



# **2014 Computing**

## **Intermediate 2**

### **Finalised Marking Instructions**

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## **Part One: General Marking Principles for: Computing Intermediate 2**

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this Paper. These principles must be read in conjunction with the specific Marking Instructions for each question.

- (a)** Marks for each candidate response must always be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question. If a specific candidate response does not seem to be covered by either the principles or detailed Marking Instructions, and you are uncertain how to assess it, you must seek guidance from your Team Leader/Principal Assessor.
- (b)** Marking should always be positive ie, marks should be awarded for what is correct and not deducted for errors or omissions.

### **GENERAL MARKING ADVICE: Computing Intermediate 2**

The marking schemes are written to assist in determining the “minimal acceptable answer” rather than listing every possible correct and incorrect answer. The following notes are offered to support Markers in making judgements on candidates’ evidence, and apply to marking both end of unit assessments and course assessments.

## Part Two: Marking Instructions for each Question

### Section I

Question		Expected Answer(s)	Max Mark	Additional Guidance
1		<ul style="list-style-type: none"> <li>Fewer arithmetic rules</li> <li>0 and 1 easily represent on and off</li> <li>Signal degradation has no effect</li> </ul> <p style="text-align: center;"><b>(1 mark, accept any one)</b></p>	<b>1</b>	
2		8-bits or 7-bits	<b>1</b>	
3	<b>(a)</b>	Main memory RAM	<b>1</b>	Don't accept ALU, Control, registers etc
3	<b>(b)</b>	Backing storage	<b>1</b>	Don't Accept Back-up storage
4		<ul style="list-style-type: none"> <li>Faster printouts (pages per minute)</li> <li>Cheaper running costs</li> <li>Dry output</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	Don't accept answers relating to quality Not faster, cheaper, easier on their own.
5		<ul style="list-style-type: none"> <li>Sharing peripherals</li> <li>Communication (via email)</li> <li>Can store data centrally</li> <li>Automatic backup</li> </ul> <p style="text-align: center;"><b>(Any two, 1 mark each)</b></p>	<b>2</b>	Don't accept share files as this is in the question.  Not Internet as this is not a benefit of networking.
6		To enable files to be opened by different software.	<b>1</b>	
7		Analysis Design	<b>2</b>	
8		Translate the program into machine code ( <i>Binary</i> ).	<b>1</b>	

Question		Expected Answer(s)	Max Mark	Additional Guidance
9	(a)	Array	1	
9	(b)	Counting occurrences	1	
10		<ul style="list-style-type: none"> <li>No need to create code to carry out a task</li> <li>Code has already been tested</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
11		<ul style="list-style-type: none"> <li>Machine code</li> <li><i>Low level language</i></li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	

[END OF SECTION 1]

## Section II

Question			Expected Answer(s)	Max Mark	Additional Guidance
12	(a)		<ul style="list-style-type: none"> <li>• Directly connected to computer</li> <li>• Portability not important</li> <li>• Low resolution for transmission</li> <li>• Cheaper to buy</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
12	(b)	(i)	<ul style="list-style-type: none"> <li>• Record key presses</li> <li>• Code using a script language</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
12	(b)	(ii)	<ul style="list-style-type: none"> <li>• Key stroke press</li> <li>• Menu choice</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	Accept an example of a method e.g. control and X key.
12	(b)	(iii)	<ul style="list-style-type: none"> <li>• Staff don't need to remember sequence of commands.</li> <li>• Less errors made compared with using complex instructions.</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
12	(c)		Monitor	1	
12	(d)	(i)	WAN	1	
12	(d)	(ii)	<ul style="list-style-type: none"> <li>• Photographs have large file sizes.</li> <li>• Number of travellers is high so large number of files.</li> <li>• <i>Ensures high speed of data transfer</i></li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
12	(e)		CD-R, DVD-R, BD-R	1	
12	(f)	(i)	Each black pixel is stored as a 1 and each white pixel is stored as a 0.	1	
12		(ii)	64 (1 mark)/8 (1mark) = 8	2	Bytes is in question no requirement to put in answer,

