OCR
RECOGNISING ACHIEVEMENT

GCE

ICT

Advanced GCE

Unit **G063**: Systems, Applications and Implications

Mark Scheme for January 2013

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

Mark Scheme

Annotations

Annotation	Meaning
⌃	Omission mark
BOD	Benefit of doubt
SC	Subordinate clause/Consequential error
✗	Cross
EXP	Expansion of a point
FT	Follow through
NAQ	Not answered question
NBOD	Benefit of doubt not given
P	Point being made
R	Repeat
/	Slash
✔	Tick
TV	Too vague
0	Zero (big)

Question			Answer	Marks	Guidance
1	**(a)**		One from: **Implementation** eg: • it uses the design specification/output from the design stage (1) and takes it forward/puts it into practice (1) • it is when the coding would be created (1) for the required inputs, processing and required outputs (1) • it is when off-the-shelf software is customised (1) dependent upon the needs of the client (1) • creates working software (1) that can be tested (1). One from:\ **Installation** eg: • placing of finished project into use (1) parallel/phased/pilot/direct strategy used (1) • presents opportunity for staff training (1) using completed and tested software code (1). • Data transfer (1) where data keyed into new system (1)	4	Accept for one mark: identification of position in systems life cycle one time
	(b)		Four from eg: • investigates the current system (1) using investigation methods/observation/interview/document analysis/questionnaires (1) liaises with staff/management within the organisation (1) to ascertain how the current system works (1) and how it could be improved (1) writes feasibility study (1) and requirements specification / user requirements (1).	4	

Question			Answer	Marks	Guidance
2			4 Two complete comparisons 3 One complete comparison and one individual point 2 One complete comparison 1 One individual point about either side. Points may include eg: • interactive processing waits for a response from the end user whereas a real time processing waits for an automated response from the system • interactive processing can be paused as long as it is completed within given time frame whereas real time processing needs to be within given time period • Interactive processing used to book airline tickets whereas real time processing used to show location of aircraft.	4	*If point is the same / different for both then the candidate must explain why it is for both to gain marks for both.*
3			Two from, two marks each eg: • server (1) powerful computer that performs a specific function – applications/to store the pupil files (1) • computers (1) programmable machine that can carry out different tasks / to use in the classroom (1) • projector (1) system of lenses to project image via light on a screen/to display desktop image (1).	4	*These are examples, allow anything reasonable that would be found in a school.* *Allow role for second mark.*
4	(a)		Four from eg. • language needs to be suitable for the users it is targeted at (1) novice users need simple language (1) and a lack of technical terms (1) so they can gain confidence when using the interface (1) expert users do not want to feel patronised (1) and will want technical terms (1) readability should be kept as simple as possible (1) error messages and instructions need to inform and not confuse (1).	4	

Question			Answer	Marks	Guidance
	(b)		One from eg: - consistency of interface designs (1) will enable different screens to be used with minimal learning (1) - controls placed in the same place on different screens (1) facilitates only needing to learn them once (1) - icons should not differ greatly from other applications (1) previous experience should be drawn upon (1) - helpful pop-up messages will enable speedier learning (1) assistance in correcting errors or completing unfamiliar tasks will keep the user focussed on the task (1).	2	*Full explanation for 2 marks, not 2 single points.*
5			5–6 The candidate has given detailed explanations of the advantages of the use of an expert system 3–4 The candidate has given limited explanations of the advantages of the use of an expert system 1–2 The candidate has identified advantage(s) of the use of an expert system Points may include: - engineer does not need to know all the systems, as long as they have a basic knowledge they can follow the computer instructions which reduces training time and costs - only one expert in the system needs to be employed to program the system, less technical employees can be hired who will be cheaper - customer can use the software to work out the basic problems and decide who to call allowing the company to spend more time on the repair work and less on the diagnosis.	6	

