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# **GCSE MARKING SCHEME**

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**INFORMATION AND COMMUNICATION  
TECHNOLOGY**

**SUMMER 2015**

## INTRODUCTION

The marking schemes which follow were those used by WJEC for the Summer 2015 examination in GCSE INFORMATION AND COMMUNICATION TECHNOLOGY. They were finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conferences were held shortly after the papers were taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conferences was to ensure that the marking schemes were interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conferences, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about these marking schemes.

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**GCSE ICT - UNIT 1: UNDERSTANDING ICT**

**Mark Scheme - Summer 2015**

Question	Answer	Max mark
1(a)(i)	<p><b>One mark for each for each correct answer</b></p> <p>Word Art            3D/Shadow            ClipArt / picture / image/ graphic            Bold Font (NOT bold or font by itself) Accept Bold text/bold letters            Italic Font / Italic text (BUT NOT text by itself, NOT italic by itself) Different font styles / font styles (Not different fonts/Not font types)            Centre text            Font size / text size            Bullet points            AutoShape            Coloured background/shading            Text box/border            Overlay Tabs/Tab            stops            Superscript</p>	4
1(b)(i)	<p>Hypertext            Hyperlink            Hotspot            Icon            Bookmark            Anchor            Action button            Accept keyboard actions e.g. Click space/arrow</p> <p><b>NOT</b> Buttons  <b>NOT</b> Timers</p>	1
1(b)(ii)	<p><b>One mark for each correct answer</b></p> <p>Sound            Pop up comments on images            Video            Animation            Scrolling marques            Transition            Timings /Sequencing            Interactive elements            Embedded games            Smart tool add-ons e.g. google maps, email facility, questionnaire etc.            Condone Colour scheme for visually impaired – no red/ green but not just colour/colour schemes</p> <p>Any reasonable answer  <b>NOT</b> DTP features or Navigation features</p>	2

Question	Answer	Max mark																
<p>1 (c)</p>	<p>1 mark for type of software x 2  1 mark for use (purpose or data not audience alone x 2 )  To award example mark, example MUST relate to an actual task</p> <table border="1"> <thead> <tr> <th>Software</th> <th>Example</th> </tr> </thead> <tbody> <tr> <td>Database</td> <td>Store details of students / teachers to <b>keep track of who is going on the trip</b>  <b>NOT</b> just 'store data' NOT info <b>NOT</b> keep data safe</td> </tr> <tr> <td>Spreadsheet</td> <td> <ul style="list-style-type: none"> <li>• How much money has been paid / To keep track of the money paid</li> <li>• To produce a graph of payments</li> </ul> </td> </tr> <tr> <td>Web authoring / Website software</td> <td>Create / maintain website to advertise the trip</td> </tr> <tr> <td>Word Processing software</td> <td>To create letters to send to parents to inform them about the trip</td> </tr> <tr> <td>Video Software</td> <td>To show videos of the activities on the trip</td> </tr> <tr> <td>Sound</td> <td>To record sound clips of students recommending the trip</td> </tr> <tr> <td>Email</td> <td>To send emails promoting the trip</td> </tr> </tbody> </table> <p>Any reasonable example</p> <p><b>NOTE</b> parts must match but do not penalise second if first part wrong</p> <p><b>NO BRAND NAMES</b></p>	Software	Example	Database	Store details of students / teachers to <b>keep track of who is going on the trip</b>  <b>NOT</b> just 'store data' NOT info <b>NOT</b> keep data safe	Spreadsheet	<ul style="list-style-type: none"> <li>• How much money has been paid / To keep track of the money paid</li> <li>• To produce a graph of payments</li> </ul>	Web authoring / Website software	Create / maintain website to advertise the trip	Word Processing software	To create letters to send to parents to inform them about the trip	Video Software	To show videos of the activities on the trip	Sound	To record sound clips of students recommending the trip	Email	To send emails promoting the trip	<p>4</p>
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Question	Answer	Max mark
3 (a)	<p><b>One mark for each correct tick:</b></p> <p>Output Input Output</p>	3
3 (b)	<p>Secure Digital (SD) card Compact Flash (CF) card Memory card Memory stick USB Solid State Drive (SSD) Magnetic disc Tape storage Optical storage (DVD/CD/BluRay) <b>Condone:</b> Cloud storage <b>Not</b> storage card</p>	1
3 (c)	<p>Photos can be edited No need to get photos developed in store Can store hundreds of photos – saving storage space Can be uploaded <b>faster</b> Better quality images can be taken. Can enlarge pictures to work with fine detail Can print out larger size prints without loss of quality Only need to print out the required images There is no film that can expire Memory is cheaper than film Can discard unwanted images You can see the image immediately Can be shared easily e.g. on social media/email</p>	2
4 (a)	7	1
4 (b)	<p>DOB (<b>Not</b> Age) Telephone Number Emergency Contact Number / Name Email Address Form Tutor House Special diet/ Vegetarian? Passport No. Any reasonable answer</p> <p><b>NOT</b> Postcode, NOT Town/Street/House Number/City</p>	1
4 (c)	<p>The school have issued each with a student ID (1)  To uniquely identify the students / unique identifier / uniquely identifies each record (1)</p>	2
4 (d)	<p><b>One mark for the data type:</b> Text / alphanumeric / string</p> <p><b>One mark for the validation technique:</b> Format check / input mask / MUST begin with a letter Presence check LL## #LL/ L## #LL Accepted not expected</p>	2

