

- 2
- ✓ (i) (a) Explain two reasons why robots are useful to industries. (2 marks)
 (b) Describe two measures that can be taken to secure a banking system. (4 marks)
- (ii) (a) Describe a DBMS. (2 marks)
 (b) What is relational database? (2 marks)
 (c) Give two disadvantages of a flat file in databases. (2 marks)
- (iii) (a) Explain the term "Programming paradigm". (1 mark)
 (b) Define the following programming paradigms: (4 marks)
 - Procedural programming
 - Declarative programming

- ✓ (i) (a) What is network topology? (2 marks)
 (b) Explain two considerations in selecting a topology for a school network. (4 marks)
- (ii) (a) What is prototyping? (2 marks)
 (b) Give two reasons for prototyping. (2 marks)
- (iii) (a) What is a program control structure? (2 marks)
 (b) Using either Pascal or C programming language write out the general form for the following control structures:
 - Sequence (1 mark)
 - FOR statement and (1 mark)
 - WHILE statement (1 mark)
- (c) Draw the flowchart symbol for the choice/selection structure. (2 marks)

3. (i) (a) Write out the steps involved in SDLC in an annotated diagram. (2 marks)
 (b) Distinguish between piecemeal and direct system implementation methods. (2 marks)
 (c) Describe one other alternative method of building a system. (2 marks)
- (ii) (a) State two functions of a project manager in project management. (2 marks)
 (b) With respect to project management, describe a PERT chart, naming all the elements involved. (2 marks)
 (c) What is the importance of identifying the critical path of a project? (1 mark)
- (iii) Discuss TWO possible effects on people who live in some developing countries of having no access or very limited access to ICT. (6 marks)

- ✓ (i) (a) What is a file format? Give one type of file format. (2 marks)
 (b) Explain one importance of file format. (1 mark)
 (c) State two reasons why file formats vary. (2 marks)
- (ii) (a) Systems need protection from hazards e.g. natural hazards such as flood and fire. Describe two other hazards that may invade a computer system. (4 marks)

- (b) Explain three reasons why wireless communication is not preferred by some organizations. (3 marks)
- (iii) Explain the consequence of network communication without each of the following protocols (relate your answer to the purpose of each protocol).
- HTTP.
 - FTP.
 - TCP/IP.
- (iv) State two wireless standards and give an estimation of their area of coverage. (2 marks)

- (i) With regards to the relational database, discuss with the aid of diagrams, the meaning of the following:
- One-to-one relationship. (2 marks)
 - One-to-many relationship. (2 marks)
 - Many-to-many relationship. (2 marks)
- (ii) With the help of well labeled diagrams, describe three commonly used standard network topologies, giving one advantage and one disadvantage for each one. (6 marks)
- (iii) Briefly describe each of the following:
- F-connector.
 - Browser.
 - E-mail. \rightarrow follow up
 - Search engine.
 - DNS. \rightarrow main domain, follow main domain, main domain
- (5 marks)

6. (i) List and explain TWO main threats to the safety of data. (4 marks)
- (ii) How does the Data Protection Act define the following terms? (3 marks)
- Personal data.
 - Data.
 - Data Subject.
- (iii) Differentiate between "synchronous" and "asynchronous" data transmission. (2 marks)
- (iv) Explain each of the following project management terminologies. (5 marks)
- Project.
 - Critical path.
 - Gantt chart.
- (v) Name three important factors to consider when designing a new Computer User Interface. (3 marks)