

1. (a) Distinguish between a *main frame computer* and a *microcomputer*. (4 marks)
- (b) Describe each of the following *data processing* modes:  
 (i) transaction processing;  
 (ii) batch processing. (4 marks)
- (c) (i) Outline **four** properties of a relation as used in database systems. (4 marks)  
 (ii) State **two** reasons why computer systems use binary number system to represent information. (2 marks)
- (d) Joseph would like to carry out a research on the pass rate in the National Examinations. Outline **six** data collection stages he would use. (6 marks)
2. (a) Differentiate between a *composite key* and a *super key* as used in databases. (4 marks)
- (b) List **two** functions of *normalization* as used in databases. (2 marks)
- (c) Jane a system auditor used the following formula during the audit of their information system for a series of observations of  $X_1, X_2 \dots X_n$ .  

$$S_n = \sum(x_0 - x_i)$$
  
 (i) Identify the audit technique that Jane was using. (2 marks)  
 (i) Explain **two** advantages of the technique identified in (i). (4 marks)
- (d) Describe **two** types of computer files in an educational institution, giving an example in each case. (8 marks)
3. (a) Outline **four** *fault tolerance techniques* that could be used in computers. (4 marks)
- (b) Explain the following terms as used in database systems:  
 (i) transaction;  
 (ii) referential integrity. (4 marks)
- (c) Most information systems are designed to use direct data input. Explain **two** advantages of this data entry method. (4 marks)

- (d) (i) The information system is supposed to satisfy diverse information needs of an organization. Explain **three** functions of an information system in an organization. (6 marks)
- (ii) Differentiate between *data validation* and *data verification* as used in information systems. (2 marks)
4. (a) Evaluate the binary equivalent of the following numbers:
- (i)  $243_8$ ;  
(ii)  $A3.8_{16}$  . (4 marks)
- (b) With the aid of a labeled diagram, distinguish between *logical data independence* and *physical data independence* as used in databases. (6 marks)
- (c) Outline **four** advantages of having a software and hardware procurement policy in an organization. (4 marks)
- (d) Figure 1 show the levels of management in a particular organization.

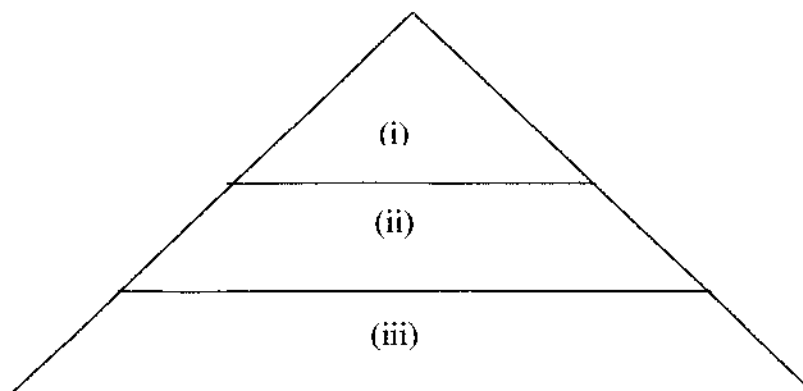


Fig. 1

- Describe the type of decisions made at each level. (6 marks)
5. (a) State **three** factors that should be considered when choosing an operating system other than cost. (3 marks)
- (b) (i) Outline **three** elements of a logical database file. (3 marks)
- (ii) Explain the term *disk defragmentation* as used in information systems maintenance. (2 marks)
- (c) (i) Jikel company Ltd intends to recruit a system administrator internally. Explain **three** disadvantages of this type of recruitment. (6 marks)

- (ii) Outline **three** reasons for involving users when developing a new system. (3 marks)
- (d) Distinguish between serial file organization and sequential file organization methods. (3 marks)
6. (a) Kardima developed an information system for TZIM Company Ltd., but the system could not perform as expected. Explain **four** possible causes of the system failure. (8 marks)
- (b) Describe the following types of *information systems*:
- (i) decision support system;
- (ii) management information system. (4 marks)
- (c) TCK company Ltd frequently recruits new IT personnel. Explain **three** strategies the company could use to reduce employee turn over. (6 marks)
- (d) Describe **two** circumstances under which direct procurement is applicable (2 marks)
7. (a) Explain **three** functions of management. (6 marks)
- (b) Distinguish between manual configuration and automatic configuration as used in computers. (4 marks)
- (c) Keaton purchased a computer one year ago. Over time, he has noted that the speed of the computer had greatly decreased. Outline **four** possible remedies to this problem. (4 marks)
- (d) The employees at ADEL Company Ltd use telecommuting to carry out their official duties. Explain **three** disadvantages of this method of working. (6 marks)
8. (a) State the **six** steps of *procurement cycle*. (3 marks)
- (b) (i) Explain **three** threats posed by hackers to information systems. (6 marks)
- (ii) State **three** limitations of *gant charts* as used in project management. (3 marks)
- (c) Explain **two** measures that can be taken by a computer user to prevent the computer from being damaged by power interruptions. (4 marks)