Question	Answer	Max mark
5 (a) (i)	On screen keyboard Narrator to read out text / Speech synthesis Change / Edit colour schemes (must say what or why) e.g. for dyslexic pupils/avoid red and green colour combinations Magnify text / icons / fonts Voice recognition Change mouse settings Change contrast /change brightness Enlarging icons  Any reasonable answer for visually impaired and desktop environment <b>NOT</b> Hardware	2
5 (a) (ii)	Move Copy / copy and paste /shortcut Delete Rename / use sensible file names Create Extract Sort Group Compression Organising into folders and subfolders	2
5 (b)	Braille keyboard Pull/blow tube Foot mouse Concept keyboard Eye motion detector Microphone Tracker ball Joystick Touch sensitive screens Ergonomic keyboards Cognitive headset  Any reasonable input device / not laptops	3
5 (c)	Maths apps to teach about <u>angles</u> To learn French <u>pronunciation</u> <u>Quizzes/ Tests</u> on History <u>Spelling game</u> <u>Tutorial</u> on science experiment  Any reasonable answer <b>NOT</b> Games/Tests /subject on its own	1

Question	Answer	Max mark
6 (a)	<p><b>One mark each for any three of:</b></p> <ul style="list-style-type: none"> <li>• Year 9/Year12 option choices to decide on grades and subjects available.</li> <li>• Timetable software to allocate teacher specialisms to subjects</li> <li>• Examination entries</li> <li>• SEN / Special Educational Needs</li> <li>• Finance / Budget</li> <li>• Library administration – see how many of a certain book are ins tock</li> <li>• Tracking behaviour</li> <li>• Pupil progress – track high achievers</li> <li>• Pupil contact details – to see when they were last updated</li> <li>• Spotting truancy / attendance patterns</li> <li>• Sending letters/newsletters to parents/ School announcements</li> <li>• Cafeteria administration</li> <li>• Taking registers</li> <li>• Update school calendar</li> </ul> <p>Any reasonable answer</p> <p><b>NOT</b> anything to do with VLE / <b>not</b> any action instigated by the student</p>	3

Question	Answer	Max mark
6 (b)	<p><b>Any method and matching advantage and disadvantage (x2) from:</b></p> <p><b><u>Smart Cards / Swipe cards</u></b></p> <p><b>Advantages</b>            Can be used for many other school facilities – e.g. library, canteen and access to buildings            Cost can be lower than other methods of registration            Instant registration / results get sent to office immediately / real time            Relatively cheap method of registration</p> <p><b>Disadvantages</b>            Can be lost easily            Can be used by pupil's friends to swipe them in / truancy</p> <p><b><u>Biometric Methods</u></b>            Fingerprint (thumbprint) recognition / retinal scanning / iris recognition</p> <p><b>ONLY allow one biometric response</b></p> <p><b>Advantages</b>            Unique            Cannot forget or lose it like a card No-one else can register for you Real time registration</p> <p><b>Disadvantages</b>            Expensive scanners            Privacy issues / misuse (DPA) Dirt causes problems            Hygiene issues</p> <p><b><u>OMR</u></b>            Mark made on sheet about whether absent or present</p> <p><b>Advantages</b>            Cost can be lower than other methods of registration</p> <p><b>Disadvantages</b>            Damaged sheets or sheets with extra marks causes delays / have to be entered manually</p> <p><b>Advantages</b>            Can be accessed by all teaching staff</p> <p><b>Disadvantages</b>            Takes up teaching time / staff time due to completing forms and taking to office            Staff training</p> <p><b><u>Others include RFID tags or radio systems</u> NOT spreadsheet / database to register pupils</b></p> <p><b>One mark for any of the general advantages and disadvantages</b></p> <p><b>General advantages applying to all systems</b>            Accurate attendance figures            Reduces truancy            Attendance figures worked out automatically            Always know where pupils are            Can study trends and patterns of attendance / know if pupils are frequently late and absent            Automatic SMS messages to parents            'Frees up teachers time' <u>only if well qualified</u></p> <p><b>General Disadvantages</b>            Reliance on system</p> <p><b>NO repeated advantages and disadvantages</b></p>	2X3



