Marking Scheme for Class X IGCSE Computer Science Exam

Section 1: Software (Total: 3 marks)

1(a) State what is meant by software. [1]

- **Answer:** Software is a collection of programs, data, and instructions that tell a computer how to perform specific tasks.
- **Marking:** 1 mark for correct definition

1(b) Utility software example [1]

- **Answer:** B anti-virus
- **Marking:** 1 mark for correct tick

1(c) Type of software that manages inputs and outputs [1]

- **Answer:** Operating system (or system software)
- **Marking:** 1 mark for correct answer

Section 2: Binary and Hexadecimal (Total: 11 marks)

2(a) Base 16 number system [1]

- **Answer:** Hexadecimal
- **Marking:** 1 mark for correct answer

2(b)(i) Binary conversions [3]

- **Answers:**
  - 10 → 1010
  - 50 → 110010
  - 201 → 11001001
- **Marking:** 1 mark each for correct conversions (total 3 marks)

2(b)(ii) Why data is converted to binary [2]

- **Answer:** Computers use electronic circuits that can only represent two states (on/off), making binary the most efficient way to store and process data.
- **Marking:** 2 marks for complete explanation (1 mark for partial answer)

2(c) Binary addition [3]

- **Answer:**

```
 00110000
+01100110
--------
 10010110
```

- **Marking:** 3 marks for correct answer with working (1 mark for correct method with minor error)

2(d) Uses of hexadecimal [2]

- **Possible Answers:**
  - Representing memory addresses
  - Representing colors in web design
  - Error codes
  - MAC addresses
- **Marking:** 1 mark each for any two correct uses (total 2 marks)

Section 3: System vs Application Software (Total: 5 marks)

3(a) Example of system software [1]

- **Possible Answers:** Operating system, device drivers, utility programs
- **Marking:** 1 mark for correct example

3(b) Examples of application software [2]

- **Possible Answers:** Word processor, spreadsheet, web browser, games
- **Marking:** 1 mark each for two correct examples (total 2 marks)

3(c) Difference between system and application software [2]

- **Answer:** System software manages computer hardware and provides platform for application software to run, while application software performs specific tasks for users.
- **Marking:** 2 marks for clear distinction (1 mark for partial answer)

Section 4: MAC and IP Addresses (Total: 4 marks)

4(a) Correct statement about MAC address [1]

- **Answer:** A It is assigned by the manufacturer.
- **Marking:** 1 mark for correct tick

4(b)(i) IPv4 example [1]

- **Possible Answer:** 192.168.1.1
- **Marking:** 1 mark for correct format

4(b)(ii) IPv6 characteristics [2]

- **Possible Answers:**
  1. Uses 128-bit addresses

2. Represented in hexadecimal
3. Includes colons as separators
4. Larger address space than IPv4

- **Marking:** 1 mark each for two correct characteristics (total 2 marks)

Section 5: Multiple Choice (Total: 5 marks)

5(i-iv) [1 mark each]

- **Answers:**
  (i) d. Router
  (ii) b. Low level language
  (iii) b. Converts low-level language to machine code
  (iv) c. Virus scanning
  (v) c. Difficult to understand and write
- **Marking:** 1 mark each for correct answers (total 5 marks)

Section 6: Interrupts and OS (Total: 9 marks)

6(a) Interrupt process [7]

- • **printer**
- • **computer**
- **priority level**
- • **fetch–decode–execute cycle**
- • **interrupt queue**
- • **higher**
- • **interrupt service routine (ISR)**
- **1** mark for each correct term (total 7 marks)

6(b) OS memory functions [4]

- **Possible Answers:**
  1. Memory management/allocation
  2. Virtual memory management
  3. Memory protection
  4. Paging/swapping
- **Marking:** 2 marks each for two correct functions (total 4 marks)

Section 7: Translators (Total: 4 marks)

7(a) Why beginners prefer interpreters [2]

- **Answer:** Interpreters execute code line by line, allowing immediate feedback and easier debugging.
- **Marking:** 2 marks for complete answer (1 mark for partial answer)

7(b) When compiler is more suitable [2]

- **Answer:** When creating finished programs that need to run efficiently, as compiled code runs faster than interpreted code.
- **Marking:** 2 marks for complete answer (1 mark for partial answer)

Section 8: Translator Table (Total: 4 marks)

- **Answers:**

Feature	Compiler	Interpreter	Assembler
Language Translated	High-level	High-level	Assembly
Translation Method	Entire program at once	Line by line	One-to-one translation
Output	Machine code	No permanent output	Machine code
Use Case Example	Creating executable programs	Scripting/development	Low-level programming

- **Marking:** 1 mark for each correct row (total 4 marks)

Section 9: GUI vs CLI (Total: 2 marks)

- **Answer:** GUI uses visual elements like windows and icons for interaction, while CLI requires text commands. GUI is more user-friendly but less efficient for experts, CLI is faster for experienced users but has a steeper learning curve.
- **Marking:** 2 marks for clear comparison (1 mark for partial answer)

Section 10: IDE Features (Total: 2 marks)

- **Possible Answers:**
  1. Syntax highlighting
  2. Code completion
  3. Debugging tools
  4. Built-in compiler/interpreter
  5. Project management
- **Marking:** ½ mark each for four correct features (total 2 marks)

Total Marks: 50