

- ① Explain the term analogue device.
- ② Identify the disadvantages of using paper tape and punched cards as storage media.
- ③ In relation to magnetic disc drives explain the term "access time."
- ④ What is meant by the term "peripheral device"?
- ⑤ Discuss an application in which MICR is used.
- ⑥ Explain the purpose of 2 of the following
 - 1) Control unit
 - 2) Main memory.
 - 3) logic unit.
- ⑦ What hardware could a news reporter make use of?

⑧ What is meant by the term volatile memory?

⑨ What are pixels?

⑩ Outline the advantages of using microfilm.
Identify a suitable application.

⑪ Change to Base 10

a) 11.101_2

b) 27.4_8

c) $3A_{16}$

⑫ Change to the required base.

a) 37_{10} to hexadecimal

b) 110110 to octal.

c) 35_{10} to binary.

⑬ With suitable examples explain the difference between a) fixed point arith. and b) floating pt. arith.

- ⑭ Show how to subtract 111_2 from 1011_2 using a complementation method of your choice.
- ⑮ Give an example of the use of ASCII codes in BASIC.
- ⑯ Discuss the contribution made regarding "early computer developments" of three of the following :-
- Blaise Pascal.
 - Charles Babbage.
 - Herman Hollerith.
 - Von Neumann.
- ⑰ What features distinguish a 1st generation computer from a 3rd generation computer?
- ⑱ Give an example when it is better to use ROM instead of RAM.

19) Explain with the aid of a sketch the difference between a cylinder, track, record and a field in relation to magnetic disc drives.

20) Why may the general public be concerned about the use of computers in crime detection? Also outline the benefits to the police.

21) Outline 2 different methods of data capture.

22a) Show how to apply a check digit (using Mod.11) to the following number

3 7 1 ?

23) Make a comparison regarding advantages/disadvantages of using high and low level languages.

- (24) How does a source code become an object code?
- (25) With suitable examples discuss the following types of error
- Logical error
 - Syntax error.
- (26) Explain the term underflow
- (27) Why should care be taken with program documentation?
- (28) Design simple logic circuits to comply with the following outputs (Z).
- $Z = (A \text{ AND } B) \text{ OR NOT } C$
 - $Z = (A \cdot B) + (\overline{B+C})$
 - $Z = (\overline{A \cdot B \cdot C}) + (B+C)$
- (29) Sketch a "half adder" circuit and provide a suitable truth table to test it.

30) Produce an algorithm for one of the following tasks:

a) Finding the mean electricity bill for 250 customers.

b) Calculating the percentage attendance record for a school of 600 pupils.

31) Flowchart one of the following routines:

a) To total 300 exam marks and print out the total and average marks.

b) To total the prices for 10 items of furniture and if

a) The total price is \leq £500 give 5% discount

b) The total price is $>$ £500 give 15% discount.

32)

Write a program in BASIC to store 12 names in a 4 by 3 array. Show how to check the array for the name SMITH.