Reg. No.



(A constituent unit of MAHE, Manipal)

FIFTH SEMESTER BTECH. (E & C) DEGREE END SEMESTER EXAMINATION FEBRUARY-MARCH 2022

SUBJECT: INTRODUCTION TO COMMUNICATION SYSTEMS (ECE -4304)

TIME: 75 minutes

MAX. MARKS: 20

Instructions to candidates

- Answer ALL questions.
- Missing data may be suitably assumed.

Q. No.	Questions	Marks
1A.	With neat block diagrams, explain modulation and demodulation process used in electronic communication system	5
1B.	With neat diagrams, explain the operation of cellular mobile communication system	3
1C.	Explain the PIN photodiode with necessary diagrams	2
2A.	Explain the power budget. Assume 10km fiber optic link is to be installed,	5
	connected at both ends with connectors and following datas are available	
	(i) 20 sections of fiber optic cable each length 500 meter with an	
	attenuation of 1dB/km	
	(ii) Connector loss of 1.3 dB/ connector	
	(iii) Splice loss of 0.5 dB/splice	
	(iv) Receiver sensitivity -50 dBm	
	(v) System margin 5 dB	
2B	Find the core radius necessary for single mode operation at 1320nm of a	
	step-index fiber with $n_1=1.48$ and $n_2 = 1.478$. What are the numerical	3
	aperture and maximum acceptance angle of this fiber?	
2C	A pulsed radar has a pulse repetition rate 1700 pulses/second and transmits	2
	rectangular pulses of duration 15 μ S. What is the maximum range can a target	
	have if no part of its delayed pulse is to overlap any part of a transmitted pulse	
	and not be delayed more than one PRF interval?	