Grade 12 A/L ICT · Lesson 1

Lesson 1 A/L Exam Practice: Questions and Answers

These questions follow the style of the G.C.E. A/L ICT exam. **Paper I** has 30 multiple choice questions with five options (1)–(5) shown here as A–E. **Paper II Part A** has structured questions and **Part B** has essay questions. Every question has a model answer and marking points. They cover all of Competency 1 (1.1–1.7): data and information, ICT evolution, the IPO model and systems, computer components, data processing, ICT domains and the impact of ICT on society.

Paper I – Multiple choice questions (30)

1. Which of the following is information rather than data?

A. Nimal
B. “The class average is 73.67, grade B.”
C. 72
D. 2026-11-04
E. 85, 64, 72

2. Which characteristic of information is lost when last year’s timetable is used?

A. Accuracy of fonts
B. Relevance to ICT
C. Timeliness
D. Cost
E. Completeness

3. 1,000 sensors each send a 4-byte reading every second. Data per day (1 MB = 10^6 bytes)?

A. 3,456 MB
B. 86.4 MB
C. 4 MB
D. 345.6 MB
E. 34.56 MB

4. The correct order of the stages of the data life cycle is:

A. Removal → creation → management
B. Data creation → management (store, use, share) → removal of obsolete data
C. Creation → removal → management
D. Management → removal → creation
E. Management → creation → removal

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5. The “5 Vs” of big data include volume, velocity, variety, veracity and:

A. Vision
B. Voltage
C. Virus
D. Validation
E. Value

6. A clerk processes 1,000 forms at 25 per hour. A computer does 500 per minute. Time saved by the computer?

A. 2 minutes
B. 39 hours 58 minutes
C. 20 hours
D. 38 hours
E. 40 hours

7. Which was first used in 1969 and led to the Internet?

A. WWW
B. Cloud computing
C. 4G
D. ARPANET
E. Wi-Fi 6

8. The World Wide Web was proposed in:

A. 1969
B. 1983
C. 1975
D. 2001
E. 1989

9. Which mobile generation first gave digital voice and SMS?

A. 5G
B. 2G
C. 1G
D. 4G
E. 3G

10. Using a shared online file that many people edit at once is an example of:

A. Punched cards
B. MICR
C. Piracy
D. Cloud services and collaboration
E. Batch processing

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11. Marks 72, 85 and 64 are averaged. Using A 75+, B 65–74, C 50–64, the output is:

A. 73.67, grade C
B. 74.33, grade B
C. 73.67, grade B
D. 221, grade A
E. 73.67, grade A

12. In an automatic air conditioner, measuring the new room temperature again is:

A. Environment
B. Output only
C. Boundary
D. Storage
E. Feedback

13. Which statement about a system is TRUE?

A. It must be a computer
B. It has no boundary
C. Its parts never interact
D. Its parts work together towards a common goal
E. It has no inputs

14. In the IPO model, the CPU matches:

A. Process
B. Feedback only
C. Input
D. Output
E. Environment

15. Which is application software?

A. Disk cleanup
B. Linux
C. A spreadsheet
D. A compiler
E. A printer driver

16. 40 PCs need a licence of Rs. 25,000 each. Total cost?

A. Rs. 40,000
B. Rs. 100,000
C. Rs. 250,000
D. Rs. 10,000,000
E. Rs. 1,000,000

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17. Which pair are both open source?

A. Linux and LibreOffice
B. Photoshop and GIMP
C. MS Office and Firefox
D. macOS and Windows
E. Windows and Linux

18. Who manages and protects an organisation’s database?

A. Programmer
B. Cashier
C. Data entry operator
D. End user
E. Database administrator

19. Which tool reads bank cheques?

A. MICR
B. Data logger
C. OCR
D. OMR
E. Bar code reader

20. Records are checked in the order presence → data type → range (0–100). Record (name blank, age “seventeen”, mark 105) fails:

A. The presence check first
B. No check
C. Verification only
D. The data type check first
E. The range check first

21. With a range check of 0–100, how many of 0, 100, 105, −3 and 78 are valid?

A. 2
B. 3
C. 1
D. 5
E. 4

22. Typing data twice and comparing the copies is:

A. A range check
B. OCR
C. A presence check
D. Verification (double entry)
E. Batch processing

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23. 12,000 bills are printed in a batch at 400 per minute. Time?

