect to microwave b) 8 communication. OR What is DSBSC waves? Explain generation and coherent detection of DSBSC waves. 8 e) Explain advantages and disadvantages of microwave communication. f) 4 Explain use of antenna in microwave communication system. 4 **g**) 3. Either: Discuss architecture of microprocessor 8085. 6 a) b) Explain bus buffering and lathing. 4 Discuss demultiplexing in microcomputers. c) 6

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	e)	Explain digital to analog converter and explain weighted register D/A convertor.	8
	f)	Explain read only memory and random access memory & also explain their uses.	8
4.		Either:	
	a)	Explain the process of velocity modulation. Describe the principle and operation of reflex klystron.	8
	b)	What are magnetrons? Explain the principle of operation of magnetrons.	8
		OR	
	e)	Write short note on:i) IMPATT diodeii) Transferred electron devices	8
	f)	What is operating principles of Gunn diode? Discuss the mechanism of electron transfer in this diode. Explain operating modes of this diode. Write its two applications.	8
5.		All questions given below are compulsory.	
		a) Explain the effect of negative feedback on voltage gain in case of inverting mode of amplifier.	4
		b) Explain atmospheric effect on propagation of microwaves.	4
		c) A A/D converter uses 6-bit binary counter and 1MHz clock. Calculate the time required for the conversion of an analog input voltage for which the binary output is:001101.	4
		d) Explain Helix travelling wave tube.	4
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