

GCSE MARKING SCHEME

ICT

JANUARY 2015

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INTRODUCTION

The marking schemes which follow were those used by WJEC for the January 2015 examination in GCSE ICT. 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.

	Page
UNIT 1	1
UNIT 3	9

GCSE ICT - UNIT 1

MARK SCHEME - JANUARY 2015

Qı	uestion	Answer	Max mark
1	(a)	One mark for each for each correct answer	4
		Word Art ClipArt / picture / image Bold Font Italic Font (NOT bold, italic or font by itself) Accept Bold text / italic text BUT NOT text by itself) NOT Different fonts Underlined Centre text Border art (NOT Borders on its own) Font size / text size Bullet points Table Watermark Tabs and indents Line spacing Colour (Background or text) Only allow one Condone Grammar Check Accept any reasonable DTP feature	
	(b)	Spellcheck / spellchecker	1

Qu	estion	Answer	Max mark	
2	(a)	One mark for: Idea of better <u>quality</u> pictures/photographs, e.g. more clearly defined photos / if blown up to a large size won't be as blurred/ clearer images.	1	
	(b)	Tablet B.	2	
		It has more storage space / it has a memory capacity of 32GB.		
		Allow second correct answer if first is incorrect.		
	(c)	WiFi (802.11) Tethering Broadband GPRS/3G/4G Wired connection	2	
		No brand names (FaceTime, Skype etc.)		
	(d)	One mark for each of two uses from: Can select / plan the shortest route from A-Z / real time guidance of route Can share position with others Can see bird's eye view of your house Can be found by others if lost/in an emergency Can track / be tracked / locates where you are Can find places of interest / petrol stations, etc. Can locate exactly where your photos have been taken Locate your tablet Can locate weather for your particular area / Can predict weather more accurately Online mapping / look at maps Walking tours	2	
3	(i)	Any reasonable answer 2 Retina scanning	2	
		3 Fingerprint scanning If 3 boxes ticked, only accept one correct answer If all boxes ticked, no marks		
	(ii)	Advantages (Any two) Unique to each student / No-one else can register for you Cannot forget like a card /cannot lose a finger <u>as you can a swipe card</u> Real time registration/know immediately where pupils are/can track pupils Frees up teacher time Less human error	4	
		NOT faster to register on its own		
		Disadvantage Expensive to install Privacy issues / DPA Hygiene issues Faulty equipment causes delays (e.g. dirty camera) Calibration / Time consuming to collect biometric data from people Training for staff and students		

Question	Answer	Max mark
4 (a)	Any three of the following: Contact details (generic answer, which precludes anything else related to contact details) Address / Postcode Telephone number / mobile number	3
	Title Cost Method of payment / credit or debit card details Discount code / concessions Login details Time of film VIP seats/ choose seats Number of seats / number of tickets Disabled access	
	Any reasonable answer	
(b)	2 3 5 8	4
(c)	Two marks for advantages to customer: Do NOT accept anything which could be done by phone Avoids double booking Can book 24/7 Can choose seat Compare prices to get best deal Easier for disabled who don't have to leave home to book / can see if disabled seats are available Read online reviews before booking Watch trailers online Can check availability before booking Save on travel costs (must be qualified) e.g. of going to the cinema to book Save travel time (must be qualified) e.g. rather than going to the cinema to book On-line discounts Can select alternative showings E-tickets NOT just 'easier to book' NOT saves time queuing	3
	One mark for disadvantage to customer: Entering credit card/debit card details might not be safe / fake site / hacking No personal service / less face to face interaction Entering incorrect details and booking the wrong film Not everyone has the Internet/ debit card to be able to book the tickets online Prevents booking of seats if it leaves one isolated, un-booked seat on its own Certain discounts cannot be used online (don't allow if given for advantages)	
	NOT Booking fee	

