4.23 COMPUTER STUDIES (451)

4.23.1 Computer Studies Paper 1 (451/1)

	SECTION A (40 marks)	
QNS	**RESPONSES**	**MARKS**
1.	**Function of:•** (a) Hardware: To perform tasks of inputting, storage, outputting, processing during data processing and communication. (b) Software: - Instructs the hardware/computer on what to do during data processing. - Provides interface between hardware and liveware. - Accept functions of software based category ie. system/ application/working/uses. (c) Liveware: Meant to design or operate a computer.	 1 1 1
2.	**Problems arising from use of unsuitable computer desk.** V It could lead to back problems if the desk is of an unrealistic height. V If it does not provide good positioning of the monitor, it could result in eye strain. V Wrist problems will arise if the keyboard and mouse seating positions are bad. V Injury as a result of falling computer components due to weak computer desks/ small size. (First 2 x 2)	 4
3.	**Categories of system software** V Firmware; V Networking software; V Operating system; V Utilities. (First 2 x ±)	 1
4.	**Two factors to consider when evaluating warranty** V Period/ duration/scope of cover: The warranty should specify the duration of time covered. V Service agreement/level: The warranty should indicate the type of service to be provided. V Cost implication/liability agreement: Cost sharing between the dealer and the buyer in the event of any loss or malfunction. V Call out response. (First 2 x 2)	 4

5. **Three ways of using computers in electing school captain**

- Registering voters/(faster);
- Voter identification (accurate);
- Actual voting;
- Tallying process (speedy).

(Any 3 x 1) — 3

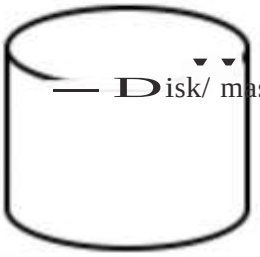
6. **Figure 1: Bring to front or bring to back**
Used when the target graphic is hidden by other objects. When clicked, the target graphic is brought to the front. — 1

Figure 2: Text wrap
It is used when a graphic is placed within the text area and the user needs to define how the text flows around the graphic. — 1

