

# THE SUCCESS PATH EXAMINATION COUNCIL (SPEC)

Paving the Way to Success

## 451/1 COMPUTER STUDIES (Theory)

FORM 4 PRE - MOCK

MARCH 2026

Time: 2½ hours



Paper 1

451/1

4992104

Name ..... Admission Number .....

School ..... Class .....

Candidate's Signature ..... Date .....

### Instructions to Candidates

- (a) Write your name and admission number in the spaces provided above.
- (b) This Paper consists of **two** sections A and B.
- (c) Answer **all** the questions in section A.
- (d) Answer **question 16** (compulsory) and any other **three** questions from section B.
- (e) All answers should be written in the spaces provided.
- (f) **This paper consists of 12 printed pages.**
- (g) Do **not** remove any pages from this booklet.
- (h) Candidates should check to ensure that all pages are printed as indicated and no questions are missing.
- (i) Candidates should answer the questions in English.

### For Examiner's Use Only

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 – 15	40	
B	16	15	
		15	
		15	
		15	
TOTAL MARKS		100	

*Section A (40 Marks)*

*Answer all question in this section in the spaces provided*

1. Vasco a secretary at Kassu Secondary School carries out his daily duties using computers and suffers wrist strain. State two ways he would reduce wrist strain. (2 mark)

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2. There are two booting processes of the computer. Explain the cold booting process. (2 marks)

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3. The manager of SPEC Co. Ltd. wishes to purchase an output device for the company. State three factors to consider when selecting the output device to purchase. (2 marks)

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4. State **two** disadvantages of entering data using touch sensitive screens in tablet computers. (2 marks)

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5. Due to the rapid change in technology, the world is slowly moving from the magnetic and optical storage devices to solid state storage devices.

- (a) Define the term “solid state storage device” (1 mark)

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(b) State any two advantages of solid state storage devices (2 marks)

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6. Differentiate between HDMI and firewire interface cables (2 marks)

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7. Mr Karani games teacher at St. Cecilia girls wants to invites several schools for Basketball tournament. She was advised to use mail merging technique to create invitation letters for the respective schools identified. State three benefits of this technique. (3 marks)

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8. In a relational database, it is important to identify and create relationships between the database objects. Mentioning the type of relationship, state circumstances under which each relationship is formed. (3 marks)

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9. Suggest any four application areas in which you would expect a supermarket retail manager to use the internet. (4 marks)

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10. State the stages of system development life cycle in which each of the following activities that place. (3 marks)

(a) Staff training

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(b) Error correction

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(c) Cost effectiveness

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11. The use of ICT has affected every aspect of human life. State one disadvantage and two advantages of ICT on physical fitness in the society. (3 marks)

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12. The Internet is a massive network of networks that connects millions of computers together globally. Explain two ways through which an individual can access the internet. (2 marks)

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13. State two ways in which ICT can be used to register a citizen for *SHA* number. (2 marks)

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14. Using the twos complement & 8 bit binary notation, perform the calculation  $15_{10} - 41_8$  leaving your answer in decimal number. (6 marks)

15. Distinguish between a special purpose computer and a dedicated computer. (2 marks)

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**Section B (60 Marks)**

**Answer question 16 and any other three from this section in the spaces provided.**

**16.** Below is a pseudocode for a program that is meant to be used for calculating the sum and average of all even numbers between 50 and 100 and display results.

1. *set sum = 0*
2. *for num = 0 to 100 do*
3. *num = num + 1*
4. *sum = num + sum*
5. *average = sum/count*
6. *end*
7. *print sum, average*

(a) The pseudocode has four logical errors, identify and correct the errors. (8 marks)

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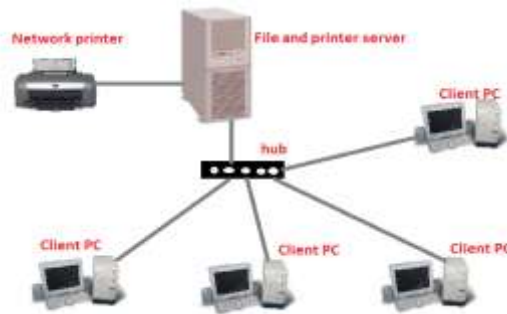
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(b) Draw a flowchart for the corrected version of the pseudocode in (a) above.

(7 marks)

17. Study the diagram below of a school network and use it to answer the questions that follow.



(a) Identify the network represented in the diagram (1 Mark)

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(b) State any two advantages and two disadvantages of the above network (4 Marks)

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(c) Distinguish between multiplexing and demultiplexing as used in data transmission. (2 Marks)

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(d) State the importance of multiplexing during data transmission (1 Marks)

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(e) Distinguish between packet switching and circuit switching of packets during transmission (2 Marks)

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(f) Data is constantly under threat from everyone handling it and the larger society. Identify any two physical threats to data by the employees of the organization to its information system

(2 Marks)

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(g) Mark, an employee of the institution used his computer to access his boss's computer to get some classified information and gave it to one of the clients at a fee.

(i) State the type of crime committed by Mark

(1 Mark)

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(ii) State two possible ways of protecting the data against the crime committed by Mark. (2 Marks)

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18. (a) Explain the difference between *freeware* and *open source softwares*.

(4 marks)

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(b) Describe how operating systems handle the following in a computer system.

(i) Errors

(2 marks)

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(ii) Interrupt

(2 marks)

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(c). i State the meaning of the term fragmentation as used in disk management. (1 mark)

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ii. State two effects of fragmentation in a computer system. (2 marks)

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(d). Explain the purpose of the following in a computer. (2 marks)

i.Cache memory

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ii. Output buffer

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(e). State **two** characteristics of Random Access memory. (2 marks)

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19. a. Data collection is a process of gathering data from all the relevant sources. List the data collection stages. (4 Marks)

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b. Explain three advantages of time sharing as a data processing mode. (3 Marks)

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c. Differentiate between a webmaster and a web developer. (2 Marks)

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d. Differentiate between automatic recalculation and what if analysis as used in spread sheet programs. (2 Marks)

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e. With aid of an example in each case, describe each of the following cell referencing methods.

(i) Range reference. (2 Marks)

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(ii) Referencing using labels (2 Marks)

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20. a) There are many systems developed some of which contrast each other. Distinguish between a conceptual and physical system. (2 Marks)

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b. Every organization requires an information system.

i. Define an information system (1 Mark)

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ii. Describe any three reasons why it is necessary for an organization to change its existing information system (3 Marks)

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c. Testing systems after development is a very critical process in systems development. State any four test conditions to be covered for effective testing of the system. (4 Marks)

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d. With examples for each, Distinguish between a page layout based DTP software and graphical based DTP software (3 Marks)

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e. State two reasons why it is important to implement the use computers in the monitoring and control processes of industrial products (2 Marks)

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