A. 300 minutes
B. 48 minutes
C. 400 minutes
D. 3 minutes
E. 30 minutes

24. Which needs real-time processing?

A. Car air-bag control
B. Monthly payroll
C. Exam result sheets
D. Water bills
E. Yearly census report

25. CAD and CAM are mainly used in:

A. Agriculture only
B. Engineering and manufacturing
C. Banking only
D. Social media
E. Telemedicine

26. Renewing a vehicle revenue licence online is:

A. Telemedicine
B. CAM
C. E-governance
D. E-learning
E. E-commerce

27. Which law makes unauthorised access to a computer a crime in Sri Lanka?

A. Computer Crimes Act No. 24 of 2007
B. Personal Data Protection Act No. 9 of 2022
C. Intellectual Property Act No. 36 of 2003
D. Motor Traffic Act
E. Electronic Transactions Act No. 19 of 2006

28. A fake SMS asking for your bank PIN through a strange link is:

A. Piracy
B. Validation
C. E-governance
D. Phishing
E. Plagiarism

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29. The gap between people with and without ICT access and skills is the:

A. Feedback loop
B. E-waste
C. Digital divide
D. Bandwidth
E. Data life cycle

30. How many SDGs did the UN agree in 2015?

A. 8
B. 15
C. 17
D. 12
E. 20

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Paper II Part A – Structured questions

1. Data, information and big data. *(12 marks)*

(i) Define data and information and give one example of each. *(4 marks)*
(ii) List four characteristics of good quality information. *(2 marks)*
(iii) 1,000 sensors each send a 4-byte reading every second. Calculate the data produced per day in MB (1 MB = 1,000,000 bytes). *(3 marks)*
(iv) Name the three stages of the data life cycle in order. *(3 marks)*

2. The IPO model and computer components. *(10 marks)*

(i) Draw the abstract model of information creation. *(2 marks)*
(ii) Marks 72, 85, 64 are entered. Using A 75+, B 65–74, C 50–64, show the process and the output. *(3 marks)*
(iii) Classify these as system or application software: Windows, spreadsheet, antivirus, web browser. *(2 marks)*
(iv) A school has 40 PCs and a licence costs Rs. 25,000 each. Calculate the cost and name one open source alternative. *(3 marks)*

3. Data processing and validation. *(12 marks)*

(i) Records are checked in the order presence, data type, range (mark 0–100). Give the result for each record. *(4 marks)*
(ii) Distinguish validation from verification. *(2 marks)*
(iii) An OMR reads 3,600 sheets per hour and a teacher marks 60 per hour. Find the time each needs for 1,800 sheets. *(2 marks)*
(iv) State whether batch or real-time processing suits each: (a) payroll (b) ATM withdrawal. Give a reason for each. *(4 marks)*

4. ICT in society. *(8 marks)*

(i) Name the Sri Lankan Act, with its number and year, that covers (a) hacking (b) electronic signatures. *(2 marks)*
(ii) Distinguish software piracy from plagiarism. *(2 marks)*
(iii) Give two signs of a phishing message. *(2 marks)*
(iv) Name one harmful material in e-waste and one safe way to dispose of it. *(2 marks)*

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Paper II Part B – Essay questions

1. Essay 1 – Information systems. A school wants a computer system to process term test marks. *(15 marks)*

(i) Explain the system using the IPO model, naming input, process, output and storage. *(4 marks)*
(ii) Suggest three validation checks for the marks entry screen and explain each. *(6 marks)*
(iii) Name the components (hardware, software, people) needed, with one example of each. *(3 marks)*
(iv) Should the results be processed in batch or real time? Justify your answer. *(2 marks)*

2. Essay 2 – ICT in different domains. *(13 marks)*

(i) Describe how ICT is used in healthcare and agriculture, giving two tools for each. *(6 marks)*
(ii) Define e-commerce and e-governance with one Sri Lankan example each. *(4 marks)*
(iii) Explain why information literacy is an important ICT skill today. *(3 marks)*

