(Time: 2½ Hours) [Total Marks: 60]

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculator is **allowed**.

1. Attempt *any two* of the following: 12
a. Explain the concept of user focus with respect to process of design.
b. Explain the paradigm of interaction with respect to video display units & programming toolkits.
c. What is design rationale? State the benefits of design rationale.
d. Write a short note on ergonomics with respect to the physical environment of the interaction and the use of color.

2. Attempt *any two* of the following: 12
a. Explain Nielsen's ten heuristics.
b. What are the principles affecting learnability?
c. Explain the possible architectures for the software to implement the roles of a windowing system.
d. Explain toolkit with respect to programming. What are its advantages?

3. Attempt *any two* of the following: 12
a. Explain the different types of assistance that users require.
b. Explain the universal design principles.
c. Write a short note on cognitive complexity theory.
d. Explain the concept of touch in the interface.

4. Attempt *any two* of the following: 12
a. Write a short note on group dynamics.
b. With respect to entity relationship based task analysis, explain the basic types of objects with example.
c. What are the organizational issues that affect the acceptance and relevance of information and communication systems?
d. Write a short note on physical layout and distribution cognition in group working.

5. Attempt *any two* of the following: 12
a. Explain PIE model with suitable diagram.
b. State and explain the issues for model oriented notations.
c. State and explain the terms of status-event analysis with a suitable example.
d. Write a short note on petri nets.