Question	Answer	Max mark								
7	<p><b>One mark for each prevention</b></p> <table border="1"> <thead> <tr> <th>Health Hazard</th> <th>Matching Prevention</th> </tr> </thead> <tbody> <tr> <td><b>Eye Strain</b></td> <td>Focus on distant object Blinds to protect sun glare Screen filters Take regular breaks <b>NOT</b> eye tests</td> </tr> <tr> <td><b>Back Strain</b></td> <td>Use adjustable chairs Take regular breaks Foot stool / rest <b>NOT</b> comfortable chair</td> </tr> <tr> <td><b>Repetitive Strain Injury</b></td> <td>Wrist and feet supports / arm supports Ergonomic keyboards Regular joint exercise Key in with your wrist straight <b>NOT</b> just 'take breaks' must have time element</td> </tr> </tbody> </table> <p><b>All three preventions must be different – no marks for repeated prevention.</b></p>	Health Hazard	Matching Prevention	<b>Eye Strain</b>	Focus on distant object Blinds to protect sun glare Screen filters Take regular breaks <b>NOT</b> eye tests	<b>Back Strain</b>	Use adjustable chairs Take regular breaks Foot stool / rest <b>NOT</b> comfortable chair	<b>Repetitive Strain Injury</b>	Wrist and feet supports / arm supports Ergonomic keyboards Regular joint exercise Key in with your wrist straight <b>NOT</b> just 'take breaks' must have time element	3
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8 (a)	Exam 1	1								
8 (b)	C	1								
8 (c)	<p>=AVERAGE(E3:E9) or AVG(E3:E9) =SUM(E3:E9)/7 =(E3+E4+E5+E6+E7+E8+E9)/7</p> <p>Accept any correct formula or function that works and also / or ÷ Allow if = not present</p>	1								
8 (d)	IF	1								
8 (e)	<p>Automatic recalculation Accurate calculations What if investigations Different output formats/graphs Faster to sort into order Search for all students who pass</p>	2								
8(f)	<p>=IF(F3&gt;=\$B\$1,"Pass","Fail") Allow no = before IF (must have = after &gt;) Must have " " around Pass/Fail</p>	1								

Question	Answer	Max mark
9 (a)	<p><b>Three marks for any advantage to customer from:</b>  <i>Do NOT accept anything which could be done by phone</i>            Avoids double booking (<b>ONLY</b> accept once)            Can book 24/7 (<b>ONLY</b> accept once)            Select seat            Compare prices to get best deal            Easier for disabled who don't have to leave home to book Read online reviews before booking            Can check availability before booking            Save on travel costs (must be qualified) e.g. of going to the venue to book Save travel time (must be qualified) e.g. rather than going to the venue to book On-line discounts            Can select alternative performances            Can get advanced notification and pre general release options            Can set up online quick buy accounts so faster to buy tickets  <b>NOT</b> - just faster/faster to buy  <b>NOT</b> - just easy/'easier to book'  <b>NOT</b> - 'do not have to leave the comfort of your home'/'do it from home' must be qualified</p> <p><b>One mark for disadvantage to customer from:</b>            Credit card fraud            Fake websites            Restricted viewing            Hacking into customers account            Spam            Phishing websites            Lack of customer support when things go wrong            Timed out before transaction is complete            Crash due to <u>overload</u>            Crash due to <u>cyber attacks</u>            Software system errors e.g. being charged twice by system</p> <p><b>Not</b> Booking fees <b>Not</b> Do not have the Internet <b>Not</b> Do not have a credit card / email account</p>	4
9 (b)	2 – Double keying	1

<p><b>10 (a)</b></p>	<p><b>Award marks for one advantage and one disadvantage 1 mark each</b></p> <ul style="list-style-type: none"> <li>• always connected / no need to connect / <b>CONDONE</b> faster connection speed</li> <li>• can use telephone at the same time</li> <li>• much higher bandwidth / data transfer rate</li> <li>• can stream video and radio in real time</li> <li>• can use wireless / can use anywhere round the house</li> <li>• can videoconference</li> <li>• faster to upload/download web pages / faster to upload/download files / faster to access the internet / browsers will find search results more quickly</li> <li>• multiple device interconnectivity for sharing data</li> </ul> <p><b>DO NOT GIVE</b> mark for;</p> <p>It is faster/quicker – must be qualified with a reason why, i.e. faster to ...</p> <p>It is wireless</p> <p>Can trip over wires</p> <p>You can connect many computers to broadband but only one to dialup</p> <p>Anything to do with cost</p> <p><b>Disadvantage</b></p> <p>Expense – <u>high monthly subscription costs</u></p> <p>Not available everywhere</p> <p>Blindspots</p> <p>DO NOT accept opposites</p> <p>Do Not accept general advantages or disadvantages of using internet</p>	<p><b>2</b></p>
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Question	Answer	Max mark
10 (b) (i)	Pay per view Voting (e.g. talent shows) Online Betting Online Dating Games/Gaming Shopping Catch up TV Browsing the internet Streaming Downloading apps Social networking Select game to watch Choose camera angle Pause live TV Record TV programmes  Any reasonable answer  <b>Not</b> -normal television services <b>Not</b> -get lots of channels <b>Not</b> – names of programmes <b>Not</b> general phrases e.g. music / tv / video / films by itself	2
10 (b) (ii)	<b>Any three of the following:</b>  <b>Paedophiles / Stalkers / groomers</b> - may gain access to the images <b>Sharing too much information</b> -burglars can see holiday status updates <b>Lack of privacy</b> – anyone can see your personal information Identity theft – people can steal your images and information <b>Cyberbullying</b> – huge problem and out of school hours usually <b>Addiction</b> – living in a virtual not the real world <b>Inappropriate material</b> – violent videos and images can be upsetting or cause bad behaviour  <b>One mark for three of:</b> Set access rights Set passwords Set up privacy settings Only accept known friends Use net nanny software Pop up blocker Parental controls / locks Monitor use/ keep computer in living room Check history Block sites Use a filter on certain sites Internet security software  <b>NOT</b> Hacking <b>NOT</b> Junk Mail <b>NOT</b> Viruses <b>No</b> repeated preventions	6 (3x2)