Question			Expected Answer(s)	Max Mark	Additional Guidance
13	(a)		Laptop	1	
13	(b)	(i)	GHz	1	
13	(b)	(ii)	<ul style="list-style-type: none"> <li>• ALU</li> <li>• Control unit</li> <li>• Registers</li> </ul> <p style="text-align: center;"><b>(Any two, 1 mark each)</b></p>	2	
13	(c)	(i)	Contents cannot be overwritten in ROM.	1	
13	(c)	(ii)	<ul style="list-style-type: none"> <li>• To store bootstrap loader</li> <li>• To store an application</li> <li>• To store the operating system</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	1	
13	(d)	(i)	<ul style="list-style-type: none"> <li>• Pseudocode</li> <li>• Structure diagrams</li> <li>• Flowcharts</li> </ul> <p style="text-align: center;"><b>(Any two, 1 mark each)</b></p>	2	
13	(d)	(ii)	<ul style="list-style-type: none"> <li>• Easier to understand.</li> <li>• <i>Easier to find and correct mistakes</i></li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	1	

Question			Expected Answer(s)	Max Mark	Additional Guidance
14	(a)	(i)	Input validation	1	
14	(a)	(ii)	Pseudocode	1	
14	(a)	(iii)	<ul style="list-style-type: none"> <li>passwordlength &gt; = 8</li> <li>passwordlength &gt; 7</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	1	Accept in words e.g. passwordlength is greater than 7
14	(a)	(iv)	Don't know how many times we are going around loop.	1	
14	(a)	(v)	String	1	
14	(b)	(i)	OR should be AND Missing =	2	
14	(b)	(ii)	Maintenance	1	
14	(b)	(iii)	<ul style="list-style-type: none"> <li>Internal commentary</li> <li>Indentation</li> <li>Meaningful variables</li> <li>White space</li> <li>Modularity</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	1	
14	(c)		<ul style="list-style-type: none"> <li>To help with troubleshooting if game has errors.</li> <li>To help install the game.</li> <li>To state the minimum specifications required.</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	1	

[END OF SECTION II]

### Section III

#### Part A – Artificial Intelligence

Question			Expected Answer(s)	Max Mark	Additional Guidance
15	(a)	(i)	<ul style="list-style-type: none"> <li>• Computer Vision/vision system</li> <li>• Pattern matching</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
15	(a)	(ii)	<ul style="list-style-type: none"> <li>• Poor light</li> <li>• Objects obscuring view of sea</li> <li>• Shading</li> <li>• Shadows</li> <li>• <i>Quality of camera/photographs</i></li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
15	(b)	(i)	<ul style="list-style-type: none"> <li>• Chemical sensors</li> <li>• Infra-red</li> <li>• Vision sensor</li> <li>• Camera</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
15	(b)	(ii)	<ul style="list-style-type: none"> <li>• Learns from previous mistakes.</li> <li>• Adapt to new situations.</li> <li>• Doesn't need humans to make decisions.</li> <li>• <i>Can problem solve</i></li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
15	(c)		<ul style="list-style-type: none"> <li>• Retain knowledge</li> <li>• Solve problems</li> <li>• Ability to communicate</li> <li>• Recognise images</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	



Question			Expected Answer(s)	Max Mark	Additional Guidance
16	(a)		<ul style="list-style-type: none"> <li>• Background noise in airport</li> <li>• Sore throat/cold</li> <li>• Accents</li> </ul> <p style="text-align: right;"><b>(Any two, 2 marks)</b></p>	<b>2</b>	
16	(b)	(i)	An electronic model of the human brain (consisting of many interconnected simple processors).	<b>1</b>	
16	(b)	(ii)	<ul style="list-style-type: none"> <li>• It can learn without the need to be reprogrammed.</li> <li>• It can process very complex data quickly.</li> <li>• Solves problems involving pattern matching.</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
16	(c)		Faster processors	<b>1</b>	

Question			Expected Answer(s)	Max Mark	Additional Guidance
17	(a)	(i)	<ul style="list-style-type: none"> <li>• Unbiased advice</li> <li>• Combined expertise from several experts</li> <li>• Expertise available 24/7</li> </ul> <p style="text-align: right;"><b>(Any two, 2 marks)</b></p>	<b>2</b>	
		(ii)	<ul style="list-style-type: none"> <li>• Concern about potential loss of jobs</li> <li>• Loss of status</li> <li>• Took long time to acquire knowledge</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
	(b)		<ul style="list-style-type: none"> <li>• ELIZA only repeats keywords</li> <li>• ELIZA shows no understanding.</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
	(c)		Using a mailing list.	<b>1</b>	