Question	Answer	Max mark
5 (a)	To uniquely identify the player / to make each record unique / unique identifier	1
(b)	Smith F / F Smith	1
(C)	2	1
(d)	Autonumber / Number / Integer Date Boolean / Yes/No	2
(e)	Any two of the following: Password protection to stop unauthorised access	2
	 Password protocols – changing passwords regularly / don't write down passwords / not using easily guessable passwords Access rights – read only / read/write / create records / delete records Saved off site – saved in a fire proof safe. Physical security – lock doors, biometrics, security guards, Firewall – Prevents accessing data Antivirus – Prevents malicious programs from damaging data Encryption – Makes intercepted data unreadable Regular saving of the database 	
	NOT Printing a paper copy, NOT saving to a USB	
(f)	Student ID – Presence check, Type check (integer) NOT Length Name – Type check (string), Presence check Gender – Type check (character), Drop down list, Look Up method, Presence check Year – Range check, Presence check, Type check Position – Type check (string), Presence check, Drop down list, Look Up method Date First Played – Range check, Presence check, Format check, Date Picker Plays For County – Type check (Boolean), Drop down list, Look Up method, Presence check	2
	Must specifically name the validation method.	
6 (a)	Any three of the following: The Internet CD Roms / DVDs / <u>Electronic</u> encyclopedias Databases Bulletin boards Emailing an expert VLE / Intranet Weather / Global warming apps E-books Podcast	3
	1,2,6	3

Question	Answer	Max mark
(b) (ii)	Any three of the following: Adjust window size Mouse settings - speed, cursor shape and colour Screen resolution Desktop fonts / colour / size Change Background / background colour / background image Positioning items / placing icons Contrast Brightness Volume / Sound / Speech On-screen help Folder operations- move / copy / delete Task bar customisation Password protection Widgets / Gadgets Onscreen keyboard	3
	NOT Creating shortcuts Renaming folders Data logging Videoconferencing Creating auto shapes Adjusting icon size	
(c)(i)	Automatic marking - Giving instant feedback Games to teach maths Video tutorials/ videos showing a science experiment Audio tutorials/ sound - in music to hear the notes Simulations/demonstrations of weather patterns Animation to show different aspects of design Email/ chat room/blogs/forums Communication between teachers and students - discussion Interactive quiz/tests- ICT revision / History revision / See progress in a French topic Walkthrough - online papers.	2 x 2
(c)(ii)	Advantage (1 mark) Individualised learning – tailor own work pattern Students can work at own pace - pause and play Can access from any device with Internet anywhere Learning can take place at any time learn 24/7 Can be done away from school/distance learning – at home Teacher does not have to be there/they provide extra support when the teacher is not available Wide variety of online resources can be used Keep students interested/ More interactive than pen and paper/variety of multimedia formats can be used(sound/video/animation) Self-assessment / Immediate results/ feedback/ Analyse/view where you went wrong Frees up teachers time Don't have to incur extra costs of extra tuition outside school Not as embarrassing if they get it wrong/improves confidence	1

Question	Answer	Max mark
7 (a)	Tie	1
(b)	Absolute 1 If more than one box is ticked – no marks	1
(c)	С	1
(d)	=B10+1 =SUM(B10+1) = does not have to be present NOT =B10+£1	1
(e)	 =IF(F3<50,"Order more stock","Stock level okay") =IF(F3>=50,"Stock level okay","Order more stock") If quotation marks missing or spelling errors, award mark = does not have to be present 	1
8 (a)	Three marks for any of:Sending/ receiving text messagesTaking photographsRecording videosSurfing the InternetPlaying games / Using appsSending emailsUploading / downloading / streaming videoSocial networkingGPS / GISPlaying musicWatching TVVideo callsAccept any suitable answer	3