Question	Answer	Marks	Guidance
6	Two from, two marks each eg: • can observe what people do which may be different from what they tell you (1) and lead to inconsistencies that can be investigated (1) • habits which are overlooked can be viewed (1) giving the full picture (1) • can see the body language (1) so can tell if people are lying/telling the truth (1).	4	
7	Two from, two marks each, eg: • allows tasks that must be completed first to be seen (1) allowing resources to be directed to them (1) • shows the redundancy that is built in (1) showing which parts of the project can overrun without affecting the rest (1) • shows the concurrent tasks (1) which allow the project manager to hire more staff to complete them (1) • shows when resources need to be on site (1) so money not tied up in buying resources before they are required (1).	4	
8	Two from eg: • to provide a wrist rest (1) to prevent RSI (1) • to provide suitable computer chair (1) to prevent back problems (1) • provide free eye check up (1) to make sure computer use is not damaging eyesight (1) • provide training on health (1) so the responsibility is the employee's/employee knows what to do (1).	4	

Question			Answer	Marks	Guidance
9	(a)	(i)	Max 4 eg: • allows hardware resources (eg. printers) to be shared between computers (1) meaning one high quality one can be purchased (1) which would save money (1) easier to maintain (1) • control over the resources (1) security permissions/access logs can be established to see who is looking/using what data (1) • backup/software updates can be centralised (1) removing responsibility from end user (1) • allows hot desking (1) each employee can have access to their data regardless of which machine they sit at (1).	4	*Max two for points*
		(ii)	One for identify, two for description, eg: • switch (1) a concentrator for the network (1) allows cables to be plugged into it to redirect traffic (1) • network Interface Card (NIC) (1) gives computer unique MAC address (1) allows physical connection via cable to network (1) • cable (1) physically connects NIC to switch/hub (1) different types limit the distance the signal can travel (1)	3	Allow wireless networking devices.
	(b)		Two from eg: • two or more of their departments could exist on the LAN (1) but each computer would only communicate with others in the same department (1) • services such as file sharing, printing and application sharing would be the same as on the single LAN (1) allocated to just those individuals within a particular department (1) • to offer secure remote access to existing resources (1) as if working locally (1) • to provide a secure extension of their private network (1) into an insecure environment such as the internet for workers (1) • to separate the traffic of different user groups (1) over their underlying network with strong security features (1).	4	

Question			Answer	Marks	Guidance
	(c)	**(i)**	Two from eg: • a connection requires satellite dish (1) may be planning applications preventing its use (1) • dish requires line of site to the satellite (1) in a built up town this may be difficult to achieve (1) • satellite signal affected by bad weather (1) staff will lose the signal in snow/rain/wind preventing work (1).	4	

Question			Answer	Marks	Guidance

	c	(ii)	One for identification, two from for explanation:
			• leased line (1)
			     eg.
			      – increased security between branches (1) allows transmission of personal data (1)
			      – high bandwidth (1) large files can be transferred with no loss of capacity for other users (1)
			      – symmetrical upload and download (1) does not matter at which branch, same data transfer speeds (1)
			      – Reliability of line/3rd party support/installation of cabling (1) fast support contracts ensuring minimum downtime (1)
			OR
			• ADSL (1)
			     eg.
			      – Can use telephone and internet at same time (1) no interference in signal (1)
			      – large choice of service provider (1) can go for best bandwidth/cost/support (1).
			
			OR
			• Satellite (1)
			     eg.
			     - One of the offices may be in remote location / no other option available (1) satellite can be deployed anywhere (1)
			     - Only dial-up may be available in area (1) so satellite can offer greater bandwidth (1)
			
			OR
			• Cable (1)
			     eg.
			      – Can use telephone and internet at same time (1) no interference with signal (1).
			      – Speeds can be greater than other technologies (1) large files can be transferred with no loss of capacity for other users (1)
				5	Not wireless as not suitable to the scenario