Question	Answer	Max mark
10 (c)	3D Printing – To print a musical instrument Augmented reality / virtual reality – to overlay a game into the real world Full immersion games – provides the feeling of being ‘in’ the game Wearable technology – allows access to services via clothing / watches New interface developments – voice commands on phones / iris recognition New technological development e.g. curved TV etc, 4K TV Robotic developments if related to home entertainment e.g. drones  Any reasonable answer related to home entertainment  <b>NOT</b> Email <b>NOT</b> Cloud computing <b>NOT</b> Mobile phones by itself <b>No</b> Brand names e.g. Xbox <b>Not</b> WiFi by itself <b>Not</b> 3D TV by itself need further explanation of new features	2

Question	Answer	Max mark																								
11	<p><b>8-10 marks</b> Candidates give a clear, coherent answer fully and accurately describing how two different control systems are used in schools. Candidates include details of the sensors, the output device and a specific example. Candidates discuss advantages and disadvantages of control systems. They use appropriate terminology and accurate spelling, punctuation and grammar.</p> <p><b>4-7 marks</b> Candidates describe some aspects of how control systems are used in schools and list some advantages and disadvantages, but responses lack clarity. There are a few errors in spelling, punctuation and grammar</p> <p><b>1-3 marks</b> Candidates give a brief description of how control systems are used in schools, listing a few advantages and disadvantages. The response lacks clarity and there are significant errors in spelling, punctuation and grammar.</p> <p><b>0 marks</b> No valid response.</p> <p><b>Guidance</b>  <b>One mark for each different use of a control system in a school. (Max 2).</b>  <b>For each control system a matching sensor must be given (Max 2)</b>  <b>For each control system a matching output device must be given (Max 2)</b>  <b>No marks for duplicated sensors or output devices</b>  <b>Four marks for describing advantages and disadvantages of control systems in a school.</b></p> <p><b>11 (a) <u>Indicative content</u></b></p> <table border="1"> <thead> <tr> <th>Sensor</th> <th>Control System / Process</th> <th>Output Device</th> </tr> </thead> <tbody> <tr> <td>Movement / Pressure / Passive infrared / Light beam</td> <td>Burglar alarm to detect out of hours visitors</td> <td>Speaker Light</td> </tr> <tr> <td>Pressure</td> <td>To automatically open doors</td> <td>Motor Motor/ actuator</td> </tr> <tr> <td>Smoke detector (Optical, Heat, Ionisation)</td> <td>To detect a fire in the school</td> <td>Sprinkler</td> </tr> <tr> <td>Motion / Movement</td> <td>To turn lights on</td> <td>Light</td> </tr> <tr> <td>Sun Light</td> <td>Flood lights turn on when no day light is detected</td> <td>Light</td> </tr> </tbody> </table> <p><b><u>Systems with feedback accepted not expected:</u></b></p> <table border="1"> <tbody> <tr> <td>Temperature / Heat</td> <td>Heating / air conditioning system in the classroom / boiler system</td> <td>Heater Fan Air Conditioning (Unit)</td> </tr> <tr> <td>Humidity</td> <td>Test moisture in the air at library / swimming pool / greenhouse</td> <td>Sprinkler De-humidifier</td> </tr> </tbody> </table> <p><b>Condone</b> Air conditioning without unit  <b>NOT</b> Biometrics <b>NOT</b> CCTV  <b>NOT</b> thermal scanner / thermometer  <b>NOT</b> doors / windows opening on their own – needs motor/ actuator</p>	Sensor	Control System / Process	Output Device	Movement / Pressure / Passive infrared / Light beam	Burglar alarm to detect out of hours visitors	Speaker Light	Pressure	To automatically open doors	Motor Motor/ actuator	Smoke detector (Optical, Heat, Ionisation)	To detect a fire in the school	Sprinkler	Motion / Movement	To turn lights on	Light	Sun Light	Flood lights turn on when no day light is detected	Light	Temperature / Heat	Heating / air conditioning system in the classroom / boiler system	Heater Fan Air Conditioning (Unit)	Humidity	Test moisture in the air at library / swimming pool / greenhouse	Sprinkler De-humidifier	6
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Question	Answer	Max mark
11 (b)	<p><b>For maximum marks must have at least one advantage and one disadvantage.</b></p> <p><b>Advantages of control systems:</b></p> <ul style="list-style-type: none"> <li>• Saving on heating / lighting costs</li> <li>• Increases security in a school / more secure / increased safety</li> <li>• Operates 24/7</li> <li>• No human interaction needed</li> <li>• Automatic doors allow easier access for the disabled</li> </ul> <p><b>Disadvantages of control systems:</b></p> <ul style="list-style-type: none"> <li>• Initial cost of equipment/ expensive to setup</li> <li>• Over reliance on the system</li> <li>• Maintenance costs</li> </ul>	4
	<b>TOTAL</b>	<b>80</b>