Question	Answer	Max mark
(b)	Two marks for advantages from: A fast download speed can mean music is received almost instantly Can select which tracks to download so cheaper than downloading whole album Can access / get files 24/7 Can read online reviews before purchasing Preview the song before buying Use price comparison websites to save money Saves time/money as do not have to go to shops to buy Increased access to a wider range e.g. the number of websites or variety of music styles NOT can be used on multiple devices	2
	One mark for a disadvantage from: Viruses can be introduced File content may be different from stated name Illegal downloads harm the music and film industries Breaking the Copyright Act More powerful computers needed due to large file sizes May lead to shop closure Security issues online e.g. hacking, phishing No marks for hardware problems	1
9 (a)	Temperature sensor (not Heat) Light sensor Sunshine hours Humidity Rainfall sensor Wind speed Wind direction Atmospheric pressure sensor / Air pressure (Not just pressure sensor on its own)	2
(b)	One mark each for two of: Using icons / graphics / weather symbols Video / animations / simulations / games Text / messages about the weather Numbers Maps / satellite Graphs / charts NOT database, spreadsheet, table	2
(c)	Any two of the following advantages: One mark each for two of: Collected at exactly correct time / collected accurately Data can be collected from remote and dangerous places Data can be recorded accurately Data can be transmitted by radio/satellite communication Monitor 24/7 / Humans don't need to be there / Data collected / updated automatically Can process large amounts of data	2
	DO NOT ACCEPT ONE WORD ANSWERS	

Question			Answer	M m	
10	9-12 marks 5-8 marks	the advantages of appropriate prevent terminology and a Candidates descri	a clear, coherent answer fully and accurately describe if email and give three misuses of email and the ntion methods to email misuse. They use appropriate accurate spelling, punctuation and grammar. ibe some advantages of email, and a few misuses and ons of misuse, but responses lack clarity. There are a	1	
	few errors in spelling, punctuation and grammar 1-4 marks Candidates simply give a few advantages and misuses of email. The response lacks clarity and there are significant errors in spelling, punctuation and grammar.				
	0 marks	No valid response			
	marks for de misuse (max	scribing misuses o	g to advantages of email (Max 6). Up to three of email and then a mark for each prevention of the ks must have six advantages, three misuses and email misuse.		
	Cut down on Quicker response Faster to send Record when Can be edited Group emails Can pick it up Can keep in the Attachments of Ask for read r Can use an a Privacy - Can Saves paper Can be access Environmenta NOT cheaper NOT Free on	onses d / faster to receive / sent / received d / collaborative work / CC – save rewriting anytime / anywhere ouch with friends an can be sent eccipt / notification of ddress book to quicl password protect sed from a wide var illy friendly, reduces its own / faster' by itself	g the same message d family across the world of delivery kly contact people		
	Any three mi	suses from:	Any three matching preventions from:		
	Misuse		Preventions of Misuse		
	Cyberbullyin		Parental lock / report bullying		
	Viruses / ma		Anti-virus software		
	Phishing sca		Be aware of phishing, do not respond, report it	-	
	Spam / Junk		Spam filter/ block sender	_	
	Security / Ha	•	Secure passwords, firewalls, encryption	_	
	Abusive lang		Workplace filters	_	
	Wasting con	npany time	Monitoring email usage	-	
	misuse.	-	he misuse – cannot award prevention if no . not network crashes) – must be a misuse		
			TOTAL	8	

