

# MODEL PAPER 07

Marking Scheme



## Model Paper 07 – MCQ Marking Scheme

1) 1	11) 1	21) 3	31) 1
2) 2	12) 2	22) 3	32) 2
3) 3	13) 1	23) 4	33) 3
4) 2	14) 1	24) 2	34) 3
5) 2	15) 2	25) 2	35) 1
6) 1	16) 3	26) 2	36) 3
7) 2	17) 3	27) 3	37) 1
8) 3	18) 1	28) 1	38) 1
9) 4	19) 2	29) 2	39) 1
10) 1	20) 1	30) 1	40) 1

### 1. (1) Printer

The device is used to produce hard copies (posters/ID cards) and doesn't take touch or typed input itself; it simply receives print jobs from connected systems. That's exactly what a printer does, unlike keyboards/joysticks (input) or touch screens (require touch input).

### 2. (2) Setting up multi-factor authentication

MFA adds a second factor (e.g., OTP, authenticator app, security key) so a leaked password alone isn't enough to log in. RAM upgrades, removing apps, or defragmenting don't address account-takeover risk.

### 3. (3) SSDs due to faster access speeds

Solid-state drives have much lower latency and higher IOPS than HDDs/optical disks, making transactions and queries snappier. RAM is fastest but volatile (not permanent), so it's unsuitable as the database's main storage.

### 4. (2) Ordering bulk office supplies for a company from a vendor website

B2B is commerce between organizations. Buying an e-book or groceries is B2C, while registering for online tax services is G2C.

### 5. (2) Real-time processing

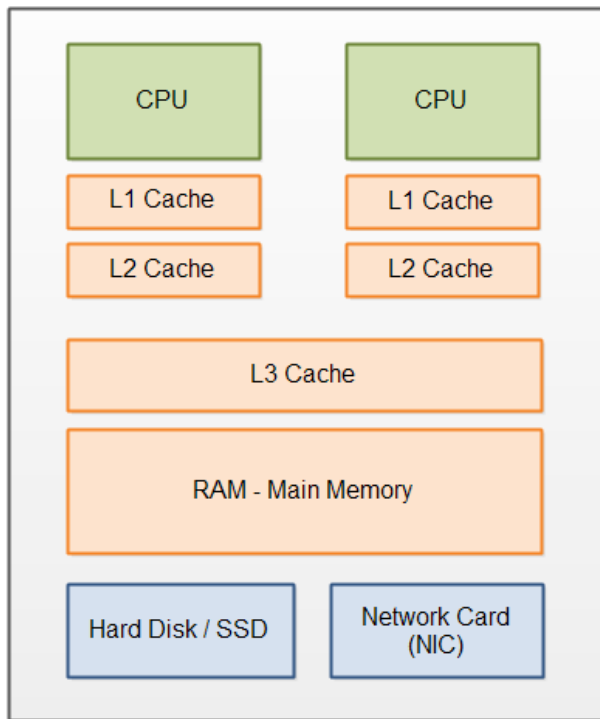
The system updates stock immediately upon scanning and triggers low-stock alerts right away. Batch processing would wait to process transactions later; cloud/distributed are architectures, not processing immediacy.

### 6. (1) A-1, B-2, C-3

Supercomputers handle massive simulations (climate modeling); laptops are suited to productivity apps like Excel/Word; smartphones enable mobile Zoom classes.

### 7. (2) Cache memory

CPU cache (L1/L2/L3) stores recently/likely-needed data very close to the CPU for ultra-fast access during intensive tasks like video rendering. Disks (internal or external) and USB are far slower.