7. **Distinction of GUI and command line operating systems**

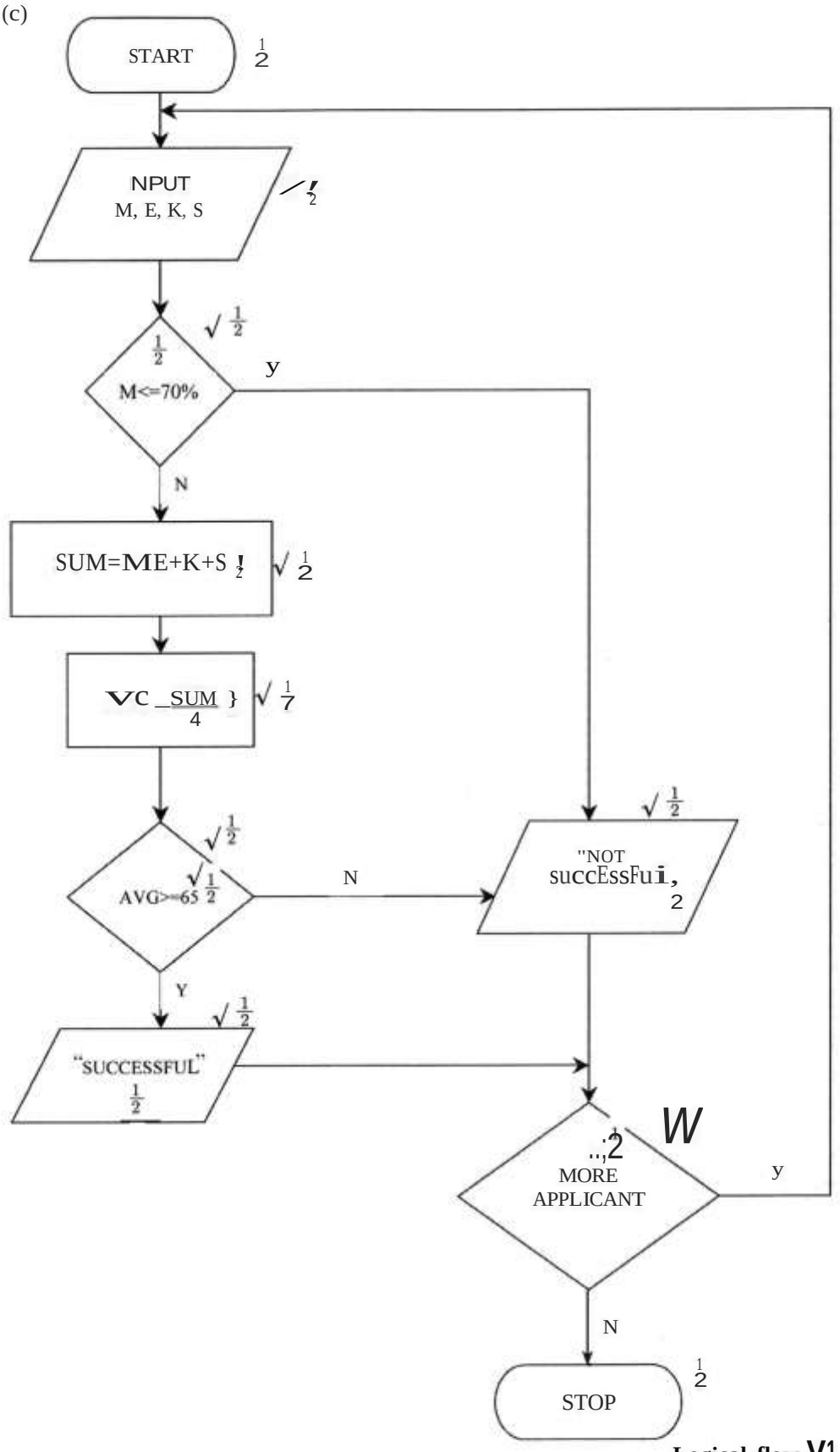
GUI	Command line
Makes use of emerging software/and hardware technologies	Hardly makes use of emerging hardware/software technologies.
Their interfaces have:	Their interfaces have:
- ribbons	- typed commands
- control buttons	- prompt
- scroll bars	- editor window
- menus	- cannot process complex graphics
- can process complex graphics	
The user interacts by:	Users interact by typing in commands
- clicking	
- scrolling	
- mouse over	
More user friendly.	Less user friendly.

(Any 2 x 2) — 4

8.	**A system flowchart symbols** (a)  Report or documentation (b)  Disk/ master file/ database	1 1
9.	**Ways of adjusting a document to fit a page** V change page orientation. V change the font; ✓ decrease font size; V reduce margin size; V reduce character spacing; V reduce line height. V change font style eg. bold/italic (Any 3 x 1)	3
10.	**Role of network administrator** V to confirm that the network services are running; V to confirm that the user is granted appropriate priviledge to access the network services/password/authentication; V to confirm that the network infrastructure is in good condition; V to confirm that the files sought are in existence. (First 3 x 1)	3
11.	**Impact of mobile phones** ✓ Users no longer queue in the bank in order to deposit or withdraw money; V Easy acquisition of financial statements; V Easy payment of bills; V Online banking is possible; V Money transfer is fast. V Safer transfer of money. ✓ Provides wide coverage. ✓ Can offer services anywhere any time. V Cheaper money transfer services. V Increase in fraud. (First 3 x 1)	3

12.	**Items that an email must have**: V the email address of the recipient; V the content or message being communicated.	2
13.	**Direct input methods** V OBR V MICR V OCR; V OMR; V Image scanner; V Magnetic strip technology; V Image recognition/ face recognition/finger print. (First 4x 5)	2
14.	**Insecurity arising from hardware failure** V Data loss due to total system failure e.g. **HD** crash; V The experts called upon to repair can access critical/ valuable information; V Data recovery software may be used to make unauthorised backups. (First 2 x 1**)**	2
15.	Nibbles - 4 Bytes - 2	1 1
	SECTION B (60 marks)	
16.	(a) **Advantages of using low-level language** V program execution is immediate; V they require no compilation, no interpretation/translation hence they are faster; V hardware optimization is extensive; V program developed takes less memory space; V suitable for micro devices; V easy to design electronic device. (First 2 x 1) (b) **Three tools that can be used to develop an algorithm** V Decision table V pseudocode; V natural language; V top down charts; V flowcharts. ✓ DFD/context diagram VERD V decision tree (First 3 x 1)	2 3

