



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Database Concepts (Theory)

PAPER NO: 317/22/M03A

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

Answer booklet

INSTRUCTIONS TO CANDIDATE

Answer all questions

This paper consists of 3 printed pages.

PAPER NO: 317/22/M03A-DATABASE CONCEPTS (THEORY)

QUESTION 1

- a) i) Explain the term information security ethics. (3 marks)
- ii) Outline any two (2) key concerns in information system ethics. (4 marks)
- b) Highlight the use of information systems in:
- i) Business (4 marks)
- ii) Society (4 marks)
- c) Describe
- i) Preventive maintenance (3 marks)
- ii) Corrective maintenance (2 marks)

QUESTION 2

- a) Specify any two (2) needs for each of the following database users:
- i) Technical users (2 marks)
- ii) Administrative users (2 marks)
- iii) End users (2 marks)
- b) Identify any three (3) hardware components required to ensure an efficient database environment. (6 marks)
- c) Given the table below:

Student_ID	Student_Course	FeesBalance
101	Software Engineering	500
102	Data Science	1200
104	Computer Networking	800
108	Software Engineering	1700
120	Software Engineering	1000

- i) Write an SQL statement to retrieve records where FeesBalance > 1000. (3 marks)
- ii) Write an SQL statement to update all occurrences of software engineering with software design where student_ID is below 115 (5 marks)

QUESTION 3

- a) Explain the following:
- i) Glass box testing: (3 marks)
 - ii) Stress testing (3 marks)
 - iii) Beta testing (3 marks)
- b) Describe any three (3) methods for training users. (6 marks)
- c) Detail the object-oriented database model. (5 marks)

QUESTION 4

- a) Illustrate any three (3) ways to mitigate insider threats to a database. (6 marks)
- b) With the aid of an example explain the following controls that can be implemented in a database system:
- i) Physical (3 marks)
 - ii) Logical (3 marks)
 - iii) Administrative (3 marks)
- c) i) Describe automated database monitoring (3 marks)
- ii) Define database tuning (2 marks)

QUESTION 5

- a) Explain:
- i) Full backup (2 marks)
 - ii) Incremental backup (2 marks)
 - iii) Differential backup (2 marks)
- b) Outline any four (4) factors which determine frequency of backup. (8 marks)
- c) Explain any three (3) tasks involved in database backup server configuration (6 marks)

..../fk



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

**MODULE: Computer Systems Maintenance PAPER NO: 317/22/M01A
(Theory)**

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

Answer booklet.

INSTRUCTIONS TO CANDIDATE

Answer ALL questions.

PAPER NO: 317/22/M01A - COMPUTER SYSTEMS MAINTENANCE (THEORY)

QUESTION 1

- (a) Define the term computer organisation. (2 marks)
- (b) Explain the following components of computer systems structure
 - i) control unit (2 marks)
 - ii) main memory (2 marks)
 - iii) arithmetic and logic unit (2 marks)
 - iv) output devices (2 marks)

QUESTION 2

- (a) Outline five factors to consider when buying a computer. (10 marks)
- (b) Describe the following:
 - (i) decimal number system (2 marks)
 - (ii) binary number system (2 marks)

QUESTION 3

- (a) Explain five differences between internal memory and external storage. (10 marks)
- (b) Explain any three merits of using flash drive over DVD. (6 marks)

QUESTION 4

- (a) Explain five functions of an operating system. (10 marks)
- (b) Describe a mobile operating system. (6 marks)
- (c) Distinguish between tailor made software and off the shelf software. (10 marks)
- (d) Describe the following types of application software giving an example of each
 - (i) word processor (2 marks)
 - (ii) accounting (2 marks)
 - (iii) spreadsheet (2 marks)
 - (iv) database (2 marks)
 - (v) presentation (2 marks)
 - (vi) graphic design (2 marks)

QUESTION 5

- (a) (i) Describe two types of printers and give examples of each type. (6 marks)
- (ii) Explain any five factors affecting choice of a printer. (10 marks)
- (b) How do you solve the following system problem:
- (i) Download takes forever (2 marks)
- (ii) Attachments won't open (2 marks)
- (iii) Computer freezes (2 marks)

..... /cn



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Computer Security

PAPER NO: 317/22/M05

DURATION: 3 hours

JUNE 2026 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

Answer all questions.

This paper consists of 3 printed pages.

PAPER NO: 317/22/M05 – COMPUTER SECURITY

QUESTION 1

- a) CIA triad is crucial to the operation of a business. Explain the importance of the three (3) segments of CIA triad to a business. (15 marks)
- b) Suggest any two (2) measures of safeguarding and maintaining the three (3) CIA triad segments. (6 marks)

QUESTION 2

- a) Explain the following data sources:
- i) Log files (2 marks)
 - ii) Bandwidth monitors (2 marks)
 - iii) Network monitors (2 marks)
- b) Outline the importance of an asset-inventory. (3 marks)
- c) Describe any five (5) activities involved in data classification. (10 marks)

QUESTION 3

- a) Describe the following types of controls and give an example for each
- i) Detective controls (2 marks)
 - ii) Preventive controls (2 marks)
- b) Explain the following access control methods:
- i) Discretionary (2 marks)
 - ii) Role based (2 marks)
- c) Differentiate between the following data protection methods:
- i) Deterrent controls and detective controls (4 marks)
 - ii) Administrative controls and technical controls (4 marks)
 - iii) Corrective controls and preventive controls (4 marks)

PAPER NO: 317/22/M05 - COMPUTER SECURITY

QUESTION 4

- a) Describe the following strategies for data backup: (2 marks)
- i) Local backup (2 marks)
 - ii) Online backup
- b) Explain any three (3) ways in which a security policy is important. (6 marks)
- c) Discuss vulnerability scan. (5 marks)
- d) Describe the concept of encryption. (5 marks)

QUESTION 5

- a) Differentiate between symmetric and asymmetric encryption. (4 marks)
- b) Explain the following in relation to security:
- i) Firewall (2 marks)
 - ii) Router (2 marks)
 - iii) Wi-fi Protected Access (WPA) (2 marks)
- c) Highlight five (5) ways in which security documentation is important. (5 marks)
- d) Discuss cloud security controls. (5 marks)

.../jl



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Programming Concepts (Theory) PAPER NO: 317/22/M02A

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

Answer booklet

INSTRUCTIONS TO CANDIDATE

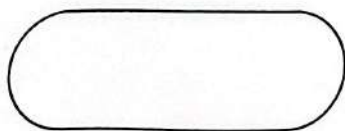
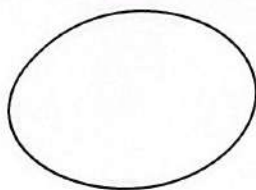
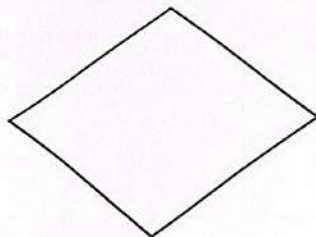
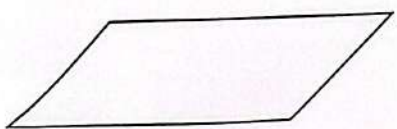
Answer all questions.