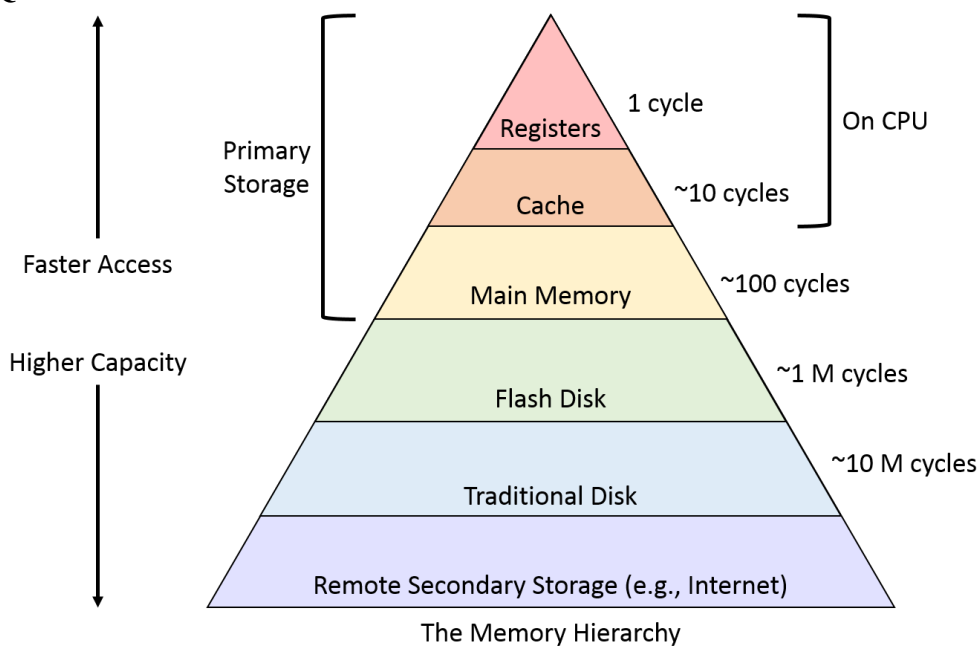
### 8. (3) A and B only

Coaxial is largely obsolete for high-speed backbones (A true), and fiber provides superior bandwidth and speed versus copper (B true). Wireless is convenient but not faster than top wired links like fiber (C false).

### 9. (4) All A, B and C

Hex digits are 0–9 and A–F (A true). ASCII is a 7-bit code with common 8-bit extensions (B true).  $256_{10}$  equals  $1\ 0000\ 0000_2$  (that is  $100000000_2$ ), so C is also true.

### Q10 –



### 12. (2) File system management, process synchronization, memory allocation

These are core kernel duties: managing filesystems, coordinating processes/threads, and allocating memory. UI design, database management, and hardware-accelerated app logic are user-space concerns.

### 13. (1) Deduplication of redundant data blocks

Deduplication of redundant removes repeated blocks/chunks, shrinking storage footprint and reducing bytes sent over the wire, without deleting any unique files. The other options don't inherently save space/transfer volume.

### 14. (1) Ctrl + F followed by Ctrl + H

In most word processors, Ctrl+H opens the Find & Replace dialog directly; starting with Ctrl+F (Find) and then pressing Ctrl+H moves you into the Replace tab of that same dialog, which is what the question targets.

### 15. (2) Windows Key + L

Pressing Win+L instantly locks a Windows session, requiring credentials to resume. The other combinations don't trigger the lock screen.

16 - The correct answer is (3) because a range written as **B2:D4** means all the cells in the rectangular block from column **B** to column **D** and from row **2** to row **4**; so you include every cell where the column is B, C, or D and the row is 2, 3, or 4—specifically **B2, C2, D2, B3, C3, D3, B4, C4, and D4**—not just the corners or a diagonal.

### 17. (3) 0

The formula in C5 is  $=C4 * \$A\$1$ . Here, C4 is a relative reference, so when you copy the formula one column to the right into D5, that part shifts to D4. The  $\$A\$1$  is an absolute reference, so it stays as  $\$A\$1$ . Since column D has no value in D4 (it's blank), the copied formula in D5 effectively becomes  $=D4 * \$A\$1$ , which is  $0 * \$A\$1 = 0$ . Hence, the displayed result is 0.

18: (1) **Ctrl + Shift + D** — common duplicate-slide shortcut (others shown are for comments, centering, etc.);

19: (2) **Pivot table creation** — spreadsheets support pivots but databases focus on queries/tables (both spreadsheets and DBMSs do filtering, and conditional formatting is typical in spreadsheets but not a core DBMS feature);

20: (1) **A and B only** — bullet points and consistent fonts improve clarity, while bright multicolored page backgrounds hurt readability.

21: (3) **4** — The Book table lists four records (B001, B002, B003, B004), so there are exactly four rows/books present.

22: (3) **Book\_ID** — In the Reservation table, **Book\_ID** is the correct foreign key because it links each reservation to the corresponding book's **Book\_ID** primary key in the Book table.

23: **None of the given options are true** — Not all students have reserved a book (1002 and 1004 haven't), not all students are members (1002 is FALSE), no non-member has a reservation (only 1001 and 1003 reserved, both TRUE), and not all members have reserved (1004 is TRUE but has no reservation).

