

GENERAL APPLICATIONS

SECTION-A

1. (a) How do we display straight lines ? Describe the Bresenham's line drawing algorithm. 12

- (b) Explain briefly scan-converting a circle using Polynomial and Trigonometric method 8
2. (a) Explain the working of a Beam penetration CRT and Shadow mask CRT. How can different colours be obtained in both of these ? 12
- (b) Explain the working of Laser-scan display. 8
3. (a) Explain in detail the following graphics Input devices and their working :
- (i) Tables.
- (ii) Light pen. 12
- (b) Write a program in any H.L.L. to simulate a bouncing ball. Explain each step written in the program. 8
4. (a) What is the difference between On-Line and Real-Time system ? What should be the architecture of a real-time system ? 10
- (b) Describe a Real-Time Banking system 10
5. (a) Write short note on Geometric transformation : Translation with example. 5
- (b) What are the new coordinates of the point P(4, -4) after the rotation by 30° about the origin
- (c) Write a program in any H.L.L. to draw a circle. Explain each step. 10

SECTION-B

6. (a) Describe A.I. with its historical evolution. 10
- (b) Define Problem representation in A. I. Explain different methods of problem representation in A.I. 10
7. (a) Compare and contrast the Breadth-first and Depth-first algorithm. 8

- (b) Define Heuristic search. Explain algorithm for Best-First search and A*. 12
8. What is an Expert system ? Explain characteristics of an Expert system. Also explain various steps involved in Expert system development. 20
9. What do you understand by Natural-language understanding ? Describe different techniques used in computers to understand it. 20
10. (a) Differentiate between CAI Author language and Authoring system. 8
- (b) What do you understand by Intelligent Computer Assisted Instruction (ICA) ? What are the components of it ? Explain. 12



DATA COMMUNICATION AND NETWORK

1. Explain benefits of networking with merits and demerits of each type of network. 20
2. Explain OSI model and its relevance to TCP/IP model. 20
3. Explain Data transfer in networks using Unguided media. 20
4. Explain Packet and Circuit switching and diffective them. 20
5. (a) Differentiate Synchronous and Asynchronous transmission.
- (b) Error-correction using Hamming code.
- (c) Max. data rate of a channel.

- (d) Pulse code modulation and Data modulation. 20
6. Write notes on the following :
- (a) SMDS.
 - (b) X-25.
 - (c) Frame relay.
 - (d) PPP. 20
7. (a) Explain Go-back-N and Selective-Repeat protocols. 15
- (b) Write note on HDLC-Packet format. 5
8. Explain slotted-Aloha and persistent CSMA channels. 20
9. Explain IEEE 802.3 and discuss Ethernet cables. 20
10. Write notes on any two of the following :
- (a) GSM.
 - (b) VSAT.
 - (c) ISDN. 20