QUESTION 1

- a) Identify two (2) fact finding techniques used to gather data from users. (4 marks)
- b) i) Explain three (3) advantages and two (2) disadvantages of off-the-shelf software. (10 marks)
- ii) Propose one other way of acquiring software. (1 mark)
- c) Describe pseudocode. (5 marks)

QUESTION 2

- a) Outline any four (4) characteristics of algorithms. (8 marks)
- b) Identify the following flow chart symbols stating the function in each case.



(8 marks)

- c) Explain the relationship between a class and an object. (2 marks)
- d) Explain one reason why you would choose Object oriented programming over other paradigms. (2 marks)

QUESTION 3

- a) Differentiate between the following OOP concepts:
- i) Encapsulation and abstraction
 - ii) Polymorphism and inheritance (4 marks)
- b) Explain the following components of software architecture:
- i) Functions
 - ii) Classes (4 marks)
- c) With the aid of code snippets, explain the following concepts:
- i) Function overloading (4 marks)
 - ii) Operator overloading (4 marks)
- d) Explain the function of the std namespace in a C++ program. (2 marks)

QUESTION 4

- a) Declare variable to hold the following values in C++:
- i) 5.97
 - ii) 'M'
 - iii) True
 - iv) "Hello World!"
 - v) 1005 (5 marks)
- b) i) Define the term pre-processor directive. (2 marks)
- ii) Describe two (2) pre-processor directives used in C++. (4 marks)

c) Given the following C++ program:

```
#include <iostream>
using namespace std;
int main () {
    for (int i = 1; i <= 3; ++i) {
        cout<<"Line: "<<i<<"\n";
    }
}
return 0;
```

- i) Determine the output of the program. (2 marks)
- ii) State the name given to the variable i. (1 mark)
- iii) Explain the purpose of the escape character \ in the program.
Hence, suggest an alternative for the escape character \ n. (4 marks)

d) Describe the if-else statement with the aid of an example. (4 marks)

QUESTION 5

a) Consider the code segment given below:

```
6. int main ()
7. {
8.     ofstream my file ("students.txt");
9.     myFile <<"I enjoy programming";
10.    myFile.close();
11. }
```

- i) Explain the lines labelled 8, 9 and 10. (10 marks)
- ii) State the header file that should be included for the lines above. (1 mark)
- iii) Explain why it is good practice to close text files in a program. (2 marks)

b) Create and instantiate a class called Book with data members author, year and publisher. (7 marks)

...../pm



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Computer Networking

PAPER NO: 317/22/M04

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

Answer booklet

INSTRUCTIONS TO CANDIDATE

Answer all questions.

PAPER NO: 317/22/M04 - COMPUTER NETWORKING

QUESTION 1

- a) Digital subscriber line transfers the internet through copper wire transmission line along with cable internet.

Explain three (3) advantages and two (2) disadvantages of using DSL.
(10 marks)

- b) Describe the following:

- i) Networking types:

- WAN (2 marks)

- PAN (2 marks)

- ii) Data transmission media:

- Coaxial cable (2 marks)

- Fibre optic cable (2 marks)

- Twisted pair cable (2 marks)

QUESTION 2

- a) Explain any four (4) methods for testing connectivity at the physical layer. (8 marks)

- b) Outline any four (4) physical security measures which can be applied on a network. (4 marks)

- c) Describe the following network performance testing:

i) Load testing (2 marks)

ii) Stress testing (2 marks)

- d) Discuss the following networking technologies:

i) Circuit switching (2 marks)

ii) Packet switching (2 marks)

QUESTION 3

- a) Explain any five (5) steps involved in computer network troubleshooting process. (10 marks)
- b) Describe any five (5) network troubleshooting tools. (10 marks)

QUESTION 4

- a) Outline any three (3) advantages and three (3) disadvantages of adhoc maintenance. (6 marks)
- b) Explain the importance of good listening skills while collecting or logging user queries. (8 marks)
- c) Discuss any two (2) network problems and their solutions. (6 marks)

QUESTION 5

- a) A well prepared plan is important to ensure business continuity and minimise downtime during unforeseen events.
 - i) Outline any five (5) benefits of having disaster recovery plan. (5 marks)
 - ii) List any five disaster recovery strategies that can be used to ensure business continuity after a disaster occurs. (5 marks)
- b)
 - i) Explain any three (3) benefits of agentless monitoring over agent based monitoring. (6 marks)
 - ii) Outline any four (4) advantages of a problem resolution record. (4 marks)

.../fem



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

**MODULE: Computer Systems Maintenance PAPER NO: 317/22/M01A
(Theory)**

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

Answer booklet.

INSTRUCTIONS TO CANDIDATE

Answer ALL questions.

This paper consists of 3 printed pages.

This paper consists of 3 printed pages.

QUESTION 1

- (a) Define the term computer organisation. (2 marks)
- (b) Explain the following components of computer systems structure
- i) control unit (2 marks)
 - ii) main memory (2 marks)
 - iii) arithmetic and logic unit (2 marks)
 - iv) output devices (2 marks)

QUESTION 2

- (a) Outline five factors to consider when buying a computer. (10 marks)
- (b) Describe the following:
- (i) decimal number system (2 marks)
 - (ii) binary number system (2 marks)

QUESTION 3

- (a) Explain five differences between internal memory and external storage. (10 marks)
- (b) Explain any three merits of using flash drive over DVD. (6 marks)

QUESTION 4

- (a) Explain five functions of an operating system. (10 marks)
- (b) Describe a mobile operating system. (6 marks)
- (c) Distinguish between tailor made software and off the shelf software. (10 marks)
- (d) Describe the following types of application software giving an example of each
- (i) word processor (2 marks)
 - (ii) accounting (2 marks)
 - (iii) spreadsheet (2 marks)
 - (iv) database (2 marks)
 - (v) presentation (2 marks)
 - (vi) graphic design (2 marks)

PAPER NO: 317/22/M01A – COMPUTER SYSTEMS MAINTENANCE (THEORY)

QUESTION 5

- (a) (i) Describe two types of printers and give examples of each type. (6 marks)
- (ii) Explain any five factors affecting choice of a printer. (10 marks)
- (b) How do you solve the following system problem:
- (i) Download takes forever (2 marks)
- (ii) Attachments won't open (2 marks)
- (iii) Computer freezes (2 marks)

...../cn



ZIMBABWE

MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT

HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

SUBJECT: Safety, Health, Environment
and Quality

PAPER NO: 317/22/M06

DURATION: 3 hours

JUNE 2026 EXAMINATION

REQUIREMENTS

Answer booklet

INSTRUCTIONS TO CANDIDATE

Answer all questions

This paper consists of 3 printed pages.