24: (4) **Book, Student, and Reservation tables** — You must add Ruwan's details to the **Student** table, insert the new reservation into the **Reservation** table, and update the **Book** table's **Reserved** field for **B004** to TRUE to reflect that it is now reserved.

### 25. (2) Identify the defect, document the issue, fix the defect, verify the fix

Good debugging practice is: reproduce/identify, record details, implement the correction, then validate with tests to ensure the fix works and doesn't regress other behavior.

### 26. (2) DNS

The Domain Name System resolves a human-readable domain ([www.canva.com](https://www.canva.com)) to its numeric IP address before the browser connects.

**27. (3) HTTPS, SFTP, FTPS**

All three are encrypted-by-design (TLS for HTTPS/FTPS; SSH for SFTP); plain FTP/HTTP/SMTP are not inherently secure.

**28. (1) IaaS, PaaS, SaaS**

These are the three canonical cloud service models covering virtual infrastructure, application platforms, and ready-to-use software.

**34. (3)**

Reducing from 24 bpp ( $\approx 16.7\text{M}$  colors) to 0 bpp leaves only one possible value ( $2^0=1$ ), i.e., no color variation at all; the image collapses to a single “flat” color, so quality decreases, and fewer bits means the file size decreases too.

**35. (1) A and B only**

Pseudocode intentionally avoids strict language syntax while conveying structure (A), and many problems admit multiple correct algorithms (B). An algorithm doesn’t have to have a loop (C is false)—some are straight-line or purely conditional.

**36: (3) 75** — The algorithm starts with `maxValue = a = 45`, compares `b` and updates `maxValue` to 75 since `b > 45`, then compares `c = 60` with `maxValue = 75` and leaves it unchanged; the displayed maximum is therefore 75.

**37: (1) 30** — With input 60 the first condition `input > 50` is true, so it executes `result = (60 - 50) * 3 = 10 * 3 = 30`, skipping the other branches, and displays 30.

**38: (1) 25** — The loop tracks the largest number seen in `x`, starting at 0: after 12  $\rightarrow x=12$ , after 8  $\rightarrow x$  stays 12, after 25  $\rightarrow x=25$ , after 15  $\rightarrow x$  remains 25; the sentinel -1 ends input and it outputs the maximum 25.

**39: (1) A and B only** — Nested IFs can contain multiple inner IF conditions (A) and IF conditions can use compound logical expressions like AND/OR (B), but an ELSE block is optional, not mandatory (so C is false).

## Model Paper 07 – Part II Marking Scheme

### Q1

- (i) a) **False**                      b) **False**                      c) **False**                      d) **False**
- (ii) **A: PS/2** (keyboard & mouse)                      **B: S-Video** (mini-DIN)  
**C: Serial port**                      **D: Parallel port**
- (v) Portable storage for Tanya's multimedia (data changes often)  
**Recommend a portable external SSD (or HDD).**  
Why: **high capacity, fast, rewritable, durable, easy USB-plug-and-play** for frequently updated multimedia.
- (vi) **NAND** and **NOR**
- (vii) (a) Composite primary key: **(Month, SupplierID)**  
(b) Data types:  
    **Month** → Text/VARCHAR (or Date/Month type, if available)  
    **Revenue** → **Currency/DECIMAL**
- (viii) 1st generation: Vacuum tubes  
4th generation: Microprocessors (VLSI)
- (ix) A. **bitmap**                      B. **vector**                      C. **Lossless**                      D. **PNG**
- (x) Email header (To: Ayesha, Ravi; Cc: Mala; Bcc: Priya)  
A. "Priya can see that Mala is a recipient of the email." → **True**  
B. "Ravi can see that Priya is a recipient of the email." → **False** **(2\*10 = 20 marks)**
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### Q2

- (i) **A → 1**                      **B → 2**                      **C → 3**                      **D → 4** **(0.5\*4 = 2 marks)**
- (ii) Power features like **sleep/standby, hibernate, automatic display off, CPU throttling, disk spin-down, and scheduled shutdowns** cut electricity use when full power isn't needed. Less energy → lower bills, reduced heat and fan noise, and **smaller carbon footprint**, which directly supports green computing goals. **(2.5 marks)**
- (iii) (a) Use USB encryption software (e.g., *BitLocker To Go* or *VeraCrypt*) to encrypt the drive with a strong password.
- (b) Use free/open-source alternatives such as GIMP (or a web tool like Photopea) instead of paid image editors.
- (c) An LMS lets teachers post materials, collect assignments, and auto-grade/quicken feedback in one place, with progress tracking.