(c)

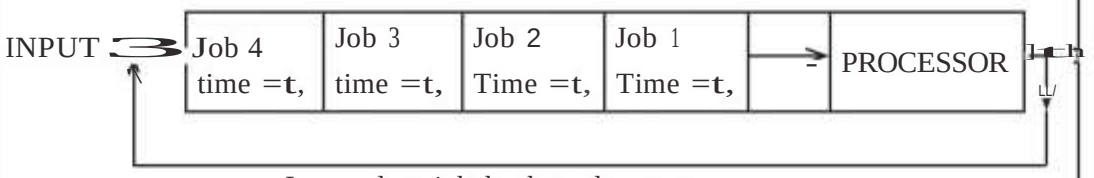


10

Logical flow V1

17. (a) **Time-sharing mode**

This is a processing mode in which a central processor serves two or more users with different requirements. The processor time is divided equally among the tasks in the queue. A user whose task requirements are more than is apportioned is send back to the queue. For example, four jobs requiring times t,, 1, t, and t, to complete is apportioned equal time in each round until when they are done. 3



2

(b) **Factors to consider when selecting data processing mode**

- The optimisation of processing time;
- The time factor required for decision arising from the processed data;
- The ease of development, use and maintenance;
- The control over the resources e.g. files, 1/O devices e.t.c;
- The need for the shared resources among several users who may afford purchasing their own facilities as in time sharing configuration;
- The volume of work involved;
- The cost of acquiring the relevant hardware, software, media e.t.c and the cost of maintenance;
- The nature of the task to be processed.

(First 4 x 1) 4

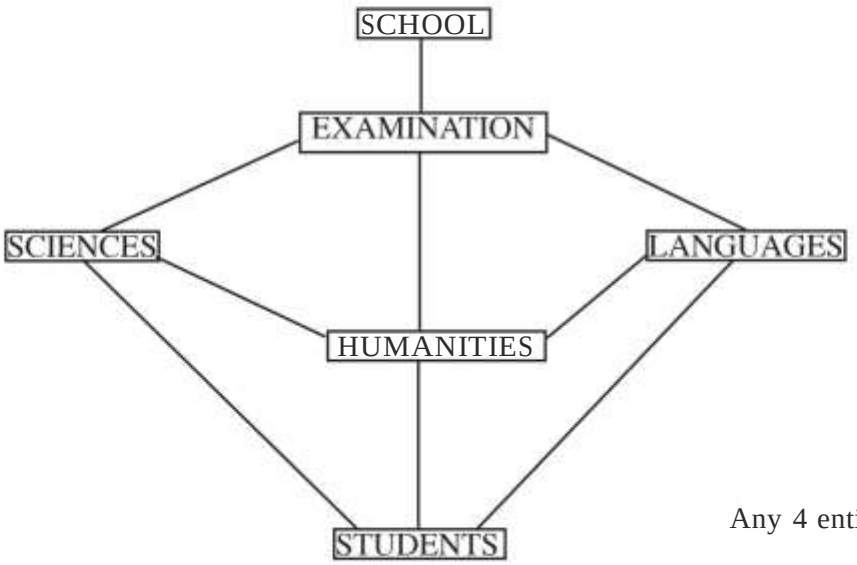
(e) (i) **Purpose of user manual**
It is a documentation whose purpose is to help a user to use the system with little guidance. 2

(ii) **Purpose of sample data**
Before the system is implemented, it has to be confirmed that it is functional. Sample data is meant to be used to test whether the system is giving desired output. 2

(iii) **Purpose of table descriptions**
They are details of table structures that the system will require for the purpose of designing the actual tables. 2

18. (a) (i) **Repeater**
A device used to re-construct data signal during data transmission to its original strength/amplify/boost/regenerate. 1

