

SECTION 1

THEORY – 60 marks

Answer ALL questions.

1. The diagram in Figure 1 illustrates the main components in a computer system.

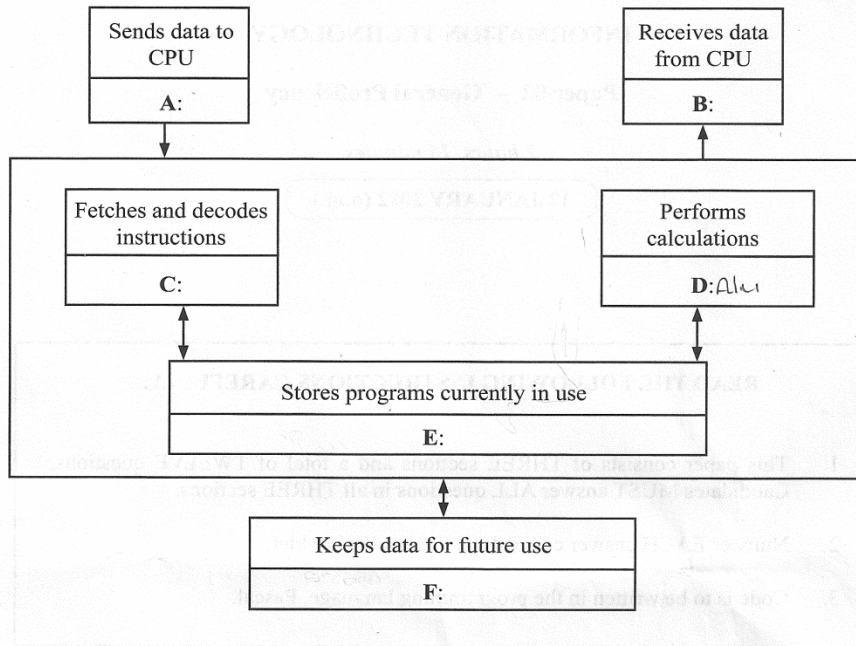


Figure 1

- (a) Name EACH device labelled A – F in Figure 1. **(6 marks)**
- (b) The hardware specifications of a computer system include the following information:
- Line 1: Intel® Core™ i3-550, 3.20GHz
- Line 2: 1 TB SATA HDD, 7200RPM
- Line 3: 8X DVD +/- RW
- Indicate the line numbers which provide information on the **optical drive** and on the **processor** in the computer system. **(2 marks)**
- (c) Explain why the access time for a moving head disc drive is GREATER than the access time for a fixed head disc drive. **(2 marks)**

Total 10 marks

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2. (a) Convert the decimal number 25 into the following forms:
- (i) Binary (2 marks)
 - (ii) Octal (2 marks)
 - (iii) Hexadecimal (2 marks)
- (b) Add 11011_2 to 101_2 . (2 marks)
- (c) Subtract 101_2 from 11011_2 . (2 marks)

Total 10 marks

3. (a) Write the numbers 1 – 7 on separate lines in your answer booklet. Using the information in Table 1, match the number of the device with the letter for the person who uses the device, by writing the letter next to the correct number in your answer booklet.

TABLE 1

	Device		Person who uses the device
1	Joystick	A	Point of sale cashier
2	MICR	B	Player in a Games Arcade
3	Webcam	C	Customer seeking information in a kiosk
4	Touch Screen	D	Bank worker reconciling cheques
5	Digital Camera	E	Teacher grading multiple-choice responses
6	Barcode Reader	F	Reporter researching a story
7	OMR	G	Consultant participating in a video conference

(7 marks)

- (b) Describe the use of biometric systems, stating clearly
- (i) where they are used
 - (ii) ONE type of data that is collected
 - (iii) ONE benefit over traditional methods of collecting data. (3 marks)

Total 10 marks

4. (a) For EACH of the following applications, state whether its associated media is Text, Hypertext, Audio or Visual.

(i) VoIP

(ii) IRC

(iii) WWW

(3 marks)

- (b) Write the letters A – G in your answer booklet and state against EACH letter, the correct technical term which is required to complete the sentences in the paragraph below.

David's father wishes to advertise his used car business on the Internet. David advises him that he can create a website that consists of several interconnected (A). The website must be placed on a (B) computer. Persons wishing to access the information on the Internet must use an Internet (C) on their computers to navigate to the particular website. They must either know the address of the website called a (D) (E) locator or must use a search (F) to find the website. When they find a car that they are interested in purchasing they can then (G) the relevant information to their computer.

(7 marks)

Total 10 marks

5. (a) Preventing unauthorized access to computer facilities can be achieved by locking doors to computer rooms. State THREE other methods that can be used to prevent unauthorised access to computer facilities.

(3 marks)

- (b) Distinguish between data integrity and data security.

(2 marks)

- (c) (i) Define 'firewall'.

(1 mark)

- (ii) Identify and describe TWO unwanted incidents that a firewall can prevent.

(4 marks)

Total 10 marks

6. Consider the following forms and documents that are used in ordering parts for a car.

Step 1: The mechanic in an auto repair shop submits requests for parts on a parts-request form (A) to the owner of the shop.

Step 2: The owner of the auto repair shop collates the requests and creates a document called a pro forma (B) on a flash drive.

Step 3: This flash drive is sent to a car parts dealer who creates a record in a file on the hard drive for the auto repair shop owner and, using data from the file, prints a document called Invoice_Order (C).

Step 4: This Invoice_Order is sent to the owner of the shop.

Step 5: The owner of the shop then reviews the invoice order and returns the Confirmed_Invoice_Order (D) to the automobile parts dealer.

