S1 ICT Practice Paper (Set 2): Computer Hardware and Peripherals, Binary and Data Units, Operating System and File Management, Word Processing and Spreadsheets, Internet and Web Browsing, Information Literacy and Cyber Security

S1 | ICT | Time: 75 minutes | Total: 100 marks | 24 questions

---

Part 1 Computer Hardware and Peripherals

Study the data, show all working and give the answer.

1. Source 1: a desktop computer has 16 GB of memory in total and each memory module holds 4 GB. Find the number of modules needed, and state one main difference between RAM and ROM. [5]

2. Source 2: a processor runs at 2.4 GHz and executes 4 instructions per clock cycle. Find the number of instructions it executes per second, in units of 100 million instructions. [5]

3. Source 3: a computer uses a 500 W power supply unit and draws 250 W on average, running 8 hours a day for 30 days a month. Find the monthly energy use in kWh and the average load percentage; if electricity costs $1.2 per kWh, find the monthly cost. [4]

4. Source 4: a USB 3.0 port transfers data at 5 Gbps in theory (1 byte = 8 bits). Find the shortest theoretical time, in seconds, to copy a 20 GB file. [4]

Part 2 Binary and Data Units

Show your conversion clearly.

5. Convert the binary number 101101 to a decimal number and show the place-value expansion. [4]

6. Convert the decimal number 202 to an 8-bit binary number and explain why leading zeros are added. [5]

7. A phone camera takes 12 megapixel photos and each pixel uses 3 bytes before compression. Find the size of one photo in MB (1 MB = 10^6 bytes). [4]

8. A 4000 MB memory stick holds photos of 2.5 MB each, and the binary number 11011 equals 27. Find how many whole photos fit, and state the decimal value of 11011. [4]

Part 3 Operating System and File Management

Show all working.

9. Source 1: a folder holds 250 GB of data and compression reduces its size by 40%. Find the compressed size and the space saved, and state one benefit of compressing files. [5]

10. Source 2: the system writes 1.5 GB of log files each day and keeps only the last 14 days. Find the maximum space the logs occupy, and say whether 18 GB of free disk space is enough. [4]

11. Source 3: an SSD holds 480 GB and 65% is used. Find the free space in GB, and state one difference between moving and copying a file in File Explorer. [4]

12. Source 4: a 3.6 GB file is uploaded at 12 MB/s (1 GB = 1000 MB). Find the time needed in seconds and in minutes. [4]

Part 4 Word Processing and Spreadsheets

Write the formula and show your working.

13. Source 1: cells B2 to B11 hold 10 scores totalling 720, and cell B12 must show the mean. Write the formula for B12 and state the mean score. [4]

14. Source 2: cell C2 holds 47 and the formula is =IF(C2>=50,"pass","fail"). State the result shown and explain the role of the comparison operator in the formula. [4]

15. Source 3: a worker works 8.5 hours a day for 22 days a month at $65 per hour. Find the monthly hours and pay; if the daily hours drop to 8.0, find the percentage fall in pay. [4]

16. Source 4: D2 to D5 hold 62, 75, 58 and 81, and the formula is =ROUND(AVERAGE(D2:D5),1). Find the result and explain what ROUND does. [4]

Part 5 Internet and Web Browsing

Show all working.

17. Source 1: a web page is 4.8 MB and the connection runs at 24 Mbps (1 byte = 8 bits). Find the theoretical download time in seconds. [4]

18. Source 2: the address is https://www.example.edu.hk/. State the domain name and the top-level domain, and give one main difference between https and http. [4]

19. Source 3: a 3 GB video is uploaded at 10 Mbps (1 GB = 1000 MB). Find the time in minutes. [4]

20. Source 4: 120 students watch a live stream at the same time and each needs 2.5 Mbps. Find the total bandwidth the school needs and explain the purpose of buffering during playback. [4]

Part 6 Information Literacy and Cyber Security

Show your calculation or explanation.

21. Source 1: a phone is unlocked with a 4-digit PIN. Find the number of possible PINs and explain why a birthday is a poor choice of PIN. [4]

22. Source 2: a password has 8 characters, each an upper or lower case letter (52 choices). Find the number of combinations in scientific notation to 2 decimal places, and explain why adding digits and symbols is safer. [4]

23. Source 3: a student receives an email that claims to be from a bank, asks the student to click a link and type the online banking password, and says the account will be frozen within 3 hours. State two suspicious features and one correct way to respond. [4]

24. Source 4: the school follows the 3-2-1 rule when backing up important files. State the three parts of the rule and give one risk of keeping files only on one computer. [4]