## UNIT 3 - ICT IN ORGANISATIONS

1	<table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="width: 20%;"></th> <th style="width: 20%;">INPUT</th> <th style="width: 20%;">OUTPUT</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Graphics tablet</td> <td style="text-align: center; border: 1px solid black;">1✓</td> <td style="text-align: center; border: 1px solid black;">2</td> </tr> <tr> <td style="text-align: left;">Speaker</td> <td style="text-align: center; border: 1px solid black;">3</td> <td style="text-align: center; border: 1px solid black;">4✓</td> </tr> <tr> <td style="text-align: left;">Web cam</td> <td style="text-align: center; border: 1px solid black;">5✓</td> <td style="text-align: center; border: 1px solid black;">6</td> </tr> <tr> <td style="text-align: left;">Mouse</td> <td style="text-align: center; border: 1px solid black;">7✓</td> <td style="text-align: center; border: 1px solid black;">8</td> </tr> </tbody> </table>		INPUT	OUTPUT	Graphics tablet	1✓	2	Speaker	3	4✓	Web cam	5✓	6	Mouse	7✓	8	1 1 1 1	4			
	INPUT	OUTPUT																			
Graphics tablet	1✓	2																			
Speaker	3	4✓																			
Web cam	5✓	6																			
Mouse	7✓	8																			
2	<ul style="list-style-type: none"> <li>• Name of topology (Bus / Line / Ring / Star / Mesh)</li> <li>• Topology configuration and workstations (PC / Computer) labelled</li> </ul> <p>MAX of 1 mark if name and diagram do not match            MAX of 1 mark if topology hasn't been named, but diagram represents a known topology and has been labelled</p>	1 1	2																		
3a	<table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="width: 20%;"></th> <th style="width: 20%;">BITMAP</th> <th style="width: 20%;">VECTOR</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Graphics can be scaled up without loss of quality.</td> <td style="text-align: center; border: 1px solid black;">1</td> <td style="text-align: center; border: 1px solid black;">2✓</td> </tr> <tr> <td style="text-align: left;">Graphics are made up of pixels.</td> <td style="text-align: center; border: 1px solid black;">3✓</td> <td style="text-align: center; border: 1px solid black;">4</td> </tr> <tr> <td style="text-align: left;">Graphics that use points, lines, curves, and shapes stored as mathematical equations.</td> <td style="text-align: center; border: 1px solid black;">5</td> <td style="text-align: center; border: 1px solid black;">6✓</td> </tr> <tr> <td style="text-align: left;">The larger the graphic, the more pixels are needed and so the file size becomes larger.</td> <td style="text-align: center; border: 1px solid black;">7✓</td> <td style="text-align: center; border: 1px solid black;">8</td> </tr> <tr> <td style="text-align: left;">If small graphics are enlarged, the graphic can become blurred.</td> <td style="text-align: center; border: 1px solid black;">9✓</td> <td style="text-align: center; border: 1px solid black;">10</td> </tr> </tbody> </table>		BITMAP	VECTOR	Graphics can be scaled up without loss of quality.	1	2✓	Graphics are made up of pixels.	3✓	4	Graphics that use points, lines, curves, and shapes stored as mathematical equations.	5	6✓	The larger the graphic, the more pixels are needed and so the file size becomes larger.	7✓	8	If small graphics are enlarged, the graphic can become blurred.	9✓	10	1 1 1 1 1	5
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3bi	<p>Optimisation is the reduction of the <u>file size</u> / <u>compression</u> of the graphic. (NOT size / change file type)</p> <p>Reducing the quality of the graphic / reducing the number of colours / reducing the resolution.</p> <p>NOT change file format unless qualified, e.g. change to jpeg <u>to reduce the quality of the image</u></p>	1 1	2
3bii	<p>Any one of:</p> <ul style="list-style-type: none"> <li>• Faster uploads/downloads</li> <li>• Saves memory / storage space</li> </ul> <p>NOT reduces file size NOT 'saves space'</p>	1	1
4a	<ul style="list-style-type: none"> <li>• Rotoscoping</li> <li>• Claymation / stopmotion</li> <li>• Tweening (<i>accept Tween</i>) / Motion tween / Shape tween</li> </ul> <p>NOT key-framing</p>	1 1 1	3
4b	<p>Previous frames are still visible</p> <p>Any one of:</p> <ul style="list-style-type: none"> <li>• to help plan the next frame</li> <li>• track motion of an object</li> </ul>	1 1	2
4c	<p>A story board is a plan / design – 1 mark</p> <p>Any one of:</p> <ul style="list-style-type: none"> <li>• Frame-by-frame</li> <li>• Comic book</li> <li>• Scene-by-scene</li> <li>• Detailing key elements</li> <li>• Sequence/order of events</li> </ul>	1 1	2
5a	Musical Instrument Digital Interface / MIDI	1	1

