COLLEGE PRIVE BILINGUE MONTESQUIEU

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ACADEMIC YEAR 2026/2027

SUBJECT	TYPE OF EVALUATION	CLASS	COEF	SESSION 2026-2027	DURATION
ICT	1ST SEQUENCE	LS			1H 30 MIN
STUDENT'S NAME					No :

Instructions: Answer all questions. Section A carries 15 marks. Section B carries 25 marks.

SECTION A: MULTIPLE-CHOICE QUESTIONS (15 MARKS)

Choose the single best answer for each question. Each question carries 1 mark.

1) **A computer is redesigned so that it is smaller, cheaper and more reliable than an earlier model, while offering substantially greater processing capability. Which conclusion best reflects the evolution of computer generations?**
   - **A.** Every new generation differs only in its physical size.
   - **B.** Technological changes across generations generally improved capability while reducing size and cost.
   - **C.** Later generations became more expensive because their processing power increased.
   - **D.** Computer generations are classified only by the type of output device used.
2) **Which pairing correctly matches a computer generation with its principal technology?**
   - **A.** First generation: transistors; second generation: vacuum tubes.
   - **B.** Second generation: integrated circuits; third generation: transistors.
   - **C.** First generation: vacuum tubes; second generation: transistors.
   - **D.** Fourth generation: vacuum tubes; fifth generation: magnetic drums.
3) **A historian is comparing two early computers. Machine P uses vacuum tubes and occupies a large room; Machine Q uses transistors and is smaller and more reliable. Which inference is most justified?**
   - **A.** P belongs to the second generation and Q to the first.
   - **B.** P likely belongs to the first generation and Q to the second.
   - **C.** Both must belong to the fourth generation because they are electronic.
   - **D.** Q must be a fifth-generation computer because it is more reliable.
4) **Which statement best distinguishes Von Neumann architecture from Harvard architecture?**
   - **A.** Von Neumann uses separate memories for instructions and data, while Harvard uses one shared memory.
   - **B.** Von Neumann uses a shared memory for instructions and data, while Harvard uses separate instruction and data memories.
   - **C.** Both architectures require instructions to be entered manually during every calculation.
   - **D.** Harvard architecture has no processor, while Von Neumann architecture does.
5) **A system can fetch an instruction and access data from separate memory units at the same time. Which architectural feature most directly supports this?**
   - **A.** A single shared memory for both instructions and data.
   - **B.** Separate instruction and data memories, as in Harvard architecture.
   - **C.** The absence of a control unit.
   - **D.** The use of vacuum tubes rather than transistors.
6) **Which situation best illustrates the stored-program concept?**
   - **A.** A computer's instructions are permanently wired into its circuitry and cannot be changed.
   - **B.** A computer stores program instructions in memory and fetches them for execution.
   - **C.** A user stores only the final printed results on paper.
   - **D.** A computer performs calculations without receiving instructions.
7) **In a stored-program computer, which sequence most closely describes normal instruction execution?**
   - **A.** Print result → delete program → fetch instruction → process input.
   - **B.** Fetch instruction from memory → decode it → execute it.
   - **C.** Decode output → store keyboard → fetch result.
   - **D.** Execute every instruction before it is placed in memory.

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8) **Which statement about the stored-program concept is most accurate?**
   A. It allows programs to be stored in memory and changed without physically rewiring the computer for every new task.
   B. It means the computer can operate without software.
   C. It requires all data and instructions to be entered through punch cards only.
   D. It prevents a computer from running different programs.

9) **Which description best defines Artificial Intelligence (AI)?**
   A. Any device that contains a processor, regardless of what it does.
   B. A field of computing concerned with systems performing tasks that normally require human intelligence.
   C. A technology used only to store large amounts of information.
   D. A computer program that follows one fixed arithmetic operation and cannot process other tasks.

10) **Which event is most closely associated with AI becoming established as a formal field of study?**
   A. The invention of the transistor in 1947.
   B. The Dartmouth workshop in 1956.
   C. The launch of the World Wide Web in 1989.
   D. The introduction of smartphones in the 2000s.

11) **A voice assistant recognises spoken commands and performs a limited set of tasks, but cannot independently perform every intellectual task a human can. Which classification best fits it?**
   A. Artificial Narrow Intelligence (ANI).
   B. Artificial General Intelligence (AGI).
   C. Artificial Superintelligence (ASI).
   D. Self-aware AI.

12) **Which statement correctly describes Artificial General Intelligence (AGI)?**
   A. It is an established technology that already exceeds humans in every intellectual field.
   B. It is a hypothetical AI with broad intellectual capabilities comparable to humans across many tasks.
   C. It refers only to AI that classifies photographs.
   D. It is another name for a traditional calculator.

13) **A proposed AI system is described as outperforming humans across virtually all intellectual domains. This description corresponds to:**
   A. Artificial Narrow Intelligence.
   B. A stored-program computer.
   C. Artificial Superintelligence.
   D. Harvard architecture.

14) **Which statement provides the strongest comparison between the evolution of computing and the evolution of AI?**
   A. Both have involved changes in technology and capability over time, but computer generations are commonly linked to hardware technologies while AI history tracks methods and systems for intelligent behaviour.
   B. Computer generations and AI types are identical classifications.
   C. AI began only when fifth-generation computers were completed.
   D. Both histories consist only of changes in computer size.

15) **A student claims: "Because a computer can execute a stored program, it must be an AI system." Which response is most accurate?**
   A. Correct, because every stored program learns from experience.
   B. Correct, because memory automatically gives a computer human intelligence.
   C. Incorrect, because the stored-program concept concerns how instructions are stored and executed; it does not by itself make a system intelligent.
   D. Incorrect, because AI systems cannot use stored programs.

SECTION B: STRUCTURED AND ESSAY QUESTIONS (25 MARKS)

Answer all questions. Present clear explanations and use technical terms accurately.

1) A school is preparing a small exhibition on the development of computers. One exhibit describes an early computer that used vacuum tubes, consumed considerable power and occupied a large room. A second exhibit describes a later computer that used transistors and was smaller and more reliable. The school also wants to explain how modern computers store and execute programs.

a) Identify the generations represented by the two exhibit and state the main technology and programming language used in each. (4 marks)

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b) Explain two ways in which the second exhibit represents an improvement over the first. (2 marks)
c) Explain the stored-program concept and state one important advantage it provides. (2 marks)
d) State one fundamental difference between Von Neumann and Harvard architectures. (1 mark)

2) An embedded device is designed to process instructions and data. Its designer proposes two alternative architectures. Design A uses one memory space for instructions and data. Design B uses separate memories for instructions and data.
a) Name the architecture represented by Design A and the architecture represented by Design B. (2 marks)
b) Explain one possible advantage of Design B when fetching instructions and accessing data. (2 marks)
c) Explain one limitation or potential performance issue associated with Design A. (2 marks)
d) A technician argues that the architecture with separate memories must always be faster in every real-world situation. Explain why this conclusion is too absolute. (2 marks)

3) A technology club is comparing three proposed systems:
• System X identifies spam messages and performs that task only.
• System Y is a hypothetical system capable of carrying out a wide range of intellectual tasks at a level comparable to humans.
• System Z is a hypothetical system that exceeds human intellectual abilities across virtually all domains.
a) Define Artificial Intelligence. (2 marks)
b) Classify Systems X, Y and Z using the appropriate AI categories. (3 marks)
c) Identify the historical event commonly associated with the establishment of AI as a formal field of study, and state its year. (1 mark)
d) Explain why it would be inaccurate to describe System Y or System Z as established, commonly available AI technologies. (2 marks)

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