

(C)

May-June 2023

(B.Tech.) Program: Electronics and Telecommunication Engineering  
Examination: TY Semester: V

Course Code: EXDLC5051 and Course Name: Data Compression and Encryption

Duration: 2.5 Hours

Max. Marks: 60

Instructions:

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

		Max. Marks	CO	BT level
<b>Q 1</b>	<b>Solve any six questions out of eight:</b>	<b>12</b>		
i)	DPCM helps in compression. Justify.	02	1	2
ii)	Compare substitution cipher with transposition cipher.	02	3	2
iii)	How MPEG-4 audio layer provides audio compression? Explain	02	2	2
iv)	What is the significance of prime numbers in public key cryptography?	02	4	2
v)	How firewall provides security? Explain.	02	6	2
vi)	Explain principle of public key cryptography.	02	3	2
vii)	How Biometric authentication is useful in security system?	02	6	2
viii)	What characteristics are needed in secure hash function?	02	5	2
<b>Q.2</b>	<b>Solve any four questions out of six.</b>	<b>16</b>		
i)	Explain A-law and $\mu$ -law companding.	04	2	2
ii)	Explain how redundancies are used in data compression? Explain.	04	1	2
iii)	Use the additive cipher with key = 15 to encrypt the message "hello".	04	3	3
iv)	What do you mean by intrusion detection system? List types of IDS technologies.	04	6	1,2
v)	Explain Euler's Theorem and calculate $20^{62} \text{ mod } 77$ .	04	4	2,3

vi)	Discuss about different key management systems	04	5	2
<b>Q.3</b>	<b>Solve any two questions out of three.</b>	<b>16</b>		
i)	Discuss MPEG-4, H.264 encoder	08	2	2
ii)	Consider $A = \{a, b, c, d\}$ with $P = \{0.7, 0.05, 0.15, 0.1\}$ . Generate tag for message sequence "a c d b a" using arithmetic coding. Mention the applications of arithmetic coding.	08	1	3
iii)	Discuss about ethical hacking	08	6	2
<b>Q.4</b>	<b>Solve any two questions out of three.</b>	<b>16</b>		
i)	Explain RSA algorithm with example. Mention attacks on RSA.	08	5	2
ii)	Explain triple DES with two keys with suitable block diagram.	08	3	2
iii)	Explain Chinese remainder theorem with example.	08	4	2

\*\*\*\*\*