QUESTION 1

- a) State any five (5) items found in a typical First Aid Kit. (5 marks)
- b) Proper use of items in the First Aid Kit is key when rendering first aid.
Explain what each of the following first aid kit items are used for:
- i) Dressing pads (gauze) (2 marks)
 - ii) Bandages (2 marks)
 - iii) Shock blankets (2 marks)
 - iv) Latex gloves (2 marks)
 - v) Cleansing wipes (2 marks)
- c) Describe any five (5) general safety precautions that you can take either during first Aid process or in your area of practise. (10 marks)

QUESTION 2

- a) Outline the importance of maintaining a clean workplace environment. In your response address at least five (5) aspects. (10 marks)
- b) Explain any four (4) causes of equipment failure. (8 marks)
- c) Describe the following:
- i) Safe working load (2 marks)
 - ii) Machine capacity (2 marks)
 - iii) Inspection (2 marks)

QUESTION 3

- a) Describe the five (5) different classes of fire. (5 marks)
- b) List any six (6) types of personal protective equipment (PPE). (6 marks)
- c) Outline any five (5) safety procedures applicable in SHEQ. (5 marks)

QUESTION 4

Explain the five (5) Rs of e-waste management. (15 marks)

QUESTION 5

- a) Green IT is a concept that is gaining popularity in SHEQ circles. Outline any five (5) benefits of Green IT. (10 marks)
- b) Describe any five (5) benefits of good house keeping practices in a workplace. (10 marks)

...../fk



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Information Systems Support

PAPER NO: 317/25/M07

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

Answer Booklet

INSTRUCTIONS TO CANDIDATE

Answer all questions.

This paper consists of 4 printed pages.

QUESTION 1

- a) Define a business information system. (2 marks)
- b) Outline key features of the following types of business information systems:
- i) Transaction Processing System
 - ii) Management Information System
 - iii) Enterprise Resource Planning (6 marks)
- c) Explain any three (3) system components. (6 marks)
- d) Evaluate the impact of information systems on an organisation's efficiency. (6 marks)

QUESTION 2

- a) The following balances have been extracted from the ledger of Hwai Investments on 31 December 2025:

Cash	\$15000
Accounts receivable	\$10000
Inventory	\$5000
Prepaid rent	\$2000
Equipment	\$20000
Accounts payable	\$8000
Wages payables	\$3000
Owner's equity	\$30000
Drawings	\$2000
Revenue	\$50000
Salaries expense	\$25000
Rent expense	\$12000

Prepare a trial balance for Hwai Investments as at 31 December 2025. (12 marks)

- b) Explain any four (4) accounting concepts considered when preparing financial statements. (8 marks)

QUESTION 3

- a) i) Describe any three (3) methods used for gathering system requirements. (6 marks)
- ii) Explain functional requirements (2 marks)
- b) Justify the importance of adhering to organisational coding standards. (8 marks)
- c) Identify any four (4) types of documentation used in systems development. (4 marks)

QUESTION 4

- a) An office reports that staff cannot access the company email system.
 - i) Outline two (2) ways to log and categorise user issues. (4 marks)
 - ii) Using a simple troubleshooting approach, explain three (3) steps you would take to restore email functionality. (6 marks)
- b) Explain how the following can assist information system end-users.
 - i) Manuals (user)
 - ii) FAQs
 - iii) Help desk tools (6 marks)
- c) Describe any two (2) formal communication channels for delivering support. (4 marks)

QUESTION 5

You are tasked with implementing access control measures for a small business:

Describe three (3) ways you would use to implement password policies. (6 marks)

Explain how you would apply the principle of least privilege when setting up user accounts for the following departments:

- i) Finance (2 marks)
- ii) Sales (2 marks)
- iii) Human Resources (2 marks)

- i) Outline four (4) steps you would take to install, configure and schedule regular antivirus scans. (4 marks)
- ii) Justify two (2) reasons for performing regular backups. (4 marks)

.../tez



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Technical Communication

PAPER NO: 317/25/M08

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

Answer all questions.

PAPER NO: 317/25/M08 – TECHNICAL COMMUNICATION

QUESTION 1

- a) Explain any five (5) Cs of communication. (10 marks)
- b) Discuss three (3) strategies to tailor the tone and content of an I.T business memo for a non-technical audience versus a technical audience. (6 marks)
- c) Outline two (2) advantages of written communication. (4 marks)

QUESTION 2

- a) Explain how the following vocal varieties influence audience engagement
 - i) Pitch (2 marks)
 - ii) Tone (2 marks)
 - iii) Volume (2 marks)
 - iv) Pacing (2 marks)
- b) State any seven (7) strategies for delivering a presentation with confidence and engagement with the audience. (7 marks)
- c) Outline any five (5) etiquette rules for holding effective online meetings. (5 marks)

QUESTION 3

- a) Explain any four (4) sources of conflict in teams. (8 marks)
- b) Identify six (6) non-verbal cues that indicate active engagement in a conversation. (6 marks)
- c) Outline three (3) techniques that can be employed to keep discussions focused and avoid getting off track. (6 marks)

QUESTION 4

- i) Define “digital collaboration” (2 marks)
-) Describe four (4) types of digital collaboration tools highlighting their uses in remote IT work. (8 marks)
-) Distinguish between direct communication and indirect communication. (6 marks)
- 3) Discuss how practising patience and empathy can lead to more effective communication in diverse cultural setting. (4 marks)

QUESTION 5

- a) Explain the importance of avoiding stereotypes and assumptions. (5 marks)
- b) Outline why focusing on observable behaviour is more effective than criticising the person. (5 marks)
-) Explain the importance of thanking someone for their input even if you disagree with their opinion. (5 marks)

Outline five (5) ways of seeking for clarification that can be used to ensure full understanding during communication. (5 marks)

.../fem



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

**MODULE: Safety, Health, Environment
and Quality**

PAPER NO: 317/22/M06

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

Answer booklet.

INSTRUCTIONS TO CANDIDATE

Answer all questions.

This paper consists of 3 printed pages.