Question			Expected Answer(s)	Max Mark	Additional Guidance
18	(a)	(i)	<ul style="list-style-type: none"> <li>• Yes</li> <li>• True</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
18	(a)	(ii)	<ul style="list-style-type: none"> <li>• john</li> <li>• X = john</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
18	(b)		<p>Match at line 12  Subgoal 1 drives(X,car)  Match at line 2 X = jane <b>1 mark</b>  Subgoal 2 no claims(jane) <b>1 mark</b>  Subgoal fails  Backtrack to subgoal 1 drives(X,car)  Match at line 3 X = emily <b>1 mark</b>  Subgoal 2 no claims(emily) <b>1 mark</b>  Match at line 6  Subgoal succeeds</p>	<b>4</b>	12, 2, 3, 6 (2 marks)
18	(c)		no_policy(X) if drives (X,motorbike) <b>1 mark</b> and age (X<25). <b>1 mark</b>	<b>2</b>	Comma is acceptable rather than AND
18	(d)	(i)	It does not take up as much memory. <i>If solution is furthest away from the root then depth-first will find it quicker.</i>	<b>1</b>	
18	(d)	(ii)	<ul style="list-style-type: none"> <li>• It doesn't always find the best (<i>efficient</i>) solution <i>first</i>.</li> <li>• <i>It can get trapped exploring a useless track forever</i></li> <li>• <i>It might not find a solution</i></li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	

### Section III

#### Part B – Computer Networking

Question			Expected Answer(s)	Max Mark	Additional Guidance
19	(a)		Using the Internet to provide business services.	1	
19	(b)	(i)	Word Processor	1	
19	(b)	(ii)	Attachments	1	
19	(b)	(iii)	Encryption Key	1	
19	(c)		Large bandwidth is required to support large data files.	1	
19	(d)		<p>“Commonwealth Games” AND 2018</p> <p><b>1 mark for words in quotes, 1 mark for operators.</b></p>	2	
19	(e)	(i)	<ul style="list-style-type: none"> <li>• Palmtop (PDA)</li> <li>• Smartphone</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
19	(e)	(ii)	Microbrowser – designed to be used with minimum specifications and small displays, restricted multimedia.	1	

Question			Expected Answer(s)	Max Mark	Additional Guidance
20	(a)	(i)	To check that the user interface can carry out all appropriate tasks.	1	
20	(a)	(ii)	<ul style="list-style-type: none"> <li>• TV</li> <li>• cooker</li> <li>• lights</li> <li>• central heating</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
20	(b)		One device sending data to many known devices.	1	
20	(c)	(i)	<ul style="list-style-type: none"> <li>• More customers as open 24/7</li> <li>• <i>Global customers</i></li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
20	(c)	(ii)	<ul style="list-style-type: none"> <li>• ISP costs</li> <li>• web maintenance</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
20	(d)	(i)	Domain Name Service( <i>System</i> )	1	
20	(d)	(ii)	<p><b>State one future problem of DNS.</b></p> <ul style="list-style-type: none"> <li>• IP addresses running out.</li> <li>• New domain names difficult to create due to lack of choices.</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
20	(e)		<p><b>State one way in which the <i>Regulation of Investigatory Powers Act</i> could be used to monitor staff e-mail.</b></p> <ul style="list-style-type: none"> <li>• encryption keys used</li> <li>• e-mail traffic monitored</li> <li>• access e-mail history</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	

Question			Expected Answer(s)	Max Mark	Additional Guidance
21	(a)		Issue user ids and passwords.	1	
21	(b)	(i)	WLAN	1	
21	(b)	(ii)	To encode and decode network data.	1	
21	(b)	(iii)	<ul style="list-style-type: none"> <li>• Router failure</li> <li>• Server failure</li> <li>• Switch/hub failure</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
21	(c)	(i)	<ul style="list-style-type: none"> <li>• No need to read</li> <li>• Immediate discussion</li> <li>• <i>Personalised feedback</i></li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
21	(c)	(ii)	<ul style="list-style-type: none"> <li>• quality of sound through speakers may be poor</li> <li>• low network bandwidth at receiving end</li> <li>• lecturer has to be present</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
21	(d)	(i)	<ul style="list-style-type: none"> <li>• Very slow connection</li> <li>• <i>Can't use phone at the same time as Internet</i></li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	
21	(d)	(ii)	<ul style="list-style-type: none"> <li>• ADSL</li> <li>• Leased line</li> <li>• ISDN</li> <li>• Cable modem</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	1	