	(ii) **Router** - It is a device used to facilitate movement of data or packets between two or more **LANS** of different configuration (expansion of networks). - Delivers a packet/data directly to destination computers. - Interconnects different networks/provides network services.	1
	(b) (i) The component P is the terminator.	1
	(ii) Terminator in a backbone is used to prevent data signal from bouncing back/absorb signals.	2
	(c) **Use of internet in environmental conservation club** V Source of knowledge on environmental matters; V Collaboration with peers from other schools or organisations; V Dissemination of information on what the club is doing; V Seeking for funding from sponsors. (First 3 x 1)	3
	(d) (i) **Benefits of linking branch B and C** V Speed of communication between B and C is increased since the traffic between the two branches can be re-routed through the link BC; V If either AC or AB is down, the three branches can still communicate; V If the HQ systems fail, the two branches B and C can communicate using this link. (First 2 x 2)	4
	(ii) **Ways to protect company network from hackers** V Changing password frequently V Use of encryption; V Use of data proxies; V Use of firewalls to filter unwanted packets; V User restriction e.g. passwords/ biometrics. V Use of complex password. (Any 3 x 1)	3
19.	(a) **Formats applied** Bold, strikethrough, underline, italics, centre alignment, dropcap, bulleted list, line height/ spacing, 2 column paragraph, column break, casing, font type, left alignment, column separator. (First 6 x ½)	3

	(b) **Tools for proofreading** V Spell checker and grammar/ dictionary; ✓ Autocomplete; V Autocorrect; √ Thesaurus. (Any 3 x 1)	3
	(e) (i) = @ or + Countif (B2: B6, ">10,000) (B2:B6) Argument range ✓ 1 (>10,000) Criteria V 1 All Formula correct ✓ 1	3
	(ii) At D3 Formula is $ B3 * C$2 ✓ 1 = 16000 x 2 = 32,000 V1	2
	(d)  Any 4 entities each 5 Any 4 connectors 4 each x 1/2	4
20.	(a) **Characteristics of octal number system.** V each symbol is represented by 3 bits. V The number is made of 8 symbols 0, 1, 2, ...7; ✓ Maximum value of a single digit is 7 (one less than the value of the base); V This number system uses base 8. (Any 2 x 1)	2

	(b) (i) 111.101, to decimal 111 = 7, V1 0.101 = 5 + 0 + 1 + 5 √I **OR** = 0.625 111.101, = 7.625, or 7.625 **V1**	210 111 = 1 X 2^2 + 1 X 2^1 + 1 X 2^0 =4+2+1=7_{10} 101_2 =1 X 2^{-1}+0X 2^{-2}+1X2^{-3} =1X$\frac{1}{2}$+0X$\frac{1}{4}$+1X$\frac{1}{8}$ =0.5 +0+0.125 =0.625,, ∴ 111.101, =7.625	3
	(i) 14.6875, to binary 14,, = 1110, V1 0.6875 x 2 = 1.375 0.375 x 2 = 0.75 0.75 x 2 = 1.5 0.5 2 = 1.0 √1 decimal portion = 0.1011V1 Number is 1110. 1011, V 1		4
	(e) () 17,, = 10001 or 10001, V1 1 0010001 V 1 4nary equivalent of 17 Sign bit for negative.		2
	() 17,, = 10001 In 8 bit 00010001 Reverse bits 1 1 101 1 10 /1 + 1 1 1 1 0 1 1 1 1 Number is 1 1 1011 1 1, V		2
	(d) 110.11, + 11.011, 1 1 0.1 1 0 + 0 1 1.0 1 1 **V1** 1010.001 V1		2