QUESTION 1

- (a) Define the following types of burns
- (i) Thermal burns (1 mark)
 - (ii) Chemical burns (2 marks)
 - (iii) Radiation burns (2 marks)
 - (iv) Electricity burns (2 marks)
- (b) Outline any five causes of fire. (5 marks)
- (c) Explain the following terms as they are used in first aid:
- (i) Wound dressing (1 mark)
 - (ii) Adhesive dressing or plasters (1 mark)
 - (iii) Aluminium blanket (1 mark)
- (d) List five steps used to help someone with a seizure. (5 marks)

QUESTION 2

- (a) Explain any five workplace precaution measures. (10 marks)
- (b) Identify five causes and five solutions of equipment failure. (10 marks)
- (c) Explain the following terms as they are used for fire detecting:-
- (i) Ionisation smoke alarms (1 mark)
 - (ii) Photoelectric alarms (1 mark)
 - (iii) Heat sensitive point detectors (1 mark)
 - (iv) Smoke and heat detectors (1 mark)
 - (v) Carbon monoxide detectors (1 mark)

PAPER NO: 317/22/M06 – SAFETY HEALTH ENVIRONMENT AND QUALITY

QUESTION 3

- (a) Identify five classes of fire and their mode of extinction. (10 marks)
- (b) Explain how you will set up a fire evacuation plan. (5 marks)

QUESTION 4

- (a) Explain the Rs of e-waste management. (10 marks)
- (b) Outline the elements of an effective housekeeping program. (10 marks)

QUESTION 5

- (a) Explain the following methods of waste disposal:-
 - (i) Landfill (2 marks)
 - (ii) Incineration (2 marks)
 - (iii) Biogas generation (2 marks)
 - (iv) Composting (2 marks)
 - (v) Vermicomposting (2 marks)
- (b) Explain the principles of green IT (10 marks)

...../cn



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

**MODULE: Computer Systems Maintenance
(Theory)**

PAPER NO: 317/22/M01A

DURATION: 3 Hours

NOVEMBER / DECEMBER 2025 EXAMINATION

REQUIREMENTS

Answer booklet

INSTRUCTIONS TO CANDIDATE

Answer all questions.

This paper consists of 3 printed pages.

PAPER NO: 317/22/M01A - COMPUTER SYSTEMS MAINTENANCE (THEORY)

QUESTION 1

- a) Define the following terms as used in Computer storage.
- i) Cache memory (2 marks)
 - ii) Solid state storage (2 marks)
 - iii) Register (2 marks)
- b) Explain the difference between warm booting and cold booting. (4 marks)
- c) Outline two (2) factors to consider when purchasing a personal computer. (4 marks)
- d) Describe the elements of a bus structure. (6 marks)

QUESTION 2

- a) With an aid of a diagram explain data processing cycle. (9 marks)
- b) Convert the following:
- i) 10111011_2 to decimal (1 mark)
 - ii) 213_8 to binary (1 mark)
 - iii) 54_{10} to hexadecimal (1 mark)
 - iv) 30.8125 to binary (2 marks)
- c) State any three (3) criteria for selecting storage media. (6 marks)

QUESTION 3

- a) Outline the three (3) steps involved in software deployment. (10 marks)
- b) With the aid of a diagram, describe the storage hierarchy. (10marks)

QUESTION 4

- a) Explain any two (2) file organisation methods. (4 marks)
- b)
 - i) List any three (3) books of original entry. (3 marks)
 - ii) Demonstrate the calculation of production cost in manufacturing accounts. (2 marks)
- c) Describe any four (4) features of system software. (8 marks)
- d) Explain the following insurance principles:
 - i) Insurable interest (1 mark)
 - ii) Indemnity (1 mark)
 - iii) Disclosure (1 mark)

QUESTION 5

- a) Describe the two (2) benefits of routine computer performance test. (4 marks)
- b) Outline any three (3) goals of system monitoring. (6 marks)
- c) Explain any two (2) possible fixes for the following system problems;
 - i) Computer failing to connect to WIFI (2 marks)
 - ii) Computer failing to detect external hardware (2 marks)
 - iii) Server failing to restart (2 marks)
- l) Identify two (2) factors that influence the selection of a printer. (4 marks)

...../pm



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Database Concepts (Theory)

PAPER NO: 317/22/M03A

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

Answer booklet

INSTRUCTIONS TO CANDIDATE

Answer all questions

This paper consists of 3 printed pages.

PAPER NO: 317/22/M03A-DATABASE CONCEPTS (THEORY)

QUESTION 1

- a) Explain the following types of business information systems:
- i) Transaction processing system (3 marks)
 - ii) Office Automation System (3 marks)
 - iii) Executive Information Systems (3 marks)
 - iv) Expert systems (3 marks)
 - v) Enterprise Resource Planning (ERP) systems. (3 marks)
- b) Give any three (3) ethical and any two (2) legal implications of information systems. (5 marks)

QUESTION 2

- a) State any five (5) types of database users. (5 marks)
- b) Explain five (5) hardware requirements for a database system. (10 marks)
- c) Outline any five (5) threats to database security. (5 marks)

QUESTION 3

- a) Explain the components that constitute the database environment. (10 marks)
- b) Outline any five (5) reasons for database testing. (10 marks)

QUESTION 4

- a) Explain any five (5) methods of data collection. (10 marks)
- b) Table name: Doctors

DocID	DOCName	Department	Gender	Experience
1002	Mabwe	Dermatology	M	5
1007	Gore	Orthopaedic	M	10
1006	Manje	Medicine	M	3
1014	Shonhi	Dermatology	M	9
1011	Mhungu	Medicine	F	10
1017	Sambo	Dermatology	F	12

PAPER NO: 317/22/M03A-DATABASE CONCEPTS (THEORY)

Using the table above write SQL statements to:

- i) Display name, Department and experience of all doctors in the medicine department. (4 marks)
- ii) Display details of all doctors whose experience is between 5 and 10, arrange in descending order of doctors name. (4 marks)
- iii) Add a new column called salary to the Doctors Table. (2 marks)

QUESTION 5

- a) Outline any eight (8) key components of a Disaster Recovery Plan (DRP). (8 marks)
- b) Explain any three (3) factors that influence the choice of a backup strategy. (6 marks)
- c) Explain any three (3) reasons that affect the frequency of backup test. (6 marks)

...../fk



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Computer Networking

PAPER NO: 317/22/M04

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

Answer booklet.

INSTRUCTIONS TO CANDIDATE

Answer ALL questions.