### Section III

#### Part C – Multimedia Technology

Question			Expected Answer(s)	Max Mark	Additional Guidance
22	(a)	(i)	<ul style="list-style-type: none"> <li>Lets the creator see exactly what webpages will look like.</li> <li>Allows webpages to be created without knowledge of HTML code.</li> <li>Able to drag and drop webpage element, eg titles, hyperlinks, tables onto webpage.</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
22	(a)	(ii)	<ul style="list-style-type: none"> <li>Text editor</li> <li>HTML</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
22	(b)	(i)	Lossy compression	<b>1</b>	
22	(b)	(ii)	To make the file size smaller.	<b>1</b>	
22	(b)	(iii)	<ul style="list-style-type: none"> <li>CD-R</li> <li>DVD-R</li> <li>CD-RW</li> <li>DVD-RW</li> <li>BD-R</li> <li>BD-RW</li> <li><i>USB Flash Drive</i></li> <li><i>(External ) Hard drive</i></li> <li><i>SD card</i></li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
22	(c)	(i)	Sampling frequency 96kHz, sampling depth 16-bit	<b>1</b>	
22	(c)	(ii)	Larger file size.	<b>1</b>	
22	(d)	(i)	MIDI	<b>1</b>	
22	(d)	(ii)	<ul style="list-style-type: none"> <li>Playing music on a keyboard with a MIDI interface.</li> <li>Using a MIDI software program to create the music.</li> </ul> <p style="text-align: right;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	

Question			Expected Answer(s)	Max Mark	Additional Guidance
23	(a)		<ul style="list-style-type: none"> <li>• Visitors to the e-gallery can navigate through the rooms.</li> <li>• It is like the real thing.</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	1	
23	(b)		<ul style="list-style-type: none"> <li>• Position</li> <li>• Size</li> <li>• Rotation/Direction</li> <li>• Texture</li> <li>• <i>Depth/Z co-ordinate</i></li> <li>• <i>Shadow/Lighting</i></li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	1	
23	(c)	(i)	<ul style="list-style-type: none"> <li>• Each pixel can be edited.</li> <li>• If scaled larger then picture will pixelate.</li> <li>• Two dimensional array of pixels</li> <li>• Look for bitmap file extension.</li> <li>• Cannot layer in bit-mapped</li> </ul> <p style="text-align: center;"><b>(Any two bullet points, 2 marks)</b></p>	2	
23	(c)	(ii)	<ul style="list-style-type: none"> <li>• Spray gun</li> <li>• Text tool</li> <li>• Brush tool</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	1	
23	(c)	(iii)	Unable to edit at pixel level.	1	
		(iv)	<ul style="list-style-type: none"> <li>• Graphics Card</li> <li>• Graphics Adaptor Card</li> <li>• Video Card</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	1	
		(v)	Copyright, Designs and Patent Act.	1	



Question			Expected Answer(s)	Max Mark	Additional Guidance
24	(a)		<ul style="list-style-type: none"> <li>Digital (video) camera</li> <li>Webcam</li> <li>Smartphone</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
24	(b)	(i)	The number of bits used to store a colour (or pixel).	<b>1</b>	
24	(b)	(ii)	<ul style="list-style-type: none"> <li>Cropping/Trimming</li> <li>Remove unnecessary video frames.</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
24	(b)	(iii)	No effect on quality of video.	<b>1</b>	
24	(c)	(i)	The differences between the consecutive frames are stored.	<b>1</b>	
24	(c)	(ii)	AVI	<b>1</b>	
24	(d)		<ul style="list-style-type: none"> <li>Browser</li> <li>File player</li> <li>Media player</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	
24	(e)		<ul style="list-style-type: none"> <li>Text</li> <li>ASCII</li> <li>Rich Text Format (RTF)</li> </ul> <p style="text-align: center;"><b>(Any one, 1 mark)</b></p>	<b>1</b>	

[END OF MARKING INSTRUCTIONS]