(a) Using the letters A, B, C or D above, identify

(i) THREE letters that represent forms or documents that are hard copies (3 marks)

(ii) ONE form or document that is machine readable. (1 mark)

(b) Using the letters A, B, C or D identify ONE form or document that is an example of a

(i) soft copy (1 mark)

(ii) source document (1 mark)

(iii) turnaround document. (1 mark)

(c) Give ONE example of a piece of data found in

(i) Form A but not in Form C (1 mark)

(ii) Form A, Form B and Form C (1 mark)

(iii) Form D but not in Form B. (1 mark)

Total 10 marks

SECTION 2

PRODUCTIVITY TOOLS – 15 marks

Answer ALL questions.

7. The ICT unit of a college has prepared the following spreadsheet showing the Internet usage of four countries.

	A	B	C	D
1	Country	Population	% of Population with Internet Access	Action Needed
2	Jamaica	2,847,232	55.5%	
3	Trinidad & Tobago	1,228,691	39.5%	
4	Guyana	748,350	29.4%	
5	Barbados	258,653	49.7%	

- (a) State the range of data containing the percentage of the population with Internet access for the four countries. (1 mark)
- (b) Write the function to find the average population of the four countries. (2 marks)
- (c) What formatting feature has been applied to the population data of the four countries? (1 mark)
- (d) The data in the spreadsheet has been sorted. State the column heading used for the sorting. (1 mark)
- (e) The text "Good Access" is to be inserted in the Action Needed column if the % of population with Internet access is greater than 40%, otherwise the text "Poor Access" is inserted. Write the function that will be inserted in cell D2 to do this. (3 marks)

Total 8 marks

8. The Motor Vehicle Department of a company maintains a database with two tables shown below to store information on vehicles and their owners.

TABLE 2: VEHICLE

REG_NO	TYPE	ENGINE_CC	MANUFACTURER	REG_DATE
PMM200	Motor Car	1492	Toyota	20/12/2010
CB1200	Motorcycle	125	Honda	10/09/2008
GNN300	Motor Van	2000	Nissan	25/06/2006
HBB450	Hire Car	1492	Toyota	12/09/2005
PNN1500	Motor Car	2000	Suzuki	24/11/2009
GHH700	Motor Lorry	2500	Ford	15/06/2007

TABLE 3: OWNER

NAME	TAX_NO	REG_NO
Public Bank	C100	GHH700
Mike Allen	I250	CB1200
Public Bank	C100	GNN300
Mary Smith	I150	PMM200
Speedway Taxi	C200	HBB450
Police	G300	PNN1500

- (a) What type of data is entered in the REG_DATE field? (1 mark)
- (b) State the name of the **primary** key in the VEHICLE table. (1 mark)
- (c) What is the ENGINE_CC of the vehicle owned by the individual/organization with TAX_NO = G300? (1 mark)
- (d) Write a query to show all Toyota vehicles registered in 2008 or later. (2 marks)
- (e) A report was generated for the VEHICLE table and the records were grouped by the Type field. State the name of ANOTHER field that could be used to group the records. (1 mark)
- (f) If the VEHICLE table is sorted on the REG_NO field in ascending order, what is the ENGINE_CC of the vehicle at the top of the sorted list? (1 mark)

Total 7 marks

SECTION 3

PROBLEM SOLVING AND PROGRAMMING – 45 marks

Answer ALL questions.

9. (a) Use the algorithm below to answer the questions that follow.

```
Line 1 A := 2  
Line 2 B := 10  
Line 3 WHILE A < B DO  
Line 4 PRINT A, B  
Line 5 B := B DIV A  
Line 6 ENDWHILE  
Line 7 PRINT A, B
```

- (i) Copy and complete the trace table below:

A	B

(6 marks)

- (ii) Write an alternative operator for DIV if real numbers were used. (1 mark)

- (b) Using any two of the numbers 10, 12, 14, 16 and 22, write ONE example for EACH of the following logic operator symbols and state whether the result of the example is TRUE or FALSE.

(i) <

(ii) >

(iii) <>

(iv) =

(8 marks)

Total 15 marks

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10. Answer the following questions based on the Pascal program below.

```
program SumNumbers;
{This program sums all the integers from 1 to 3.}
var
  Sum, i : Integer;
begin
  Sum := 0;
  i := 1;
  while (i <= 3) do
  begin
    Sum = Sum + i;
    i := i + 1;
  end;
  Write ('The sum of all the intergers from 1 to 3 is', Sum);
end.
```

(a) What does EACH of the following symbols stand for in Pascal?

(i) ;

(ii) {

(iii) := assignment

(iv) ..

(4 marks)

(b) The highlighted error `Sum = Sum + i`; was detected in the program. State the type of error that is highlighted. (1 mark)

(c) From the given program, write the appropriate Pascal code that contains EACH of the following:

(i) A loop

(ii) An assignment statement

(iii) A declaration

(iv) A program header

(v) A condition

(5 marks)

Total 10 marks

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11. Answer the questions below based on the following array called WORDS.

CONTENTS	B	A	C	T
INDEX →	1	2	3	4

- (a) State the size of the array. (1 mark)
- (b) Write the order of index numbers that would output the letters CAT. (3 marks)
- (c) Write the statement that would output the contents of the array at index number 4. (2 marks)
- (d) Write a fragment of code to search the array for the letter 'C', and return the index location. (5 marks)
- (e) Write a fragment of code to write the letter 'Z' into EACH cell of the array. (4 marks)

Total 15 marks

12. Write an algorithm to perform the following tasks:

- (a) Prompt for a letter
- (b) Read the letter into a variable called CHECK
- (c) If the letter is equal to 'A', then output the word 'Good' Total 5 marks

END OF TEST

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.