PAPER NO: 317/22/M04 - COMPUTER NETWORKING

QUESTION 1

- (a) Explain the following transmission media used in computer networking:-
- (i) Microwave (2 marks)
 - (ii) Satellite (2 marks)
 - (iii) Twisted pair cable (2 marks)
- (b) Outline the typical uses of the following wireless technologies:-
- (i) Bluetooth (2 marks)
 - (ii) WiFi (2 marks)
- (c) Identify any four (4) factors to consider when selecting a network transmission medium. (4 marks)
- (d) Explain any three (3) factors that affect the performance of a computer network. (6 marks)

QUESTION 2

- (a) Explain the following approaches to routing and outline any two (2) advantages of each.
- (i) Static routing (5 marks)
 - (ii) Dynamic routing (5 marks)
- (b) Write down the command you would use to test for connectivity between your device and another computer with the IP address 192.168.1.5 (2 marks)
- (c) Explain the meaning of the following outputs of a connectivity test
- (i) Destination host unreachable (2 marks)
 - (ii) Request timed out (2 marks)
- (d) Outline any two (2) benefits of IPv6 over IPv4. (4 marks)

QUESTION 3

- (a) Explain any five (5) reasons why an organisation should monitor the performance of its computer network. (10 marks)
- (b) Outline any three (3) issues that lead to the upgrade of a computer network. (6 marks)
- (c) Explain the following maintenance techniques:-
 - (i) Preventive maintenance (2 marks)
 - (ii) Adaptive maintenance (2 marks)

QUESTION 4

- (a) As a help desk technician, explain any five (5) practices you would use to deal with difficult clients. (10 marks)
- (b) Outline any three (3) benefits an organisation can realise from conducting routine maintenance of its network. (6 marks)
- (c) Explain the negative effects of adhoc maintenance of its network. (4 marks)

QUESTION 5

- (a) You work for a company that is into IT services provision, explain any five (5) strategies that you would implement to ensure that your services are always available. (10 marks)
- (b) As a network technician you have been presented with a network problem. Suggest any five (5) steps you would take to resolve the problem. (10 marks)

...../cn



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Computer Security

PAPER NO: 317/22/M05

DURATION: 3 hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

Answer booklet

INSTRUCTIONS TO CANDIDATE

Answer all questions.

This paper consists of 3 printed pages.

PAPER NO: 317/22/M05 - COMPUTER SECURITY

QUESTION 1

- a) Explain the following:
- i) Log files (2 marks)
 - ii) Computer hackers (2 marks)
 - iii) SIEM tools (4 marks)
 - iv) CIA triad (4 marks)
- b) Describe any four (4) cloud computing security risks. (8 marks)

QUESTION 2

- a) There is need for a technology risk register in every organisation.
- i) Discuss the importance of a risk register (5 marks)
 - ii) Outline any five (5) items found in a risk register. (5 marks)
- b) Discuss any five (5) data classification types. (15 marks)

QUESTION 3

- a) i) Explain backup and recovery. (2 marks)
- ii) Outline four (4) advantages of backup. (8 marks)
- b) Explain the following approaches to security citing two (2) examples in each:
- i) Physical security (5 marks)
 - ii) Logical security (5 marks)

QUESTION 4

- a) i) Describe security policy. (4 marks)
- ii) Identify six (6) elements that make up an effective security policy. (6 marks)
- b) Describe the following cipher methods;
- i) Block cipher (5 marks)
 - ii) Stream cipher (5 marks)

QUESTION 5

- a) Explain five (5) ways of protecting computers from hackers. (10 marks)
- b) In relation to security, expand and explain the following abbreviations:
- | | | |
|------|-----|----------|
| i) | WPA | (1 mark) |
| ii) | IDS | (1 mark) |
| iii) | IPS | (1 mark) |
| iv) | VPN | (1 mark) |
| v) | NAT | (1 mark) |

.../jl



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Programming Concepts (Theory) PAPER NO: 317/22/M02A

DURATION: 3 Hours

NOVEMBER/ DECEMBER 2025 EXAMINATION

REQUIREMENTS

Answer booklet.

INSTRUCTIONS TO CANDIDATE

Answer all questions.

This paper consists of 3 printed pages.

QUESTION 1

a) Define the following terms

- i) Variable (2 marks)
- ii) Algorithm (2 marks)
- iii) Array (2 marks)

b) Explain three (3) tools used in program design stating one advantage of each. (9marks)

c) Identify any five (5) guidelines for drawing a flowchart. (5marks)

QUESTION 2

a) Creates a pseudocode for a program that calculates the average mark of students in a class. The program should prompt the user to enter the number of students, then prompt for each students score and finally output average score. (7marks)

b) Explain four (4) benefits of using algorithms. (8marks)

c) State any five (5) programming paradigms. (5marks)

QUESTION 3

a) Explain five (5) advantages of Object Oriented Programming. (10marks)

b) Outline the following programming strategies

- i) Top- down design (3marks)
- ii) Bottom – up design (3marks)

d) i) Define the term software architecture (2marks)

ii) Explain the role of software architecture in software development. (2marks)

QUESTION 4

a) Explain any 3 types of errors that can occur in your code and, give an example of each. (6marks)

b) Distinguish between:

- i) Global declarations and local declarations. (2marks)

PAPER NO: 317/22/M02A – PROGRAMMING CONCEPTS (THEORY)

- ii) Pre- defined identifiers and user defined identifiers. (2marks)
- c) Explain the four (4) fundamental data types in C++. (8marks)
- e) State any two (2) advantages of using functions. (2marks)

QUESTION 5

- a) Write a code segment, which creates a class named 'NcClass' with the following specifications it should have three (3) attributes, name, course and year, each declared as protected members. Provide a constructor for the class that takes three (3) parameters ("n", "c" and 'y') to initialise these attributes when an object of (NcClass) is created. (10marks)
- b) Describe four (4) modes available for opening files. (8marks)
- c) Write the syntax for declaring a multi- dimensional array. (2marks)

.../ dk



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Programming Concepts (Theory)

PAPER NO: 317/22/M02A

DURATION: 3 Hours

NOVEMBER/DECEMBER 2023 EXAMINATION

REQUIREMENTS

Answer Booklet

INSTRUCTIONS TO CANDIDATE

Answer all questions

This paper consists of 4 printed pages.

PAPER NO: 317/22/M02A – PROGRAMMING CONCEPTS (THEORY)

QUESTION 1

a) Explain the terms below as they are used in C++

- i) Variable
- ii) Identifier
- iii) Constant
- iv) Keyword
- v) Pseudo-code

(10 marks)

QUESTION 2

a) C++ supports two ways to insert comments, with the aid of syntax explain the two ways of commenting. (5 marks)

b) Identify any five (5) rules in naming C++ user defined names. (10 marks)

c) Identify the use of the following escape codes.