4.23.2 Computer Studies Paper 2 (451/2)

QUESTION	MARKING POINTS	MARKS
1. (a) (i)	**Logo**	
	- Word Art text (the text)	0.5
	- word Art	1
	- Curve layout	0.5
	- Limited (text)	0.5
	- Large **L**	0.5
	- Limited layout	1
	- Logo Layout	1
	- Logo position (centre)	1
		6
	- Company contacts typed	1
	- Company contact format (bold, centred case)	0.5
	- Six lines text (completeness, position) @}	1
	- RE: Subject text	1
	- RE: Format (Title case, bold, underline)	0.5
	- First paragraph (existence, completeness)	1
	- Last paragraph (existence, completeness)	1
	- Other lines (existence, completeness)	1
	- Other lines format	0.5
	- Three columns at 1 mark	3
	- Tab headers format (BCs)	0.5
	- First left tab/right tab	1
		12
(ii)	**Invoice Table**	
	- Add table	1
	- **RI** Merged/shading	2
	- **RI** text (completeness, position)	1
	- **RI** reverse text	1
	- **RI** text format (case, centre, italics)	0.5
	- R2 Merged	1
	- R2 text "invoice" (bold, upper case)	1
	- R2 text "invoice "(underline)	0.5
	- R2 text "invoice" (vertical, centre)	0.5
	- R3 (4 columns)	1
	- R3 text (completeness, position)	1
	- R3 text format (bold, case)	0.5

QUESTION	MARKING POINTS	MARKS
	- R4 text (completeness, position)	1
	- R4 text format (case x 4)	0.5
	- R5 merged	1
	- Row6 text (5 columns)	1
	- Row6 text format	0.5
	- Row6 text (completeness, position)	1
	- Row 6 text direction (No)	0.5
	- Row 7, 8, 9 text (3 rows)	1.5
	- Adjusted to fix text	1
	- Row 12 text (completeness, position)	1
	- Row 12 format (bold, case)	0.5
	- Row 12 double border	1
	- Row 13 merged	1
	- Row 13 text (completeness, position)	1
	- Row 13 text format (bold, case)	0.5
		24
(iii)	**Saving Singlen**	1
(b)	(i) - Saving **Newsinglen**	1
	(ii) Converting columnar text to table (3 x 5)	2
(c)	Formulae used	
	O = product/ =C7D7	1
	(ii) = sum/=E7+E8..... +E11	1
(d)	Printing	
	(i) Singlen (0.5, 2 sides 0.5)	1
	(ii) Newsinglen (0.5, 2 sides 0.5)	1
		7

QUESTION	MARKING POINTS	MARKS
2. (a)	- Saving "Incomestatement"	1
	-7 columns @ 1 mark each	7
	- Header text (exists and complete)	
	- All other text	1
		9
(b)	(i) Total sales formula= sum (B5:G5)	1
	(ii) Total rent (Jan - June) = sum (B8:G8)	1
	Copying formula to other cells	1
	(iii) Profit or loss formula = B5 - Sum (B8:B12)	2
		5
(c)	(i) Merging cells A2-H2	1
	(ii) Title font 16	1
	Bold	1
	(iii) Single line border	1
	(iv) Right aligning months labels	1
	(v) Applying grey background	1
		6
(d)	(i) Renaming sheet to '**Profit**'	1
	(ii) Copying worksheet	½
	Renaming as **Modified**	½
		2
(e)	(i) Inserting a blank row and naming	1
	(ii) Absolute formula = B4 $B17	2
	(iii) Profit or loss formula = B5 - Sum (B6:B12)	2
	Copying to other cells	1
		6
(f)	(i) Inserting blank row and naming	1
	(ii) = IF((B15 > 60,000), **"OK",** IF(B15 >=30,000 "Break even", check"))	
	Correct function	1
	First selection condition	½
	Correct output	½
	Last selection condition	½
	Correct output	½
	Copying to other cells	1
		5

QUESTION	MARKING POINTS	MARKS
(g)	Choosing correct chart type (Bar)	1
	- Summing expenses	1
	- Choosing correct series	
	- Month	1
	- Sales	1
	- Total expenses	1
	- Chart title	1
	- Labels	
	- **X** - axis - Mouth	1
	- **Y** - axis - Amount	1
	- Moving chart to new worksheet	1
	- Renaming worksheet - Comparison	1
	- Data labels	1
		11
(h)	Changing orientation - Landscape	1
		1
(i)	**(i)** Profit printing	1
	(ii) Modified printing	1
	(iii) Modified with formulas printing	2
	(iv) Comparison printing	1
		5