Computer System

Standard difficulty · 20 questions · 40 marks · Time: 36 minutes

Name: _____ Date: _____ Score: ____ / 40

Show your working for Sections B and C. Answers are on the last page — try every question first!

Section A — Choose the correct answer — 8 × 1 = 8 marks

1. The part of a computer that carries out arithmetic and logical operations is the:

(a) cache **(b)** hard disk
(c) control unit **(d)** ALU (arithmetic logic unit)

2. How much is 11,534,336 bytes in MB?

(a) 11 MB **(b)** 22 MB **(c)** 12 MB **(d)** 11,534 MB

3. A microphone is which kind of device?

(a) storage **(b)** output **(c)** input **(d)** processing

4. Volatile memory that holds the programs and data in use: which kind of memory is this?

(a) RAM **(b)** secondary memory
(c) cache memory **(d)** register only

5. Which kind of software is an interpreter?

(a) system software **(b)** application software
(c) programming tool **(d)** firmware only

6. Which of these came earliest in the evolution of computing?

(a) Analytical Engine **(b)** Turing machine concept
(c) Integrated circuit **(d)** Stored-program computers (EDVAC/ENIAC)

7. A pen drive holds 64 GB. How many video clips of 5 MB each fit on it (whole files only)?

(a) 13,108 **(b)** 12,800 **(c)** 13,107 **(d)** 12

8. Which translator translates assembly language into machine code?

(a) assembler **(b)** linker **(c)** interpreter **(d)** debugger

Section B — Short answer — 8 × 2 = 16 marks

9. What is a computer system? Name its main components.

10. Convert (a) 2 TB into GB (b) 2 TB into MB.

11. How many (a) bits (b) nibbles are there in 17 bytes?

12. Put these in the order they appeared, oldest first. Write the letters in order.
(a) Analytical Engine
(b) Abacus
(c) Pascaline (mechanical calculator)
(d) Stored-program computers (EDVAC/ENIAC)

13. Is each memory volatile or non-volatile? (a) secondary memory (b) RAM

14. A 4 GB pen drive has files of 650 MB, 450 MB, 600 MB, 450 MB, 650 MB. How much space is left, in MB?

15. Arrange these memories from fastest to slowest. Write the letters in order.
(a) CPU registers
(b) Cache memory
(c) Secondary storage
(d) RAM

16. Is each program generic or customised application software? (a) an attendance program written for one school (b) a web browser

Section C — Word problems — 4 × 4 = 16 marks

17. Describe the stored-program (von Neumann) architecture of a computer with the role of each part.

18. A phone has 128 GB of storage. 800 photos of 5 MB each and 22 videos of 570 MB each are copied to it. (a) How many MB do the photos take? (b) How many MB do the videos take? (c) How many MB are still free?

19. A text file is 2,048 bytes long. (a) How many KB is it? (b) How many bits? (c) How many nibbles?

20. Is each an input or an output device? (a) keyboard (b) mouse (c) headphones

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Answer key

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Q	Answer	Working
1	**(d) ALU (arithmetic logic unit)**	—
2	**(a) 11 MB**	each unit is 1024 of the one below it: 11,534,336 ÷ 1024 ÷ 1024
3	**(c) input**	input devices send data in; output devices show or give the result
4	**(a) RAM**	—
5	**(c) programming tool**	—
6	**(a) Analytical Engine**	order: Analytical Engine → Turing machine concept → Stored-program computers (EDVAC/ENIAC) → Integrated circuit
7	**(c) 13,107**	64 × 1024 = 65,536 MB; ÷ 5, whole part
8	**(a) assembler**	—
9	**A computer with its hardware and software working together; its main parts are the CPU, memory, input devices, output devices and storage, joined by buses.**	—
10	**(a) 2,048 GB; (b) 2,097,152 MB**	× 1024; × 1024 again
11	**(a) 136; (b) 34**	1 byte = 8 bits = 2 nibbles
12	**b, c, a, d**	Abacus → Pascaline (mechanical calculator) → Analytical Engine → Stored-program computers (EDVAC/ENIAC)
13	**(a) non-volatile; (b) volatile**	RAM and cache lose their contents without power; ROM and secondary storage keep them
14	**1,296 MB**	4 × 1024 = 4,096 MB; minus 2,800 MB used
15	**a, b, d, c**	CPU registers → Cache memory → RAM → Secondary storage
16	**(a) customised; (b) generic**	generic software is made for many users; customised software for one user's needs
17	**Input devices send data in; the CPU (ALU for calculations, control unit to direct the steps, registers for quick storage) processes it; memory holds both the program and the data; output devices give results; buses connect all parts.**	—
18	**(a) 4,000 MB; (b) 12,540 MB; (c) 114,532 MB**	128 GB = 131,072 MB; minus 16,540 MB
19	**(a) 2 KB; (b) 16,384; (c) 4,096**	÷ 1024; × 8; × 2
20	**(a) input; (b) input; (c) output**	input devices send data to the computer; output devices give the result

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