

BACHELOR OF TECHNOLOGY (CBCS) (2020 COURSE)  
Computer Science & Engineering  
B.Tech.Sem - V : SUMMER : 2023  
SUBJECT : HUMAN MACHINE INTERACTION

Day : Friday

Time : 10:00 AM-01:00 PM

Date : 12-05-2023

S-24317-2023

Max. Marks : 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non-programmable **CALCULATOR** is allowed.
- 4) Assume suitable data **WHEREVER** necessary.
- 5) Draw neat diagram **WHEREVER** necessary.

Q.1 What is the purpose of a Human Machine Interface and what are the key characteristics of a good UI design? (10)

OR

Q.1 What are the characteristics of a user interface? What are the general principles of user interface? (10)

Q.2 Explain the role of prototyping in the design process in HCI. (10)

OR

Q.2 Discuss the design rationale in HMI. What are the examples of design rationale? (10)

Q.3 What are the benefits of applying custom HMI software? (10)

OR

Q.3 What do you mean by screen design and what are the principles of good screen design? (10)

Q.4 What are principles of mobile design? and also explain the elements of Mobile Design. (10)

OR

Q.4 Draw and explain mobile ecosystem and explain types of mobile applications. (10)

Q.5 What is cognitive modelling? and also explain types of cognitive models. (10)

OR

Q.5 Explain the purpose of hierarchical task model. What are the two types of task analysis? (10)

Q.6 What are the types of Interaction devices? (10)

OR

Q.6 What is the purpose of speech recognition and speech digitization in HMI? (10)

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**BACHELOR OF TECHNOLOGY (CBCS) (2020 COURSE)**  
**Computer Science & Engineering**  
**B.Tech.Sem - V :SUMMER : 2023**  
**SUBJECT : COMPUTER NETWORKS**

Day : Monday  
Date : 15-05-2023

**S-24318-2023**

Time : 10:00 AM-01:00 PM  
Max. Marks : 60

**N.B.**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

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**Q.1** Explain in detail OSI reference model with diagram. (10)

**OR**

**Q.1** Explain in detail with diagram: (10)  
a) Coaxial cable      b) Fibre optic cable

**Q.2** Explain various error detection and correction methods in detail. (10)  
A bit stream 1001101 is transmitted using hamming code. Show the actual bit string transmitted. Suppose 7<sup>th</sup> bit from left is inverted during transmission. Show that this error is detected and corrected at the receiver's end.

**OR**

**Q.2** Describe in detail with diagram about: (10)  
a) CSMA /CD      b) CSMA/CA

**Q.3** Explain packet switching in detail with diagram. Also discuss advantages of packet switching over circuit switching. (10)

**OR**

**Q.3** Explain in detail unicast routing protocols with diagram. (10)

**Q.4** What is socket? Explain various socket primitives required in UDP socket program on client and server side with proper diagram. (10)

**OR**

**Q.4** Draw TCP header. Explain significance of each field in TCP header also differentiate TCP and UDP protocol. (10)

**Q.5** Explain FTP. Can we specify file transfer in a webpage? Explain with the help of suitable example. Explain any fair FTP commands. (10)

**OR**

**Q.5** Explain with diagram: (10)  
a) TELNET      b) Firewall

**Q.6** Explain various components of cryptography. Also explain different cryptographic techniques used in detail. (10)

**OR**

**Q.6** Explain OSI security architecture model with neat diagram. (10)

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