5b	<p>Can award marks for a mixture of uses and advantages. 1 mark for each advantage:</p> <ul style="list-style-type: none"> <li>• Can investigate different effects</li> <li>• Can add instruments</li> <li>• Instruments can be recorded and the music converted into musical score</li> <li>• Music can be recorded and played back</li> <li>• Allows the user to print their own music</li> <li>• Cheaper to produce music than to hire a music studio / service / facilities</li> <li>• Allows music to be stored <u>digitally</u> NOT 'You can save it'</li> <li>• Can use different instruments (without having to purchase them)</li> <li>• Music can be edited</li> <li>• Music files can be compressed / optimised (to save memory / faster transmission)</li> <li>• No need to be able to play an instrument to compose music.</li> </ul> <p>1 mark for each distinctly different example of music editing, e.g. auto-tuning, change tempo, change volume level (fade/boost), overlay tracks (mix music) / layering, enveloping, (sound effects), cropping, filters, looping, join two clips together, splicing etc.</p>	3	3
5c	<p>Computer signal <u>digital</u> Speakers play <u>analogue</u> signals</p>	1 1	2
5d	<p>Benefit: Better quality Drawback: Larger file size / Downloads/uploads take longer</p>	1 1	2
6a	<p style="text-align: right;">Tick (✓)</p> <p>GUI consists of Windows, Icons, Menus and Pointers. <input checked="" type="checkbox"/></p> <p>GUI is less demanding on memory compared with a text-only interface. <input type="checkbox"/></p> <p>GUI allows you to customise your desktop. <input checked="" type="checkbox"/></p> <p>GUI do not allow the use of an on-screen keyboard. <input type="checkbox"/></p>	1  1	2

6b	<p>Biometric: Finger(print)/retina scanner / Microphone / Camera</p> <ul style="list-style-type: none"> <li>• Gain access to a room / computer / mobile device</li> <li>• Pay for dinner through cashless school dinner system</li> <li>• Prevent crimes by automatically identifying individuals.</li> </ul> <p>NOT just 'security' – needs specific example.</p> <p>Voice driven: Microphone</p> <ul style="list-style-type: none"> <li>• Issue commands <u>with specific example</u>, e.g. ask mobile phone a question, increase volume on device</li> <li>• Voice-to-text conversion, to dictate a letter on a word processor</li> <li>• <u>Specific examples</u> of aiding accessibility.</li> </ul> <p>NOT biometric security examples. MUST be uses and not advantages.</p> <p><i>Any reasonable suitable answers</i></p>	1 1  1 1	4
6ci	Command line / CLI	1	1
6cii	<p>Any two of:</p> <ul style="list-style-type: none"> <li>• Quicker to type commands (NOT 'quicker' must be qualified)</li> <li>• Quicker to input commands as shortcut keys can be used</li> <li>• More suitable for expert users</li> <li>• Little memory (RAM) needed</li> <li>• Little storage space needed</li> <li>• Little processing power needed</li> <li>• No need for expensive hardware, e.g. graphics cards, monitors etc.</li> </ul>	1 1	2
7a (i)	URL	1	1
7a (ii)	HTML	1	1
7a (iii)	Hosted on a web server	2	2
7b	<p>Home page:</p> <ul style="list-style-type: none"> <li>• The first / main /default page of a website</li> <li>• The first page to load when you open your browser.</li> </ul> <p>Hotspot:</p> <ul style="list-style-type: none"> <li>• A graphic / area of a graphic - that is hyperlinked.</li> </ul> <p>NOT Wi-Fi hotspot</p>	1  1	2
7c	<p>Any one of:</p> <ul style="list-style-type: none"> <li>• They provide a quick way of creating web pages / all the developer has to do is to fill in their own content</li> <li>• They supply the structure/layout of the website</li> <li>• They ensure consistency throughout the website / house style.</li> </ul> <p>NOT 'looks professional'</p>	1	1
7d	Leader board	1	1

8a	<p>Any two of:</p> <ul style="list-style-type: none"> <li>• More accurate readings</li> <li>• Readings are taken automatically</li> <li>• Can read at specific intervals</li> <li>• Can keep going 24/7</li> <li>• Doesn't make mistakes / no human error</li> <li>• Data can be analysed automatically</li> <li>• Can be used in hazardous situations</li> <li>• Takes up less physical storage space (compared with manual data logging on paper)</li> <li>• No / little human interaction required.</li> </ul> <p>Any two of:</p> <ul style="list-style-type: none"> <li>• Initial cost of logging equipment</li> <li>• If equipment fails / malfunctions data could be lost / not recorded</li> <li>• Calibration of sensors</li> <li>• Reliance upon equipment</li> <li>• Only takes readings at logging intervals. If something unexpected happens between these recordings then this will not be logged.</li> </ul>	2	2	4
8bi	<ul style="list-style-type: none"> <li>• Program (software)</li> <li>• Simulates a real life scenario / controlled virtual environment</li> </ul>	1	1	2
8bii	<p>Any two of:</p> <ul style="list-style-type: none"> <li>• Cheaper than using a real aircraft / fuel cost</li> <li>• Safer as life is not at risk if 'crash' occurs</li> <li>• Can create scenarios that are unlikely to happen in real life</li> <li>• Provides training / practice opportunities for pilots / practice</li> <li>• If things go wrong, you get a second chance</li> <li>• Can create 'what if' scenarios to test a pilot under certain conditions</li> <li>• Provides feedback on pilot performance.</li> </ul>	1	1	2
8 biii	<ul style="list-style-type: none"> <li>• Not always 100% accurate</li> <li>• Mistake in the model can result in inaccurate simulation (GIGO)</li> <li>• Initial set-up costs</li> <li>• Staff training</li> <li>• Simulation models can't completely re-create real-life situations.</li> </ul> <p>NOT 'hardware failure'</p>	1		1
9a	<ul style="list-style-type: none"> <li>• Diagnose a car's fault</li> <li>• Can remap an engine</li> <li>• Suggested remedial actions, e.g. replace clutch</li> </ul>	1		1