GCSE ICT - UNIT 3

MARK SCHEME - JANUARY 2015

1		Speakers (1) Output (1)		2	
•		Speakers (1) – Output (1) Webcam (1) – Input (1)		2 2	
				-	4
2	(a)(i)	A notator is software that converts musical no		2	
				2	
	(ii)	A music file stored in WAV format wou same file stored in MP3 format.	ld take longer to download than the		
					4
	(b)	An image stored as a bitmap graphic t image stored as a vector graphic. – Fa	llse (2)	1	
		Vector images use points, lines, curve	s, and shapes stored as	1	
		mathematical equations – True (3)	$r_{\rm res} = r_{\rm res} (F)$	4	
		When a bitmap image is enlarged it los	ses quality – True (5)	1	3
	(c)	Any two of:		1	3
	(0)	• Zoom	LayeringRed-eye <u>removal</u>	1	
		Selection		•	
		Transforming	Spot clearingSkew		
		5			
		Sizing			
		Scaling Conving	Distortion		
		Copying Moving	Colour palette		
		Moving	Contrast		
		Cloning	Brightness		
		• Brush	• Text		
		Toggling between layers	• Blur		
		• Crop	Accept any reasonable answer		2
3		Advantages (any and of:)			2
3		Advantages (any one of:)		1	
		Faster uploads/downloads Souce memory/aterage (appage) / a	avec hard diag appea	•	
		 Saves memory/storage (space) / s (Not 'saves space') 	aves hard disc space		
		(Not 'saves space')	files		
		Ability to email some compressed File size smaller	lies		
		File size smaller			
		Disadvantages (any one of:)		1	
		 Loss in quality / reduction in number 	or of colours / bocomos blurny		
			-		
		 Slower access of compressed data opening file 	a decompression needed when		
		 More resources intense when acce 	secting comproseed files		
			essing compressed mes		2
4	(a) (i)	Any one of:		1	-
-	(a) (I)	 Device which stores the addresses 	s of computers on the network	I	
			•		
		 Router allows <u>computers/devices connection</u> 	n a network to share an internet		
		connection			
		NOT connect to a WAN			
		NOT allow users to connect to the inte	rnet		
					1

	(ii)	Any one of:	1	
		Joins together two networks that use different base protocols,		
		Links different types of networks		
		Links LAN to WAN		
		Allows a LAN to connect to the internet.		
				1
	(iii)	Any one of:	1	
		• Joins together two networks that use the same base protocols,		
		Links similar types of networks		
		Links LAN to LAN		
				1
	(b)	Any three of:	1	
		Data is <u>broken into packets</u>	1	
		Packets are <u>sent/transferred</u> (one-by-one) <u>over a network</u>	1	
		Packets contain source address / destination address / re-assembly		
		information / packet number / checksum		
		Packets can take different routes to get to destination		
		Data is <u>reassembled</u> at the <u>destination</u>		
		Data collisions occur when two packets are detected simultaneously		
		Both data collision packets are discarded		
		• Computers wait a random amount of time before attempting to resend		
		the discarded packets		
_				3
5	(a) (i)	Tweening / Motion tween	1	
	(!!)			1
	(ii)	Onion skinning	1	1
	(iii)	One mark for each of:		
	. ,	Tracing around/over an image/over images/movies	1	
		Gives a cartoon like appearance / creating a life like motion	1	2
	(b)	The human eye / retina / brain continues to see an image for a short	1	
		period after the image has disappeared		
		or		
		The process by which the eye is fooled into thinking that still pictures are		
		moving		
				1
	(c)	A story board is a <u>plan</u> .	1	
		Any one of		
		Any one of:	4	
		Frame-by-frame	1	
		Comic book Seene by seene		
		Scene-by-scene Detailing key elemente		
		Detailing key elements		
		Sequence/order of events		
		Accort similar wording		
		Accept similar wording.		2
6	(a)	URL (2)	1	
	()	Hosting (4)	1	
				2
	(b)	HTML	1	1

	(c)	Bookmark – Stores the address of a file/data used to enable quick access by a user / link to another page on the internet	1	
		 Homepage – First / main page of a website Leader board – A banner (used for advertising) or scrolling/animated marquee. 	1 1	
		Accept different wording if answer shows clear understanding		2
	(d)	The area/location which the eye focuses on first / user looks at first	1	3
		on a webpage of <u>search results</u> / <u>after a search</u>		_
	(e)	Any three of:	1	2
	(6)	Reviews / blogs / forums	1	
		Location maps	1	
		Email/enquiries form	1	
		Search engines / Search box		
		Login/ customer accounts		
		 Shopping basket / Online shopping / e- commerce 		
		Audio descriptions		
		Video		
		Drop down lists to select options		
		Hyperlinks		
		Hotspots		
		Web iconsAnimations		
		 Animations Banner 		
		NOT Bookmark, Homepage, Leaderboard		
		Any reasonable answer		3
	(f)	Any two of:		
		Mobile phone / Smart phone NOT phone		
		Tablet – no brand names		
		Laptop		
		Smart TV		
		Games console		
		NOT Network		
		Any reasonable answer		
-	(-)			2
7	(a)	Software/program	1 1	
		That controls/runs the computer system	1	2
	(b)	An operating system is responsible for booting (starting) up a	1	
	()	computer. – True (1)	1	
		• An operating system manages input and output devices – True (3)	1	
		An operating system ensures that data is written to the backing store –		
		True (5)		3
	(c) (i)	Batch processing	1	
	(ii)	Real-time transaction processing	1	
	(iii)	Real-time processing	1	
		Accept answers without the word 'processing' at the end, e.g. batch on its		
		own.		
				3

