

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary Summer Examination – 2024

Course: B. Tech.

Branch : AI & DS and Allied branches

Semester : V

Subject Code & Name: BTAIOE505B Digital Communication & Information Technology

Max Marks: 60

Date: 10/07/2024

Duration: 3 Hr.

**Instructions to the Students:**

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

	(Level/CO)	Marks
<b>Q. 1 Solve Any Two of the following.</b>		<b>12</b>
A) Derive of Maximum Signal to Quantization Noise Ratio for Linear Quantization.	L1/CO1	6
B) Describe <u>Differential Pulse Code Modulation (DPCM)</u> .	L1/CO1	6
C) Describe Delta Modulation in detail..	L1/CO1	6
<b>Q.2 Solve Any Two of the following.</b>		<b>12</b>
A) Determine (a) the peak frequency deviation, (b) minimum bandwidth, and (c) baud for a binary FSK signal with a mark frequency of 49 kHz, a space frequency of 51 kHz, and an input bit rate of 2 kbps.	L2/CO2	6
B) Explain DBPSK in Detail with it's block diagram and timing diagram.	L2/CO2	6
C) Describe Noncoherent Demodulation and Error Performance.	L2/CO2	6
<b>Q. 3 Solve Any Two of the following.</b>		<b>12</b>
A) Explain Optimum Filter.	L3/CO3	6
B) Describe Coherent system of signal reception.	L3/CO3	6
C) Explain Error Probability of ASK.	L3/CO3	6
<b>Q.4 Solve Any Two of the following.</b>		<b>12</b>
A) Explain Source Coding.	L4/CO4	6
B) Describe Shannon-Fano Algorithm.	L4/CO4	6
C) Explain Shannon–Hartley theorem with it's law..	L4/CO4	6
<b>Q. 5 Solve Any Two of the following.</b>		<b>12</b>
A) Describe Principle of block coding..	L5/CO5	6
B) Explain Syndrome and Error Detection in detail.	L5/CO5	6
C) Explain Hamming Codes.	L5/CO5	6

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