9b	<p>Any two of:</p> <ul style="list-style-type: none"> <li>• The computer can store far more information than a human</li> <li>• The computer does not 'forget' or make mistakes / less human error</li> <li>• Data can be kept up-to-date</li> <li>• The expert system is always available 24 hours a day and will never 'retire' NOT just '24/7'</li> <li>• The system can be used remotely, so rural areas or even poorer third world countries have access to experts</li> <li>• Provides accurate predictions with probabilities of all possible problems with more accurate advice</li> <li>• Can be used to train mechanics.</li> </ul> <p>NOT medical advantages</p>	1 1	2
9c	<p>Any two of:</p> <ul style="list-style-type: none"> <li>• Initial cost</li> <li>• Not intuitive / does not adapt well to ambiguous problems</li> <li>• Some mechanics could be de-skilled by over dependence upon computer advice</li> <li>• Fewer mechanics could be needed</li> <li>• Dependent upon the correct information being given GIGO</li> <li>• Cost of keeping the system up-to-date</li> <li>• Mechanics would require training to use the system.</li> </ul> <p>NOT medical disadvantages</p>	1 1	2
9d	<ul style="list-style-type: none"> <li>• Computer systems performing tasks normally requiring human intelligence</li> <li>• Learning computers</li> </ul> <p><i>Accept</i> computer that thinks like a person</p> <p>NOT computer that carries out human tasks</p>	1	1
10a	<ul style="list-style-type: none"> <li>• Using remote / externally hosted / 3<sup>rd</sup> party servers to store / manage / process data</li> <li>• Storing data via the Internet.</li> </ul>	1	1
10b	<p>Any one of:</p> <ul style="list-style-type: none"> <li>• File accessibility / remote access / global access to files</li> <li>• Convenient as all files are stored in one location</li> <li>• <u>Share</u> files</li> <li>• Collaborative working</li> <li>• Can extend storage</li> <li>• (Automatic) back-up</li> <li>• Can use cheaper/more streamlined workstations</li> <li>• Don't need to buy large, dedicated servers</li> <li>• Saves on own storage space / less files stored on own hard drive.</li> </ul> <p>NOT 'easy to access'</p>	1	1

10c	<p>Any one of:</p> <ul style="list-style-type: none"> <li>• Security issues with storing personal data</li> <li>• Data stored in the cloud may be accessed by a hacker</li> <li>• Viruses uploaded to the cloud could destroy data</li> <li>• Viruses can be more easily spread via the cloud</li> <li>• Data integrity can be an issue when several people are working on the same file.</li> </ul>	1	1
11	<p>One mark for each, up to a maximum of four for each section</p> <p>Advantages to organisation</p> <ul style="list-style-type: none"> <li>• Online catalogues are more easily updated</li> <li>• Fewer (retail) staff needed</li> <li>• Ability to reach customers / sell 24/7</li> <li>• Global marketplace means customers from around the world</li> <li>• Fluid pricing – easy to change prices from day to day</li> <li>• Low start-up and running costs compared to traditional stores.</li> </ul> <p>Advantages to customers</p> <ul style="list-style-type: none"> <li>• Ability to order goods 24/7 / buy 24/7</li> <li>• Cost savings are passed to customers with cheaper goods</li> <li>• Online deals</li> <li>• Allows disabled people to do their own shopping</li> <li>• Saves travel time</li> <li>• Saves travel costs</li> <li>• Greater choice of goods</li> <li>• Price comparisons</li> <li>• Read reviews</li> <li>• Can listen to samples before you buy</li> <li>• Faster to find products using search engines</li> <li>• Instant downloads of videos / books / music / games / apps</li> <li>• Online tracking of orders</li> <li>• Reminder emails when goods in stock.</li> </ul>		6