3. Essay 3 – Impact of ICT on society. *(13 marks)*

(i) Discuss two benefits and two issues of ICT for Sri Lankan society. *(4 marks)*
(ii) Explain the digital divide, two causes and two ways to reduce it. *(5 marks)*
(iii) Explain how ICT helps two Sustainable Development Goals. *(4 marks)*

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Exam tips

- Data = raw facts; information = processed, meaningful data.
- Good information is accurate, timely, complete, relevant and clear.
- Data life cycle: creation → management (store, use, share) → removal of obsolete data.
- Big data: volume, velocity, variety, veracity, value.
- Timeline: 1969 ARPANET, 1983 TCP/IP, 1989 WWW, 1991 first website.
- IPO: input → process → output, plus storage and feedback.
- Computer system = hardware + software + people.
- Proprietary = closed code + licence fee; open source = open code.
- Tools: OMR (MCQ sheets), OCR (text), MICR (cheques), bar codes, sensors.
- Validation order matters: stop at the first failed check; boundary values are valid.
- Batch = grouped, later; real-time = at once.
- Laws: IP Act 2003, ETA 2006, Computer Crimes Act 2007, PDPA 2022.

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Answers and explanations

Paper I

1. **B** – Processed, meaningful result.
2. **C** – Out-of-date information.
3. **D** – 1000 × 4 × 86400 = 345,600,000 B.
4. **B** – Data are created, managed, then obsolete data are removed.
5. **E** – Value = usefulness.
6. **B** – 40 h − 2 min.
7. **D** – US research network.
8. **E** – By Tim Berners-Lee.
9. **B** – 1G was analogue.
10. **D** – Shared over the Internet.
11. **C** – 221 ÷ 3 = 73.67 → B.
12. **E** – Output fed back to control.
13. **D** – Definition of a system.
14. **A** – It processes data.
15. **C** – It does a user task.
16. **E** – 40 × 25,000.
17. **A** – Open source code.
18. **E** – DBA role.
19. **A** – Magnetic ink.
20. **A** – Stops at the first failure.
21. **B** – 0, 100, 78.
22. **D** – Checks copying accuracy.
23. **E** – 12000 ÷ 400.
24. **A** – Must react at once.
25. **B** – Design and making.
26. **C** – Government service.
27. **A** – Hacking = crime.
28. **D** – A trick to steal secrets.
29. **C** – Access + skills gap.
30. **C** – 17 goals for 2030.

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Paper II Part A – model answers and marking points

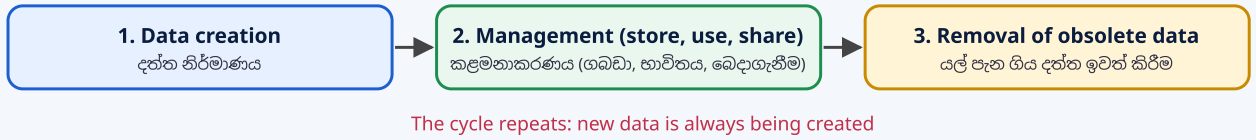
1. *(12 marks)*

(i) (4 marks)
Data – raw facts with no meaning yet (1), e.g. 72, 85, 64 (1); information – processed, meaningful data (1), e.g. average 73.67 (1).

(ii) (2 marks)
Any four of accurate, timely, complete, relevant, clear, reliable (½ each).

(iii) (3 marks)
Seconds per day = 86,400 (1); 1,000 × 4 × 86,400 = 345,600,000 bytes (1); = 345.6 MB (1).

(iv) (3 marks)
Data creation (1); management – store, use and share (1); removal of obsolete data (1).



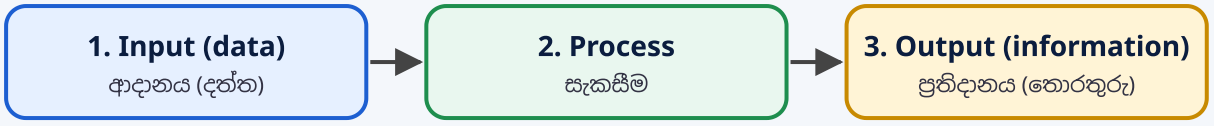
The data life cycle.

