National Council for Vocational Awards

Information Technology CITXX
(Clonmel Central Technical Institute)

Computer Architecture and Systems
C20012
May 1999

Answer all questions in Section A
Answer four questions from Section B

Time allowed: 2 hours

Section A	*All questions are two marks. Points allocated equally where more than one item requested. Answers different to the suggested answers which are nonetheless correct will be marked as being correct.*
	Suggested/Guideline Answers
1	Any four of: keyboard, mouse, scanner, printer, lightpen, speakers, joystick *etc*
2	Any two of: Apple, Compaq, Dell, Gateway 2000, Celtic *etc*
3	8192 = (8bits * 1024bytes)
4	Parallel
5	Any one of: acesss time, latency, bus transfer rates
6	RAM
7	Any two of: ISA (EISA), PCI, SCSI, AGP
8	Any two of: Floppy Disk, Zip Disk, Super Floppy, CD-ROM (DVD), Magnetic Tape
9	Physically connects PC to network cabling. (Enables computers to communicate with each other)
10	System performance boost by not using CPU unnecessarily. (Devices bypass CPU and access memory faster (no wait for CPU availability))
11	214
12	**A**merican **S**tandard **C**ode for **I**nformation **I**nterchange
13	Modem
14	Any two of: resource management, resource accounting, file control, security functions, program execution *etc*
15	Any two of: Windows NT, Novell Netware, UNIX
16	**C**ommand **L**ine **I**nterface (DOS)
17	To enable computer programs larger than physical memory to execute. (To make a computer behave as if it has more memory than it actually has)
18	Central Windows database. (Stores program/OS settings and user preferences)
19	Any two of: speed, cost, variety of transmittable data types
20	To protect citizens from wrongful/improper use of data pertaining to themselves. (Any answer indicating main provisions of the data protection act)

Section B	*All questions are 15 marks. Points allocated as shown on the question paper.*
	Answers different to the suggested answers but which are nonetheless correct will be marked as being correct.
	Suggested/Guideline Answers
1	(a) Inkjet – wet ink dropped on paper. Laser printer – dry toner heat-sealed on page. (4 marks each printer type)
	(b) **O**ptical **C**haracter **R**ecognition – process of turning (printed/image of) text into re-editable text without re-entry. Hardware required includes computer and scanner. Software required includes OCR software, Word processor, electronic mail. (7 marks)
2	Any three of: RAM amount, RAM access times, video RAM amount, video bus type, hard disk type & access times, bus types used, L1 & L2 cache memory quantities *etc* with appropriate notes explaining the relevance of each. 5 marks per item.
3	(a) Magnetising and demagnetising coated disk surface. Diagram. (7 marks)
	(b) SCSI/IDE; Speed/Cost; 7 (+) drives/4 drives; Servers/Workstations; (8 marks)
4	(a) Network protocols; **1.** NetBIOS(BEUI) - small LAN – department/school sized. **2.** IPX/SPX - LAN/WAN – Novell NetWare Protocol – large/distributed organisations. **3.** TCP/IP – all networks – The internet. (2 marks each protocol)
	(b) Hardware: Network card, cabling, hub. Software: network software (*e.g.* Windows), drivers. One of: peer-peer, server-client configurations. Configuration: NIC settings *etc*. (9 marks)
5	(a) Interrupt should occur naturally; device seeks CPU attention. Exception is not a natural occurrence. May result from corrupted program data. (4 marks each)
	(b) Multi-user supports more than one simultaneous user; on-line banking, reservation systems; network OS/mainframe systems. Single user supports one user only; common OS such as Windows & MAC OS; home use; PCs. (7 marks)