8	C - D - A - E - B	5	5
9 (a) (i)	Check data is sensible / reasonable / within stated ranges	1	1
(ii)	 Any one of: Check that data is consistent / has been <u>entered</u> correctly (as intended by the user) Data exactly matches the original source 	1	1
(b) (i)	 Any one of: Ensures that the data sent is the same as the data received (when data is transmitted from one computer to another). Ensures data has not been corrupted in transit. An <u>extra bit (parity bit) is added</u> to transmitted data to give <u>odd or even parity</u>. The destination device checks if the parity has <u>been maintained/kept/matches data sent</u>. 	1	1
(ii)	Enter data <u>twice</u> to check for a <u>match</u> .	1	1
(c) (i)	Hash total	1	1
(ii)	Batch total	1	1
10 (a)	 Banking at an ATM: (Any one of) Card number Composite Keyfield of sort code and account number Condone account number NOT PIN number 	1	
	Payroll (Any one of)Payroll No.Employee number	1	2
(b)	 Banking at an ATM: Touch screen Card reader (magnetic strip reader or chip and pin reader) Biometric recognition devices (voice recognition / fingerprint scanner / 	1	
	microphone) • Keypad NOT Camera	1	
	 Payroll Clock cards Swipe cards Biometrics (NOT twice) OMR / OCR 		2

(c)	Any two of:		2	
	Date			
	 Payroll nu 	Imber		
	Cost cent	re number / department		
	NI Numbe	er		
	Address			
	Month nui	mber		
	Tax code			
		ient messages		
	 Gross pay 	÷		
	 Net pay to 			
	- · · · ·			
	NI to date			
	-	uation/Pension contributions to date		
	Gross pay	ý		
	 Net pay 			
	• Tax			
	• NI			
	Superann	uation / Pension contributions		
	Processe	d payment (EFT)		
		master file		
	•	nent statistics / summaries		
	Total hour			2
11	Backups t	to store data safely off-site	3	
	-	prevent access to data		
		scans to allow access to data to correct user		
		on of use of suitable sensor (e.g. PIR sensor linked to alarm)		
	-	guards to restrict access to buildings		
		-		
		restrict access to buildings to keyholders		
		unlock doors to authorised personnel		
	Card scar	nners to unlock doors to card holders		
		alarm' on ite own		2
	NOT burgiar	alarm' on its own		3
12	9-11 marks	Candidates give a clear, coherent answer fully and	11	
12	o i i marko	accurately describing the uses, advantages and	••	
		disadvantages of robotics and expert systems. They use		
		appropriate terminology and accurate spelling, punctuation		
		and grammar.		
	5-8 marks	Candidates describe some uses, advantages and		
		disadvantages of robotics or expert systems, but responses		
		lack clarity. There are a few errors in spelling, punctuation		
		and grammar		
	1-4 marks	Candidates simply give a few uses advantages and		
		disadvantages of robotics or expert systems. The response		
		lacks clarity and there are significant errors in spelling,		
		punctuation and grammar.		
	0 marks	No valid response.		
	Guidance			
	1 mark for ea	ch use, 1 mark for each advantage and 1 mark for each		
	disadvantage	·.		
	•	arks, candidates must have a use, an advantage and a		
1	disadvantage	for each application.		11
L	CBAC Ltd.			11

