

THE KENYA NATIONAL EXAMINATIONS COUNCIL  
Kenya Certificate of Secondary Education



451/1

Paper 1

COMPUTER STUDIES (Theory)

Nov. 2023 - 2½ hours

Serial No.
10384145

Name: ..... Index Number: .....

Candidate's signature: ..... Date: .....

Instructions to Candidates

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



For Examiner's Use Only

Section	Question Number	Maximum Score	Candidate's Score
A	1-15	40	
B	16	15	
		15	
		15	
		15	
Total Score		100	



Turn over



**SECTION A (40 marks)**

*Answer all the questions in this section.*



**1** State the meaning of each of the following terms used in computers:

(a) Data;

(1 mark)

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(b) Byte.

(1 mark)

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**2** List four peripheral devices that may get powered from computer ports.

(2 marks)

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**3** State three requirements that a computer system must have in order to be used for video conferencing.

(3 marks)

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**4** Explain each of the following terms used in computer display unit:

(a) pixel;



(2 marks)

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(b) Resolution.

(2 marks)

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5 A company purchased a computer software. State three reasons why the company should be provided with the software documentation during the purchase. (3 marks)



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6 State three reasons why computers in operations require reliable power supply. (3 marks)

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7 State two uses of computer simulation in education. (2 marks)

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8 State two database objects that may be used to modify a record in a database. (2 marks)

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9 Differentiate between *menu driven interface* and *graphical user interface* in respect to operating system. (2 marks)



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10 State three differences between *impact printer* and a *non-impact printer*. (3 marks)

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11 Explain a circumstance that may lead to the use of crop tool in a word processing document. (2 marks)

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12 State three benefits of a distributed operating system. (3 marks)

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13 The emergence of COVID-19 pandemic led to many organizations in Kenya to embrace teleworking approach.



(a) State the meaning of the term *teleworking*. (1 mark)

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(b) State two benefits that the organizations gained from using this approach. (2 marks)

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14 State two advantages of using templates when creating documents in word processing. (2 marks)

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15 Explain a circumstance that may lead to the occurrence of each of the following errors during data processing:

(a) Truncation error;



(2 marks)

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(b) Rounding error.

(2 marks)

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**SECTION B (60 marks)**

*Answer question 16 and any other three questions from this section.*

**16 (a)** State two common features of the fourth generation programming languages. (2 marks)

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 **(b)** A student was advised to design a program before coding. State four reasons for this advice. (4 marks)

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**(c)** In a computer game, a player is required to guess a winning number. If the number guessed is 10, the player is declared a winner and the game ends. If the number guessed is not 10, the player is notified to try again. When the number of trials exceed 4, the player is notified and the game is terminated. Draw a flow chart to represent the algorithm of this game. (9 marks)





- 17 (a) A web company offering E-learning services intends to hire a web administrator. Explain two roles the personnel is expected to perform in the company. (4 marks)

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- (b) Mundani cooperative society receives supplies of cereals from farmers. The data for the supplies made is accumulated for processing of payments every end of the month.



- (i) Identify the data processing mode suitable for computing farmers payments. (1 mark)

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- (ii) Explain two advantages of the data processing mode identified in (i). (4 marks)

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- (c) Figure 1 shows a screenshot of a user interface in a computer. Study it to answer the questions that follow:

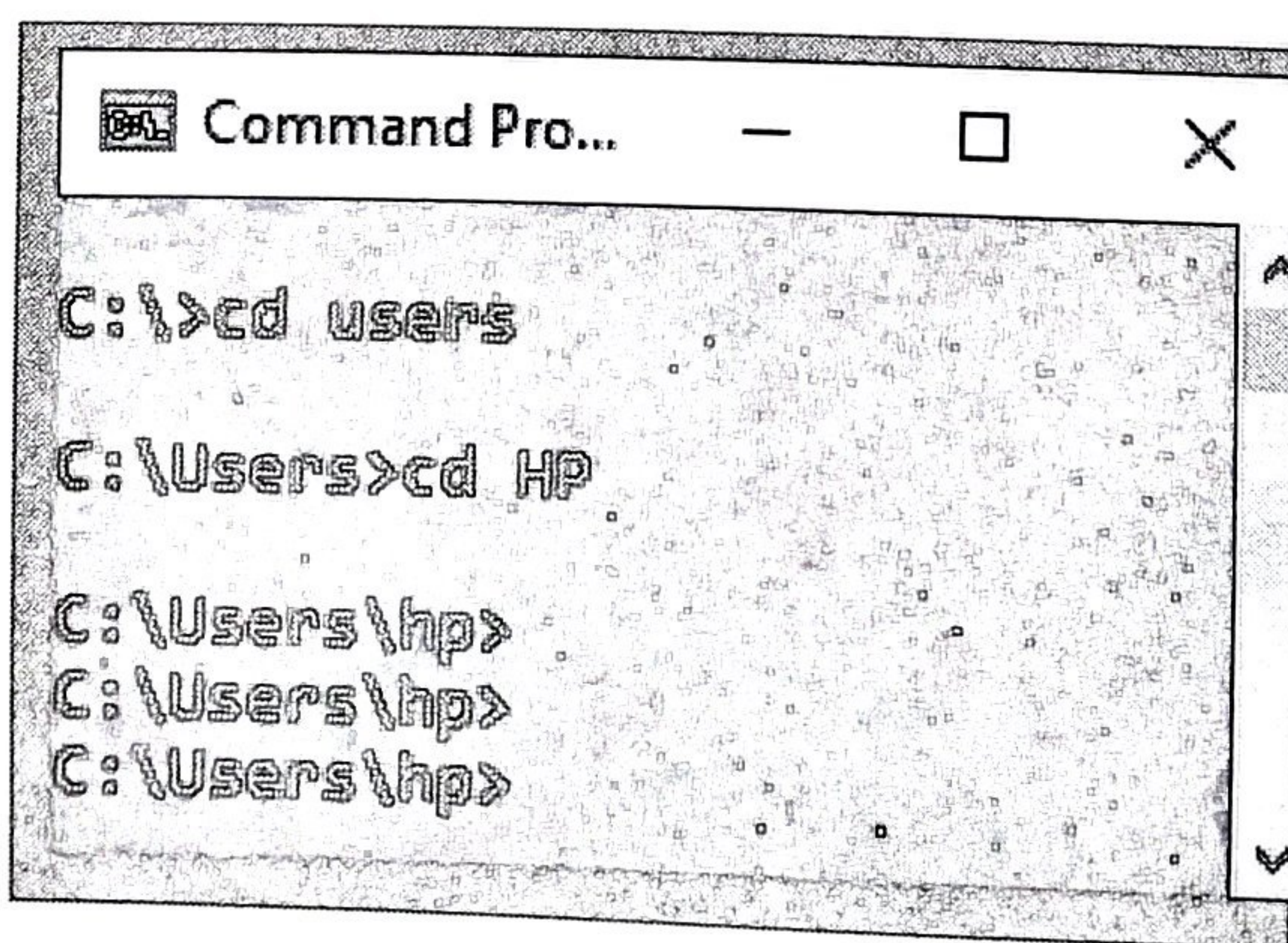


Figure 1

- (i) State the category of an operating system exhibited by this type of user interface. (1 mark)

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(ii) This type of operating system has become unpopular amongst computer users. (3 marks)  
State three reasons for this trend.

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(d) Explain a circumstance under which the right button of a computer mouse may be used. (2 marks)

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18 (a) Explain the meaning of each of the following terms as used in systems development:

(i) Integration testing; (2 marks)

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(ii) Stress testing; (2 marks)



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(iii) Usability testing. (2 marks)

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(b) State three activities carried out in each of the following phases of system development:

(i) Analysis;

(3 marks)

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(ii) Design.

(3 marks)

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(c) Distinguish between a *user manual* and a *reference manual* as used in systems development. (3 marks)

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- 19 (a) Figure 2 shows the transmission of data in a computer network. Study it to answer the questions that follow:

