Total No. of Questions: 23

Enrollment No : _____

MEDICAPS UNIVERSITY

Faculty of Engineering

End Semester Examination May 2025

EC3EL02 Data Communication & Computer Networks

Programme	:	B.Tech.	**Branch/Specialisation**	:	EC
Duration	:	3 hours	**Maximum Marks**	:	60

Note: *All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.*

Section 1 (Answer all question(s))

		Marks	CO	BL
Q1.	In _____, each packet is treated independently of all others. ○ Circuit switching ◉ Datagram switching ○ Frame switching ○ None of the above	1	1	1
Q2.	Which of these layers is not a part of TCP/IP model? ○ Physical ○ Network ○ Transport ◉ Presentation	1	1	1
Q3.	Which of the following is an error correcting code? ○ Checksum ○ Parity ○ Cyclic redundancy check ◉ Hamming code	1	1	1
Q4.	Which of following is not a flow control technique? ○ Stop and wait ARQ ◉ CRC ○ Go back N ARQ ○ Selective repeat ARQ	1	1	1
Q5.	A pure ALOHA network transmits 200-bit frames on a shared channel of 200 kbps. What is the requirement to make this frame collision-free? ◉ 2 msec ○ 4 msec ○ 2 sec ○ 4 sec	1	1	2
Q6.	IEEE 802.11 standard is for? ◉ Wireless LAN ○ Bluetooth ○ Ethernet ○ Wi-MAX	1	1	1
Q7.	Components used for interconnecting dissimilar networks that use different communication protocols. ○ Switches ○ Routers ◉ Gateways ○ Bridges	1	1	1
Q8.	The size of an IP address in IPv6 is- ○ 4 bytes ○ 32 bits ○ 8 bytes ◉ 128 bits	1	1	1
Q9.	Which one of the following allows client to update their DNS entry as their IP address change? ○ Mail transfer agent ○ Authoritative name server ◉ Dynamic DNS ○ None of the mentioned	1	1	1
Q10.	Which of the following is false with respect to TCP? ○ Connection-oriented ○ Process-to-process ○ Transport layer protocol ◉ Unreliable	1	1	1

Section 2 (Answer all question(s))

Marks CO BL

Q11. What do you mean by transmission impairments? 2 1 1

Rubric	Marks
definition transmission impairment with name	2

Q12. Make a comparison between packet switching and circuit switching? 3 2 1

Rubric	Marks
three comparison	3

Q13. (a) Explain working of network layer and transport layer of OSI model. 5 2 2

Rubric	Marks
network layer-2.5, transport layer - 2.5	5

(OR)

(b) Explain Shannon channel capacity theorem and Nyquist channel capacity theorem.

Rubric	Marks
Shannon channel capacity theorem - 2.5, Nyquist channel capacity - 2.5	5

Section 3 (Answer any 2 question(s))

Marks CO BL

Q14. What are different types of errors occurs in data transmission. Explain cyclic redundancy check method for error detection. 5 3 2

Rubric	Marks
types of errors - 2, cyclic redundancy check method - 3	5

Q15. Write in detail about stop and wait ARQ protocol. 5 1 1

Rubric	Marks
detail description	5

Q16. Write in detail about Go back N ARQ protocol. 5 1 1

Rubric	Marks
detail description	5

Section 4 (Answer all question(s))

Marks CO BL

Q17. Illustrate the working of CSMA /CD protocol. 4 3 2

Rubric	Marks
working	4

Q18. (a) Give a brief description about Ethernet, fast Ethernet and Gigabit Ethernet. **6 3 2**

Rubric	Marks
Ethernet, fast Ethernet and Gigabit Ethernet two marks each	6

(OR)

(b) Write about pure and slotted ALOHA.

Rubric	Marks
pure ALOHA - 3, slotted ALOHA- 3	6

Section 5 (Answer all question(s))

Marks CO BL

Q19. Explain about IPv6? Compare IPv4and IPv6. **4 3 4**

Rubric	Marks
explanation - 2 , Compare IPv4and IPv6. - 2	4

Q20. (a) Explain the Distance Vector routing algorithm with proper example. **6 3 2**

Rubric	Marks
Distance Vector routing algorithm - 3 , proper example.- 3	6

(OR)

(b) Explain the Shortest path routing algorithm with proper example.

Rubric	Marks
Shortest path routing algorithm - 3 , proper example- 3	6

Section 6 (Answer all question(s))

Marks CO BL

Q21. What are the responsibilities of Transport Layer? **2 2 2**

Rubric	Marks
two responsibilities	2

Q22. How user datagram protocol works? **3 2 2**

Rubric	Marks
UDP	3

Q23. (a) Explain leaky bucket algorithm and token bucket algorithm. **5 3 2**

Rubric	Marks
leaky bucket - 2.5, token bucket - 2.5	5

(OR)

(b) Describe the services offered by the application layer.

Rubric	Marks
detailed description	5

******