12	<p>Video conferencing is a meeting conducted</p> <ul style="list-style-type: none"> <li>• using audio and video (speak and see) MUST have both audio and video</li> <li>• over a network (Internet).</li> </ul> <p style="text-align: center;">Advantages and disadvantages</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; padding: 5px;">6 - 8 marks</td> </tr> <tr> <td style="padding: 5px;"> <p>The candidate has:</p> <ul style="list-style-type: none"> <li>• shown clear understanding of the requirements of the question and a clear knowledge of the indicative content. Clear knowledge is defined as a response that provides six to eight relevant detailed points from the indicative content, and a maximum of six advantages or disadvantages.</li> <li>• addressed the question, appropriately describing advantages and disadvantages of video conferencing.</li> <li>• used appropriate technical terminology, referring to the indicative content accurately</li> <li>• used accurate spelling, punctuation and grammar.</li> </ul> </td> </tr> <tr> <td style="text-align: center; padding: 5px;">4 - 5 marks</td> </tr> <tr> <td style="padding: 5px;"> <p>The candidate has:</p> <ul style="list-style-type: none"> <li>• shown adequate understanding of the requirements of the question and a satisfactory knowledge of the indicative content. Satisfactory knowledge is defined as a response that provides four to five points from the indicative content</li> <li>• addressed the question, describing advantages and disadvantages of video conferencing</li> <li>• used appropriate technical terminology referring to the indicative content</li> <li>• mainly used accurate spelling, punctuation and grammar with some errors.</li> </ul> </td> </tr> <tr> <td style="text-align: center; padding: 5px;">1 - 3 marks</td> </tr> <tr> <td style="padding: 5px;"> <p>The candidate has:</p> <ul style="list-style-type: none"> <li>• attempted to address the question but has demonstrated superficial knowledge of the indicative content. Superficial knowledge is defined as a response that provides one to three points from the indicative content</li> <li>• used limited technical terminology referring to the indicative content</li> <li>• given a response where there are significant errors in spelling, punctuation and grammar.</li> </ul> </td> </tr> <tr> <td style="text-align: center; padding: 5px;">0 marks</td> </tr> <tr> <td style="padding: 5px;">Response not credit worthy or not attempted.</td> </tr> </table> <p>Indicative content</p> <p>Advantages (Up to a MAX of 6 marks)</p> <ul style="list-style-type: none"> <li>• No expenses for travelling to meetings</li> <li>• No time wasted travelling</li> <li>• Convenient for people with a disability</li> </ul>	6 - 8 marks	<p>The candidate has:</p> <ul style="list-style-type: none"> <li>• shown clear understanding of the requirements of the question and a clear knowledge of the indicative content. Clear knowledge is defined as a response that provides six to eight relevant detailed points from the indicative content, and a maximum of six advantages or disadvantages.</li> <li>• addressed the question, appropriately describing advantages and disadvantages of video conferencing.</li> <li>• used appropriate technical terminology, referring to the indicative content accurately</li> <li>• used accurate spelling, punctuation and grammar.</li> </ul>	4 - 5 marks	<p>The candidate has:</p> <ul style="list-style-type: none"> <li>• shown adequate understanding of the requirements of the question and a satisfactory knowledge of the indicative content. Satisfactory knowledge is defined as a response that provides four to five points from the indicative content</li> <li>• addressed the question, describing advantages and disadvantages of video conferencing</li> <li>• used appropriate technical terminology referring to the indicative content</li> <li>• mainly used accurate spelling, punctuation and grammar with some errors.</li> </ul>	1 - 3 marks	<p>The candidate has:</p> <ul style="list-style-type: none"> <li>• attempted to address the question but has demonstrated superficial knowledge of the indicative content. Superficial knowledge is defined as a response that provides one to three points from the indicative content</li> <li>• used limited technical terminology referring to the indicative content</li> <li>• given a response where there are significant errors in spelling, punctuation and grammar.</li> </ul>	0 marks	Response not credit worthy or not attempted.	<p>1</p> <p>1</p> <p>8</p>	10
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<ul style="list-style-type: none"> <li>• No need for long journeys / traffic / stressful commutes</li> <li>• Meetings can be fit around other commitments</li> <li>• Employees can conduct a meeting any time of day</li> <li>• You can have a 'meeting' with people from many different offices / countries without any of them having to travel</li> <li>• You can see people as well as hear them. This means you can see their body language which you can't do with a telephone call</li> <li>• You can all view a document on the screen at the same time. People can work together and add their ideas</li> <li>• Ideas and knowledge can be communicated between all those at the meeting very quickly and responses gathered.</li> </ul> <p>NOT 'keep in touch with friends and family' – must be related to an organisation</p> <p>Disadvantages (Up to a MAX of 6 marks)</p> <ul style="list-style-type: none"> <li>• Video conferencing facilities can be expensive</li> <li>• A very reliable, fast data internet connection is needed</li> <li>• Even with a fast connection, there might be a slight delay between responses / poor quality video feed</li> <li>• If the hardware breaks down, participants cannot 'attend' the meeting</li> <li>• People could be in different time zones around the world. This might mean that some people have to stay up through the night in order to attend the meeting</li> <li>• The video camera might not be able to see all parts of the room at the same time</li> <li>• There is no substitute for a face-to-face meeting in getting to know someone</li> <li>• Video conferencing calls may be hacked.</li> </ul>		
TOTAL		80





WJEC  
245 Western Avenue  
Cardiff CF5 2YX  
Tel No 029 2026 5000  
Fax 029 2057 5994  
E-mail: [exams@wjec.co.uk](mailto:exams@wjec.co.uk)  
website: [www.wjec.co.uk](http://www.wjec.co.uk)