- i) \t
- ii) \v
- iii) \b
- iv) \f
- v) \a

(5 marks)

QUESTION 3

a) Convert the following pseudo-code to a flowchart.

1. Start
2. Declare variables: pin, bal, option
3. Pin = 1234
4. Display "Enter pin"
5. Repeat

Accept pin
Until (pin = 1234)
Display "1. bal enquiry, 2. Withdraw, 3. Enter option"
Accept option
if (option=1)
display "Your balance is" bal
else if (option = 2)
display "You have chosen withdraw"
else
display "invalid option"

6. Stop

(10 marks)

QUESTION 4

- a) Giving reasons, indicate whether each of the following is a valid or invalid c++ identifier.
- i) candidate#
 - ii) schoolfees
 - iii) height
 - iv) friend
 - v) 2ndmouth
- (10 marks)
- b) Describe and show c++ program structure components. (10 marks)
- c) Evaluate the following c++ expressions given that a = 7 and b = 5. The statements are independent.
- i) a% = 3
 - ii) z = (a>b)?a : b
 - iii) z = (b = 2) + a++
 - iv) - - a
 - v) Y = pow (a, z) + sqrt (b*b)
- (10 marks)

QUESTION 5

- a) Write a void function to display the following menu.

Railways

- 1. Harare to Bulawayo dept Time 9am
 - 2. Bulawayo to Harare dept Time 8pm
 - 3. Gweru to Bulawayo dept Time 12pm
- Enter choice

(10 marks)

- b) Determine the output of the following code.

```
int main( )
{
    int N;
    for (N =10; N > 0 ; N - -)
    {
        cout<< N<< " , ";
        if (N == 3)
        {
            cout << "count down aborted";
            break;
        }
    }
    return 0;
}
```

(10 marks)

PAPER NO: 317/22/M02A – PROGRAMMING CONCEPTS (THEORY)

c) With the aid of code sequence/ segments, outline the following data structures as used in c++

- | | | |
|------|------------|-----------|
| i) | Arrays | (2 marks) |
| ii) | Structures | (4 marks) |
| iii) | Classes | (4 marks) |

.../kj



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

VARIOUS DISCIPLINES

SUBJECT: Fundamentals of Information Technology PAPER NO: 310/19/S07B

DURATION: 3 Hours

NOVEMBER / DECEMBER 2023 EXAMINATION

REQUIREMENTS

1. Storage device for each candidate.
2. Computer with MS Office.
3. Printing facility.

INSTRUCTIONS TO CANDIDATE

1. Answer all questions.
2. Type candidate number and script number on all sheets used.
3. Submit both hard and soft copy.

This paper consists of 5 printed pages.

QUESTION 1

- a) Reproduce the passage, below and print.
What is a mother board?

(6 marks)

The mother board is at the centre of what makes a PC works. It houses the CPU and is a hub that all other hardware runs through. The mother board acts as a brain, allocating power where it's needed. Communicating with and coordinating across all other components making it one of the most important pieces of hardware in a computer.

When choosing a mother board, it's important to check what hardware parts the mother board supplies. It's vital to check how many USB ports, and what grade (USB 2.0, 3.0, 3.1) they are, as well as what display ports are used (HDMI, DVI, RGB) and how many of each there are.

The ports on the mother board will also help you define what other hardware will be compatible with your computer, such as what type of RM and graphics card you can use. Although the mother board is just one piece of circuitry, it is home to another one of the most important pieces of hardware: the processor.

- i) Centre the heading, double underline, increase the font size to 20, font type Bookman Old Style. (4 marks)
- ii) Format the second paragraph to two columns with a line in between the columns. (3 marks)
- iii) Insert a header of your candidate number and footer of your course name. (2 marks)
- iv) 1.5 line spacing the whole passage. (1 mark)
- v) Copy the third paragraph to paragraph two. (1 mark)
- vi) Drop cap to two lines the first letter of each paragraph. (4 marks)
- vii) Fully justify the whole passage. (1 mark)
- viii) Insert page boarder of your choice. (1 mark)
- ix) Save and print. (2 marks)

QUESTION 2

- a) Using a spread sheet package of your choice, create a worksheet below and save it as Qn2a and print a copy. (5 marks)

ITEM	Mon	Tue	Wed	Thurs	Fri	Max	Min
Fuel	200	220	225	215	210		
Repairs	40	30	30	50	15		
Hire of expert	50	60	10	40	70		
Rations	10	15	5	30	7		
Total							

- b) Insert the heading MADUVE WORKSHOP. (1 mark)
- c) Calculate the total cost of each day. (5 marks)
- d) Find the maximum and minimum cost for each item. (4 marks)
- e) Format the figures to currency in \$. (1 mark)
- f) Merge and centre the heading. (2 marks)
- g) Insert a column chart fully labelled. The graph should exclude max, min and total. (5 marks)
- h) Show formulas and print in landscape. (2 marks)

QUESTION 3

- a) Using any database package you are familiar with, create a database called STAFF DETAILS. (1 mark)
- b) Create a table within the database and name it STAFF TABLE and add the following details and print a copy. (6 marks)

FULL NAME	DOB	Sex	DEPT	SALARY
DUBE WILMA	14 Oct 1998	F	Accounts	300
TANDA NYASHA	21 Jun 1972	F	Computers	250
MAFIKA CAIN	13 Nov 1975	M	Computers	400
NCUBE VIN	12 Jul 1992	F	Accounts	350
TANAYA TARY	2 Sep 1980	F	Computers	340
MBIZI TAFA	19 Jul 1996	M	Human Resources	600
NGARA TRISH	20 Mar 1977	F	Accounts	500
TENDERE JIM	10 Oct 1994	M	Human Resources	320

- c) Change sex to GENDER. (1 mark)
- d) Append Moyo's record as Moyo Chido, 14 Mar 2001, F, Human Resources, 300. (3 marks)
- e) Sort the database table in ascending order using SALARY and print a copy. (2 marks)
- f) Create a query to display all staff members earning salary above \$320. (5 marks)
- g) Create a query of all female staff members in the computers department. (2 marks)
- h) Design a tabular report from the query in (f) above in landscape and report to be entitled SALARY REPORT. (5 marks)

QUESTION 4

- a) Using a presentation package, create the following slide.