(d) Use properly licensed images (public domain or Creative Commons), give required attribution, or get permission before use.

(e) Reliable high-speed Internet (sufficient upload/download bandwidth)

Working webcam and microphone/headset (plus the required conferencing software)

**(0.5\*5=2.5 marks)**

- (iv) Mesh topology diagram (switch + 3 computers + file server)  
In a **full mesh**, **every device connects to every other device.**

**(3 marks)**

### Q3

- (i) **a.** Primary key of **Department** table: **DepartmentID**  
**b.** Possible primary key(s) of **Employee** table: **EmployeeID** (only candidate key) **(1\*2 = 2 marks)**
- (ii) **a.** Add the new employee → **Employee** table  
**b.** Assign Saman Silva (E003) to new project P005 → **Project\_Assignment** table **(1\*2 = 2 marks)**
- (iii) New record(s)

**Employee** → (EmployeeID, FirstName, LastName, DepartmentID, Salary)  
**(E006, Kavinda, De Silva, D001, 47000)**

**Project\_Assignment** → (ProjectID, EmployeeID, Role, YearAssigned)  
**(P005, E003, Manager, 2023)**

*(Role set to “Manager/Lead” to reflect leading the project; year assumed 2023.)*

**(2\*2 = 4 marks)**

- (iv) **Department with Employee**

**(1\*2 = 2 marks)**

### Q4

- (i) A → HTTPS                      B → DNS service                      C → SSH  
D → SMTP                      E → .org                      F → TCP/IP

**(0.5\*6 = 3 marks)**

- (ii) **A → Wireshark                      B → Flask**  
**C → SFTP                      D → PostgreSQL**

**(0.5\*4 = 2 marks)**

- (iii) 1 – src                      2 – alt                      3 – p                      4 – title                      5 – h1  
6 – h2                      7 – ul                      8 – li                      9 – i                      10 – a

**(0.5\*10=5 marks)**

### Q5

- (i) In **G2**: =SUM(C2:E2)
- (ii) In **G4** after copying: =SUM(C4:E4)
- (iii) (a) In **H2**: =G2\*(F2/100)  
(b) In **H5** after copying: =G5\*(F5/100)

(iv) In **D42** (average of Product B): =AVERAGE(D2:D5)

(v) Maximum final commission (column H): =MAX(H2:H5)

(2\*5 = 10 marks)

## Q6

(i) **A → P (Identifying project scope)** – Project initiation

**B → S (Allocating resources)** – Planning

**C → T (Conducting project meetings)** – Execution

**D → Q (Tracking project progress)** – Monitoring & controlling

**E → R (Finalizing project deliverables)** – Closure

(0.5\*5=2.5 marks)

(ii) **Input:** Scanned student payment card or entered item codes & quantities

**Process:** Calculate total and deduct that amount from the student's prepaid balance

**Output:** Printed receipt showing the remaining balance (and updated balance in the system)

(0.5\*3=1.5 marks)

(iii) **A → P (pilot testing)**

**B → R (full deployment)**

**C → S (modular development)**

**D → Q (phased implementation)**

(0.5\*4 = 2 marks)

(iv) **Faster, more accurate transactions** (shorter queues, fewer cash-handling errors).

**Greater security & traceability** (no cash to steal; clear audit trail and balance tracking).

(2\*2 = 4 marks)

## Q7

(i) **Array B:** [45, 85, 60, 50, 90]

**a)** Output of the pseudocode: 90

(2 marks)

**b)** Fill in P, Q, R:

**P:** DISPLAY "Greater than 100"

**Q:** DISPLAY "Equal to 100"

**R:** DISPLAY "Less than 100"

(3 marks)

**c)** Array after assignments

Set B[1]=55, B[3]=95, B[4]=40 → [45, 55, 60, 95, 40]

(2 marks)

(ii) Fill in P, Q, R:

**P:** N MOD 2 = 0

**Q:** N MOD i = 0

**R:** Prime (i.e., IF Prime THEN ...)

This prints "Even" for even numbers; otherwise checks factors up to N/2, marks Prime=FALSE if divisible, and finally prints "Prime" if Prime remains true, else "Neither".

(3 marks)