🎯 Examiner tip: always show the unit conversion step in calculations.

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2. *(10 marks)*

(i) (2 marks)
Three labelled boxes Input → Process → Output (1); arrows in the correct direction (1).



The IPO model.

(ii) (3 marks)
Total = 221 (1); average = 221 ÷ 3 = 73.67 (1); grade B (1).

(iii) (2 marks)
System: Windows, antivirus (1); application: spreadsheet, web browser (1).

(iv) (3 marks)
40 × 25,000 (1) = Rs. 1,000,000 (1); LibreOffice (1).

🎯 Examiner tip: in classification questions, write each item under a clear heading.

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3. *(12 marks)*

(i) (4 marks)
S02 – Presence check failed; S03 – Data type check failed; S04 – Range check failed; S05 – Range check failed (1 each).

ID	Name	Age	Mark
S02	(blank)	17	65
S03	Kamala	seventeen	80
S04	Ruwan	18	105
S05	Fathima	17	-3

(ii) (2 marks)
Validation – computer checks data are sensible using rules (1); verification – checks data were copied correctly, e.g. double entry (1).

(iii) (2 marks)
OMR: 1,800 × 60 ÷ 3,600 = 30 minutes (1); teacher: 1,800 ÷ 60 = 30 hours (1).

(iv) (4 marks)
(a) Batch (1) – all salaries are processed together once a month (1); (b) real-time (1) – the balance must be updated at once (1).

🎯 Examiner tip: validation stops at the first failed check – say which check fails first.

4. *(8 marks)*

(i) (2 marks)
(a) Computer Crimes Act No. 24 of 2007 (1); (b) Electronic Transactions Act No. 19 of 2006 (1).

(ii) (2 marks)
Piracy – using or copying software without a licence (1); plagiarism – presenting others' work as your own (1).

(iii) (2 marks)
Any two: urgent threat; strange web address; asks for a password or PIN; spelling errors (1 each).

(iv) (2 marks)
Lead, mercury or cadmium (1); give to an approved e-waste recycler (1).

🎯 Examiner tip: learn each Act with its number and year.

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Paper II Part B – model answers and marking points

1. *(15 marks)*

> **(i)** (4 marks)
> Input – marks and student IDs (1); process – totals, averages, grades, ranks (1); output – report cards and class lists (1); storage – database of marks (1).

> **(ii)** (6 marks)
> Presence – student ID must be entered (2); data type – mark must be a number (2); range – mark 0–100 (2).

> **(iii)** (3 marks)
> Hardware – PC and printer (1); software – OS and spreadsheet or database (1); people – teachers entering marks, an administrator (1).

> **(iv)** (2 marks)
> Batch (1); all marks are collected first and reports are needed only at the end of term (1).

> 🎯 Examiner tip: link every point back to the school scenario.

2. *(13 marks)*

> **(i)** (6 marks)
> Healthcare – telemedicine (1½), electronic health records (1½); agriculture – soil sensors with auto irrigation (1½), drones or price apps (1½).

> **(ii)** (4 marks)
> E-commerce – buying and selling online (1), e.g. paying with LankaQR or an online shop (1); e-governance – government services by ICT (1), e.g. online revenue licence (1).

> **(iii)** (3 marks)
> Much online information is false or biased (1); people must check the source and date (1); this stops the spread of fake news and wrong decisions (1).

> 🎯 Examiner tip: give the tool, what it does and the benefit.

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3. *(13 marks)*

(i) (4 marks)
Benefits – e.g. telemedicine for rural areas (1), new online jobs (1); issues – e.g. cyberbullying (1), e-waste (1).

(ii) (5 marks)
Gap between people with and without ICT access and skills (1); causes – cost of devices and data (1), no rural coverage or no skills (1); ways – Nenasala centres (1), school labs, training or local-language content (1).

(iii) (4 marks)
Goal 3 good health – telemedicine and health records (2); Goal 4 quality education – e-learning and LMS (2). Other correct goals accepted.

🎯 Examiner tip: in essays, write a short introduction and use one paragraph for each point.

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