Slide 1 - Title ICT
Facilitors: Moyo T
Dube B (3 marks)

Slide 2 – Heading : computers
Body : Computers consists of :
- Hardware
- Software
- Firmware (5 marks)

Slide 3 – The following are types of software

- i) Application software
- ii) System software
- iii) Operating system
- iv) Utility and service programs (5 marks)

Slide 4 – insert the heading devices

Input	Output
Keyboard	Printer
Mouse	VDU
Scanner	Speaker

(5 marks)

Slide 5 – Thank the audience (1 mark)

- b) All the headings must be bold (4 marks)
- c) Insert footer with your candidate number and number of slides. (2 marks)

...../pm



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Database Concepts (Theory)

PAPER NO: 317/22/M03A

DURATION: 3 Hours

OCTOBER/NOVEMBER 2024 EXAMINATION

REQUIREMENTS

Answer Booklet

INSTRUCTIONS TO CANDIDATE

Answer all questions

This paper consists of 3 printed pages.

PAPER NO: 317/22/M03A- DATABASE CONCEPTS (THEORY)

QUESTION 1

- a) Distinguish between Transaction Processing Systems (TPS) and management Information Systems (MIS). (10 marks)
- b) State five (5) major components of an information system. (5 marks)

QUESTION 2

- a) Explain any two (2) roles of each of the following database users:
- i) Database administrator. (2 marks)
 - ii) Programmer (2 marks)
 - iii) Database designer. (2 marks)
 - iv) System administrator. (2 marks)
 - v) End-user. (2 marks)
- b) State five (5) system requirements in DBMS. (5 marks)

QUESTION 3

- a) Outline the components of the database environment. (10 marks)
- b) Describe five (5) types of testing methods. (10 marks)

QUESTION 4

- a) Describe any three (3) threats to database security. (6 marks)
- b) Explain the difference between physical security and logical security of a database, giving an example of each. (6 marks)

QUESTION 5

- a) Given the following table:

Painting

Title	Artist-Name	Cost	Gallery-Name
Pool	Agnes	3 000	Gweru
Peel	Esther	10 000	Harare
Jonny	Peter	15 000	Mutare
Tito	LeeRoy	8 000	Masvingo
Relm	Palmer	4 500	Bulawayo

PAPER NO: 317/22/M03A- DATABASE CONCEPTS (THEORY)

- i) Design an sql statement to view all records from the painting table.
(2 marks)
 - ii) Design an Sql Code to view all records from the painting table where cost is less than\$15 000 and Gallery-name is equal to Harare.
(3 marks)
 - iii) Show the results of the following command:
SELECT DISTINCT (Gallery-name)
FROM painting
WHERE cost > 7000;
(5 marks)
- b) Explain the following data collection techniques giving one (1) advantage and one (1)disadvantage of each.
- i) Questionnaires (4 marks)
 - ii) Record inspection (4 marks)

QUESTION 6

- a) Explain the following terms:
- i) Back up (2 marks)
 - ii) Disaster management (2 marks)
- b) Outline any five (5) factors that affect choice of back up strategy.
(10 marks)
- c) Describe the 3 -2 - 1 back up rule.
(6 marks)

..../fk



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

**MODULE: Computer Systems Maintenance
(Theory)**

PAPER NO: 317/22/M01A

DURATION: 3 hours

MAY/JUNE 2024 EXAMINATION

REQUIREMENTS

Answer booklet

INSTRUCTIONS TO CANDIDATE

Answer all questions.

This paper consists of 5 printed pages.

PAPER NO: 317/22/M01A – COMPUTER SYSTEMS MAINTENANCE (THEORY)

QUESTION 1

- a) Outline four (4) functions of a computer. (4 marks)
- b) List any four factors affecting the speed of a microprocessor. (4 marks)
- c) Define the term computer virus. (2 marks)
- d) Recommend five (5) ways to safeguard systems against viruses. (5 marks)

QUESTION 2

- a) Define the following:
 - i) Main memory (2 marks)
 - ii) Cache memory (2 marks)
- b) Cite one (1) advantage of using a processor with more cache memory. (2 marks)
- c)
 - i) Describe HDD (Hard Disk Drive). (3 marks)
 - ii) Explain any three (3) types of HDD available in the market. (6 marks)

QUESTION 3

- a) Explain any five (5) points to consider as a criteria for selecting storage media. (10 marks)
- b) Arrange the given storage media in order of increasing cost and capacity on a pyramid:
 - Main memory
 - CPU registers
 - Magnetic disk
 - Cache memory
 - Solid State Drive (SSD)(5 marks)

QUESTION 4

- Outline considerations one should make when purchasing application software. (5 marks)
- Explain five (5) functions of an operating system. (10 marks)
- Write numbers 0 to 9 in binary. (5 marks)

QUESTION 5

The following Trial Balance was extracted from the books of Garikai Investments as at 31/12/2021.

	DR	CR
Capital		45 000
Motor vehicle at cost	30 000	
Accum Dep-Motor vehicle		5 000
Fixtures and fittings (15 000)	12 000	
Inventory 1/01/2021	8 000	
Purchases and sales	15 000	45 000
Returns	2 000	2 500
Carriage outwards	3 000	
Wages and salaries	5 000	
Rates	4 000	
Electricity	22 000	
Discounts	21 000	2 500
Debtors and creditors	4 500	3 500
Drawings	1 500	
Bad debts	700	
General expenses	7 100	
Stationery	6 400	
	<u>103 500</u>	<u>103 500</u>

Additional information:

- Inventory on 31/12/2021 12 000.
- Depreciate motor vehicles and fixtures 10% on cost.
- Rates prepaid 800.
- Electricity owing 1 000.

Required:

Prepare a statement of comprehensive income for the year to 31/12/21.

(15 marks)

QUESTION 6

- a) Explain factors affecting the choice of a printer. (10 marks)
- b) Suggest any five (5) conditions necessary for a conducive computer room environment. (10 marks)

.../jl



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Programming Concepts (Practical) PAPER NO: 317/22/M02B

DURATION: 3 hours

NOVEMBER/DECEMBER 2023 EXAMINATION

REQUIREMENTS

- 1) Computer with C++ compiler.
- 2) Printing facility.
- 3) Storage medium for each candidate.

INSTRUCTIONS TO CANDIDATE

- 1) Answer all questions.
- 2) Print both code and output.
- 3) Submit both hardcopy and softcopy.

This paper consists of 4 printed pages.



PAPER NO: 317/22/M02B PROGRAMMING CONCEPTS (PRACTICAL)

QUESTION 1

- a) Create a C++ program that displays the following using a single cout statement "Every program attempts to expand until it can read Email.

Those programs which cannot are replaced" (8 marks)

- b) Write a program that allows the user to enter a number and it determines whether the number is a Palindrome or not. Your program should display on appropriate message.

NB: A number is said to be a Palindrome if the reverse of its digits is itself e.g. 959, 1551, 12421. (12 marks)

QUESTION 2

- a) Write a program that accepts the age of an athlete and displays the category in which the athlete is eligible to compete using the following classification.