Additional marks (up to a maximum of 5) may be awarded for additional suitable advantages and disadvantages. Only award credit once for the same advantages / disadvantages for robotics and expert systems. Robotics Specific Uses Car production • Spot welding • Assembling parts e.g. fitting windscreens • Paint spraying • Testing engine timing and emissions using sensors • Carrying parts around the factory • Telebots e.g. Deep sea exploration, Bomb disposal, • Bionics e.g. robotic legs and arms controlled by the human brain • Space probes • Domestic robots such as vacuum cleaners, disability robots Advantages • Repetitive tedious jobs are done to the same consistent standard • Can work in dangerous places • Can work in unhealthy places • Cans on the other and the motions of a new skill • Do not need to have a heated or lit environment saving on utility costs • Saves on employment costs • Unemployment due to many assembly line jobs now being done by robots / loss of human jobs • Possible need for extra space / new technology to accommodate robots • Limited functionality • Lack of common sense. Robots do not react quickly to situations they have not been programmed to deal with. NB Award marks for any sensible advantage or disadvantage to a sensible unexpected example of robotic use. Expert Systems • Medical Expert Systems • Medical Expert Systems • Medical Screening for cancer and brain tumours Any other example e.g. Matching people to jobs. Diagnosing faults in car engines, Legal advisory systems, Training on oil rigs, Mineral prospecting, Oil exploration		
robotics and expert systems. Robotics Specific Uses Car production Spot welding Assembling parts e.g. fitting windscreens Paint spraying Testing engine timing and emissions using sensors Carrying parts around the factory Testing engine timing and emissions using sensors Carrying parts around the factory Carrying parts around the factory Telebots e.g. Deep sea exploration, Bomb disposal, Bionics e.g. Deep sea exploration, Bomb disposal, Domestic robots such as vacuum cleaners, disability robots Advantages Can work 24 hours a day 365 days a year Can work in dangerous places Can work in dangerous places Can work in dangerous places Can work in unhealthy places Can be quickly taught new skills by changing the program or a human taking them through the motions of a new skill Do not need to have a heated or lit environment saving on utility costs Saves on employment costs Unserployment due to many assembly line jobs now being done by robots / sos of human jobs Cost of maintenance/running costs Staff training to set up or use robots Limited functionality Lack of common sense. Robots do not react quickly to situations they have not been programmed to deal with. NB Award marks for any sensible advantage or disadvantage to a sensible unexpected example of robotic use. Expert Systems Medical Expert Systems Medical Expert System was designed to identify bacteria causing server infections, such as bacteria and meningitis, and to recommend antibiotics Medical screening for cancer and brain tumours Any other example e.g. Matching people to jobs, Diagnosing faults in car engines. Legal advisory systems, Training on oilings, Mineral prospecting,		
Specific Uses Car production • Spot welding • Assembling parts e.g. fitting windscreens • Paint spraying • Testing engine timing and emissions using sensors • Carrying parts around the factory • Telebots e.g. Deep sea exploration, Bomb disposal, • Bionics e.g. robotic legs and arms controlled by the human brain • Space probes • Domestic robots such as vacuum cleaners, disability robots <i>Advanages</i> • Can work 24 hours a day 365 days a year • Can work in dangerous places • Can work in unhealthy places • Can work in unhealthy places • Can work in unhealthy places • Do not need to have a heated or lit environment saving on utility costs • Saves on employment costs <i>Disdvantages</i> • Initial expensive development costs • Unemployment due to many assembly line jobs now being done by robots / loss of human jobs • Possible need for exita space / new technology to accommodate robots • Staff training to set up or use robots • Limited functionality • Lack of common sense. Robots do not react quickly to situations they have not been programmed to deal with. NB Award marks for any sensible advantage or disadvantage to a sensible		
Car production Spot welding Assembling parts e.g. fitting windscreens Paint spraying Testing engine timing and emissions using sensors Carrying parts around the factory Telebots e.g. Deep sea exploration, Bomb disposal, Bionics e.g. robotic legs and arms controlled by the human brain Space probes Domestic robots such as vacuum cleaners, disability robots Advantages Repetitive tedious jobs are done to the same consistent standard Can work 24 hours a day 365 days a year Can work in unhealthy places Can work in the under of the environment saving on utility costs Can work in the antero/unning costs Cases of maintenance/unning costs Case of maintenance/unning costs Case of maintenance/unning costs Case of maintenance/unning costs Case of envire the programmed to	Robotics	
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 Repetitive tedious jobs are done to the same consistent standard Can work 24 hours a day 365 days a year Can work in dnagerous places Can work in unhealthy places Can be quickly taught new skills by changing the program or a human taking them through the motions of a new skill Do not need to have a heated or lit environment saving on utility costs Saves on employment costs Disadvantages Initial expensive development costs Unemployment due to many assembly line jobs now being done by robots / loss of human jobs Possible need for extra space / new technology to accommodate robots Cost of maintenance/running costs Staff training to set up or use robots Limited functionality Lack of common sense. Robots do not react quickly to situations they have not been programmed to deal with. NB Award marks for any sensible advantage or disadvantage to a sensible unexpected example of robotic use. Expert Systems Mycin - This expert system was designed to identify bacteria causing severe infections, such as bacteria and meningitis, and to recommend antibiotics Medical screening for cancer and brain tumours Any other example e.g. Matching people to jobs, Diagnosing faults in car engines, Legal advisory systems, Training on oil rigs, Mineral prospecting,	 Telebots e.g. Deep sea exploration, Bomb disposal, Bionics e.g. robotic legs and arms controlled by the human brain Space probes 	
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engines, Legal advisory systems, Training on oil rigs, Mineral prospecting,	 Medical Expert Systems Mycin - This expert system was designed to identify bacteria causing severe infections, such as bacteria and meningitis, and to recommend antibiotics 	
	engines, Legal advisory systems, Training on oil rigs, Mineral prospecting,	