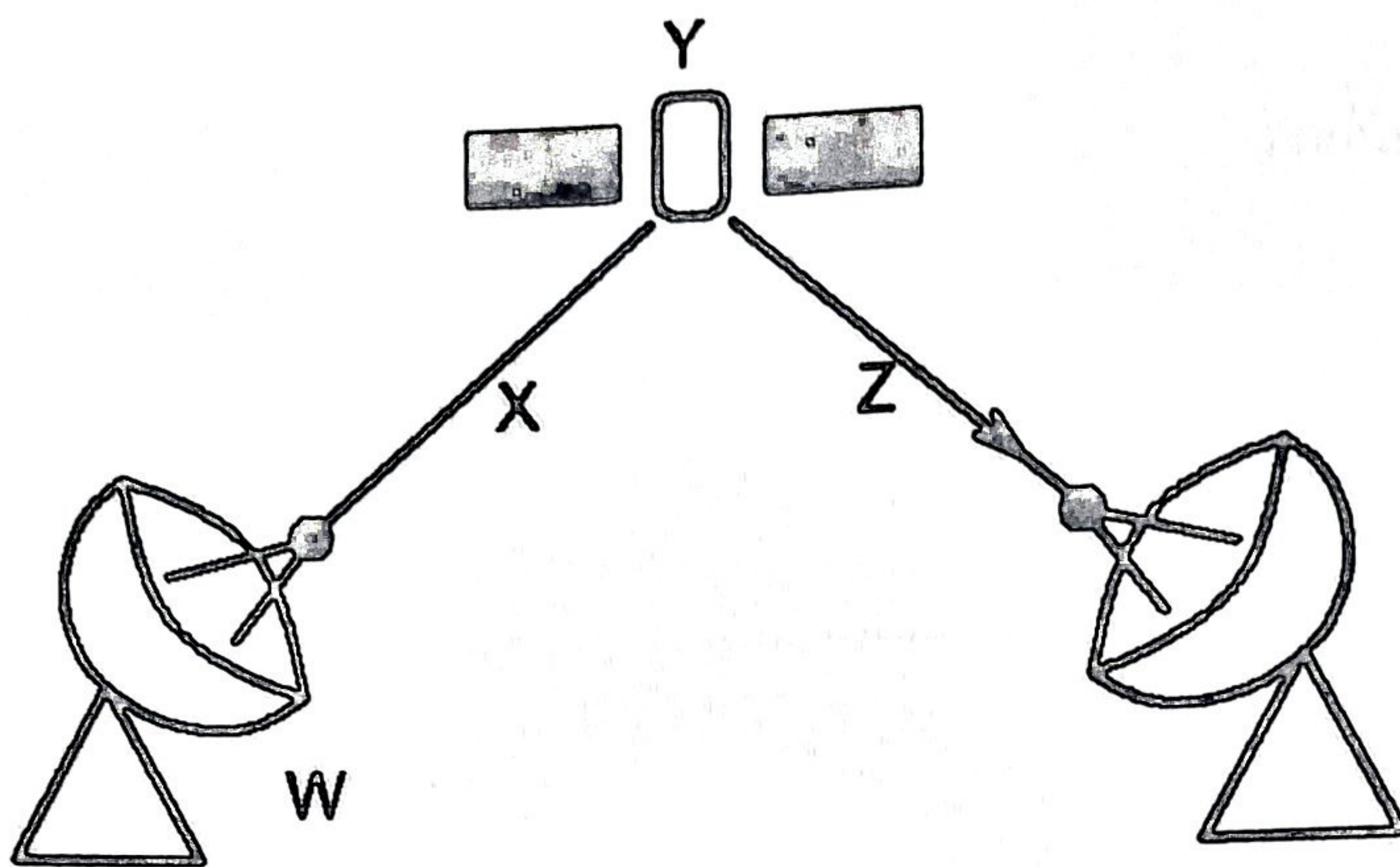


Figure 2

- (i) Identify the components labelled W, X, Y and Z. (2 marks)

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- (ii) Explain two reasons why a school in a remote location may adopt this technology for its internet connectivity. (4 marks)

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- (b) (i) Convert the decimal number 70.25 to binary number system equivalent. (4 marks)

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(b) State **four** activities performed on the Internet that may lead to moral degradation in our society. (2 marks)

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(c) Mawingo intends to replace a processor in his home computer. State **two** factors he should consider before the replacement. (2 marks)

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(d) Spiidy Limited, an agency company intends to offer booking services on behalf of tour companies through an online system.

(i) State **three** reasons why the agency should have their database management system linked to the online system. (3 marks)

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(ii) Explain **two** reasons why the online system may be preferred by the agency. (4 marks)

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