Age Group (in years)	Category
8-10	Under eleven
11-16	Juniors
17-21	Seniors
> 21	Open

(10 marks)

- b) Write a program that capture and stores the name, age and gender of 5 students using structures. The program should display the details using the following format:

Student Details

Student 1

Name: John

Age: 21

Gender: Male



**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY DEVELOPMENT
HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

**MODULE: Computer Systems Maintenance
(Theory)**

PAPER NO: 317/22/M01A

DURATION: 3 hours

MAY/JUNE 2024 EXAMINATION

REQUIREMENTS

Answer booklet

INSTRUCTIONS TO CANDIDATE

Answer all questions.

This paper consists of 3 printed pages.

Student 2

Name: Tinotenda

Age: 19

Gender: Female

(10 marks)

QUESTION 3

- a) Write a program that creates an array and initialise it with the following elements:

3	0	1	200	2	50	90	4	13	16
---	---	---	-----	---	----	----	---	----	----

Your program should sort the array in descending order and display the resultant array. (15 marks)

- b) Write a program that creates a text file and write the following information into the file:

"File streams are used to store data permanently. A stream is an abstraction that represents a device on which operations of input and output are performed."

Your program should count and display the number of lines in the text file. (10 marks)

QUESTION 4

- a) Develop a program that displays the following output using loops:

```
2
5  8
11 14 17
20 23 26 29
32 35 38 41 44
```

(10 marks)

- b) Using function prototyping, write a program that requests the user to capture the first name and age of a customer in the main function and display them in a called function. (10 marks)

QUESTION 5

Create a C++ program that includes a class called Employee. The class Employee should contain the following:

- a) Two (2) data members hours worked and salary.
 - b) A method to capture the hours worked and salary.
 - c) A method to add \$500 to the salary if the salary is less than \$1500.
 - d) A method to display the hours worked and the new salary.
- (15 marks)

NB: Assume there are five (5) employees.





ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Computer Security

PAPER NO: 317/22/M05

DURATION: 3 Hours

OCTOBER/NOVEMBER 2024 EXAMINATION

REQUIREMENTS

Answer booklet

INSTRUCTIONS TO CANDIDATE

Answer all questions

This paper consists of 3 printed pages.

QUESTION 1

- a) Describe the following concepts:
- i) Critical data assets (2 marks)
 - ii) Principle of least privilege (2 marks)
 - iii) Defence in depth model (2 marks)
 - iv) Data sources (2 marks)
- b) Discuss the following data sources
- i) Bandwidth monitors (2 marks)
 - ii) Network monitors (2 marks)
 - iii) Vulnerability scan output (2 marks)
 - iv) Protocol analyser output (2 marks)
- c) Explain the importance of an I.T asset inventory. (4 marks)

QUESTION 4

- a) i) Explain risk management strategy. (2 marks)
- ii) Describe four (4) risk management strategies. (8 marks)
- b) Describe four (4) activities involved in data classification. (8 marks)
- c) Give two (2) advantages and two (2) disadvantages of data backup. (4 marks)

QUESTION 3

- a) Differentiate the following controls:
- i) Deterrent and detective controls. (4 marks)
 - ii) Corrective and preventive controls (4 marks)
 - iii) Administrative and operational controls (4 marks)
- b) Explain four (4) backup devices that can be used in a system. (8 marks)

PAPER NO: 317/22/M05-COMPUTER SECURITY

QUESTION 4

- a) Outline three (3) types of backup. (3 marks)
- b) In table form, give the differences of symmetric and asymmetric encryption. (10 marks)
- c) Describe security monitoring tools giving two (2) examples. (5 marks)

QUESTION 5

- a) Digital signatures are commonly used in organisations:
 - i) Explain five (5) uses of digital signature. (10 marks)
 - ii) Outline five (5) sectors that use digital signature. (5 marks)
- b)
 - i) Explain cloud security controls. (2 marks)
 - ii) Outline three (3) cloud security challenges. (3 marks)

...../fk



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

INFORMATION TECHNOLOGY

MODULE: Programming Concepts (Practical)

PAPER NO: 317/22/M02B

DURATION: 3 Hours

MAY / JUNE 2024 EXAMINATION

REQUIREMENTS

1. Computer with C++ compiler.
2. Storage medium (CD) for each student
3. Printing facility

INSTRUCTIONS TO CANDIDATE

1. Answer all questions.
2. Submit both soft copy and hard copy.
3. Print both code and output.

This paper consists of 3 printed pages.

QUESTION 1

- a) Given the following pseudocode, write a program that executes it.
- i) Read x
 - ii) Read y
 - iii) Compute $p = x * y$
 - iv) Compute $s = x + y$
 - v) Total = $s^2 * p * (s - x) * (p + y)$
 - vi) Print total
- (10 marks)
- b) Write a program that reads the radius of a circle and prints the circle's diameter, circumference and area. Use the constant value 3.14159 for PI. Do these calculations in output statements. (10 marks)

QUESTION 2

- a) Write a program to create a menu driven program as follows:

Main Menu

- 1) Brick and Block
- 2) IT
- 3) Clothing Technology

Please select your choice (1 to 3)

- b) Given that Brick and Block course costs \$150 per semester and takes two (2) years to complete, IT course costs \$200 per semester and takes 1 year to complete and Clothing costs \$200 per semester and takes 2 years to complete.

Calculate and display total fees required to complete a course selected by the user. Use the switch statement. (15 marks)

QUESTION 3

- a) Write a program that accepts three numbers from the user in the main function, pass the numbers to a function called "Multiplication". The function will find the product of the numbers and return the product to the main function where it will be displayed. (10 marks)
- b) Write a program to capture the following numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 from the keyboard. Your program should display the above array and also displays the above captured elements skipping each third element of the array e.g. 1 2 4 5 7 8 10. (15 marks)

QUESTION 4

- a) Create a text file called "exam.txt" using Notepad and enter the following lines of text.
- "This year I will pass programming"
"C++ is easy if you practice"
Code a program that counts the total number of characters and also displays the contents of file to console screen (10 marks)
- b) Write a C++ program using structures that stores surname, age, gender and fees of 5 students. Your program should display the list of students in a tabular form whose fees are greater than 10000 and are females.

NB: Enter at least 2 students who are females and have fees above 10000. (15 marks)

QUESTION 5

Write a C++ program to create a class called "Workers". The class consists of the following methods

- getInfo() – which allows the user to input Salary, number of hours worked per day
- Calculate() which add 1000 to the Salary of the employee if it is less than 10000
- Display() – method to display the Total Salary for an employee with less than 1000 or an employee with salary above 10000.

Your program should consists of the following data member.

Name, Salary, Hours worked and Total Salary (15 marks)

...../pm