Ad	vantages	
•	The computer can store far more information than a human. It can	
	draw on a wide variety of sources such as stored knowledge from	
_	books case studies to help in diagnosis and advice	
•	The computer does not 'forget' or make mistakes	
•	Data can be kept up-to-date	
•	The expert system is always available 24 hours a day and will never 'retire'	
•	The system can be used at a distance over a network / rural areas or	
	even poorer third world countries have access to experts	
•	Provides accurate predictions with probabilities of all possible	
_	problems with more accurate advice Some people prefer the privacy of talking to a computer	
•		
•	Gives the security of a second opinion	
W	nere medical analogy is used can replace with similar	
•	Gives the doctor/expert more time to deal with other patients / saves	
	overloading doctors in epidemic/pandemic / more time to deal with	
	serious cases	
•	Can provide a second opinion	
•	It can help train young doctors/workers in unfamiliar diseases/events	
•	People can do an initial diagnosis from home saving them travel and time costs especially if in a rural area or have long waiting lists to see	
	a GP, e.g. if you suspect your child has a rash you could quickly check	
	the symptoms for meningitis.	
•	Cheaper to update than to train doctors	
•	Training using simulators	
•	Using NHS Direct allows self-diagnosis	
Di	sadvantages	
•	Over reliance upon software	
•	Initial expensive development costs	
•	Some employees could be de-skilled by over dependence upon	
	computer advice	
•	Fewer staff could be needed	
•	Lacks the 'human touch' – lack of personal contact/empathy/ No	
	human available if do not know what to do	
•	Lacks human senses e.g. see a rash, hear a cough, smell a wound in	
_	medical examples	
•	GIGO/ dependent upon the correct information being given. If data or rules wrong the wrong advice could be given / not 100% accurate/ lack	
	of common sense.	
Do	not award contradictory answers	
	Award marks for any sensible advantage or disadvantage to a	
se	nsible unexpected example of expert system	
		• •
	TOTAL	80



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