

APOLLO

A1 Computer fundamentals SL

Computer Science

First assessment 2027

1 questions | mark schemes

1. (a) (i) *Award [1] max*

Address (bus).

(ii) *Award [2] max*

To store intermediate arithmetic and logic results/hold operand data;
...to reduce the number of memory accesses (by holding intermediate results);

Acts as a temporary storage location;
...which stores the values and results from arithmetic and logical operations;

Holds data or the results of an operation;
...during the processing cycles;

(b) *Award [1] max*

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(c) *Award [2] max*

Award [1] for each correct column (Difference, Borrower)

X	Y	Difference	Borrower
0	0	0	0
0	1	1	1
1	0	1	0
1	1	0	0

(d) *Award [3] max*

Award up to [1] per difference

(Permanence) ROM is read-only and non-volatile, whereas flash data can be electronically erased and reprogrammed;

(Security) ROM is more secure (less corruptible) than flash due to its non-volatility;

(Longevity) ROM doesn't wear from read/write whereas flash has a limited lifespan;

(Size/capacity) Flash could be larger capacity than ROM;

(Update) Flash can be updated for user preferences whereas ROM needs CMOS RAM to store.

– 6 –

(e) *Award [2] max*

Award [1] for definition, and [1] for expansion

Processes are divided into different queues;
...based on specific criteria, e.g., separate queues for system processes, interactive user processes, background processes;

Processes are divided into different queues;
...(to allow the operating system) to allocate resources more efficiently;

Processes are divided into different queues;
...to ensure higher priority processes receive more immediate attention;

Processes are divided into different queues;
...to balance the load across different types of processes/ensure no single process monopolizes the CPU;