Question			Answer	Marks	Guidance
10	**(a)**		4 Two complete comparisons 3 One complete comparison and one individual point 2 One complete comparison 1 One individual points about either side Answers may include eg; • *both* email and fax can be encrypted as the fax can be sent from and received by a computer • email can be picked up anywhere *whereas* fax is usually sent to a location • *both* email and fax can be picked up anywhere if the fax is scanned and forwarded to an email account • *both* email and fax can be sent from anywhere in the world • email requires username and password for access to a private account *whereas* fax can be picked up from anyone in the location • email attachments can be edited *whereas* a fax can only be edited if it is re-typed • email can give a read receipt *whereas* fax can give a delivery receipt.	4	*If point is the same / different for both then the candidate must explain why it is for both to gain marks for both.*
	(b)		One from eg: advantage • prevents details from being understood by unauthorised parties (1) because it renders the data unintelligible (1) • meets legal requirements (1) eg DPA and protecting personal information (1) One from eg: disadvantage • lost decryption key / wrong decryption key (1) means unscrambling the data is not possible and makes it unusable (1) • when sending to someone who is not technically minded (1) may not be able to decrypt the data (1).	4	

Question			Answer	Marks	Guidance
11			Four marks for valid description: eg. GPS receiver receives the signals from a satellite (1) Minimum of four satellites required(1) satellite transmits its location <u>and</u> time (1) receiver times differences between satellite signals allows it to work out position (1).	4	

Question	Answer	Marks
12 (a)	**Only award for attempts to answer the question.** 1 mark for links that have arrows connecting process – stores / entities - process 1 mark for recognisable and relevant data flow diagram 1 mark for identifying customer and property as external entities 1 mark for stage of customer, process and data store 1 mark for stage of property of to measurement process to measurement data store 1 mark for stage of creating web page from data stored	6

Question	Answer	Marks	Guidance
(b)	4 Two complete comparisons 3 One complete comparison and one individual point 2 One complete comparison 1 One individual points about either side Points may include eg. • information will be used to give facts whereas knowledge is used to give opinion • information will be items that can be quantified and judged against whereas knowledge is the application of that information and cannot be quantified with success criteria • information is independent on viewpoint whereas knowledge depends on the perspective and belief.	4	*If point is the same / different for both then the candidate must explain why it is for both to gain marks for both.*
(c)	High 5–6 Candidate has given detailed reasons why a WIMP should be used for the given situation. Medium 3–4 Candidate has described advantages of using a WIMP for the given situation. Low 1–2 Candidate has identified advantage(s) of using a WIMP for the given situation. Points may include eg: • end user does not have to remember lots of codes to operate it • less training required for the end user – they can start to use the system straight away • similar to systems they have already used so their confidence will be high and more likely to accept the system – less resistance to change • help system will contain graphics, moving images and be built into the interface, can even be context sensitive and more useful.	6	

Question			Answer	Marks	Guidance
13			Four from eg: • date (1) • time (1) • location (1) • agenda (1) • attendees (1).	4	
14			One mark for identifying maintenance type, one for description, one for example eg: **adaptive** maintenance (1) • will be needed if changes in working practices are identified in a review (1). Example • if there is an increase in the number of buyers/properties / to adapt the system if new legislation concerning a business or organisation is introduced (1) to enable the system to operate with new hardware (1). **perfective** maintenance (1) • if new technology shows that the performance of the system could be improved (1). Example: • improving speed of searches / adding shortcuts of often used items (1). **corrective** maintenance (1) • for fixing bugs / errors in the software (1). Example: • if the system does not add up correctly / searches do not work (1).	6	

Question	Answer	Marks	Guidance
15	9–11 4 The candidate is able to explain in detail a range of reasons why it is important to manage change. Ideas will be expressed clearly and fluently using specific knowledge to support and inform the answer. Subject specific terminology will be used accurately and appropriately. 6–8 3 The candidate is able explain a range of reasons, however explanations may lack specific detail or reasons for managing change. Subject specific terminology will be used accurately and appropriately. Most ideas will be expressed clearly and fluently using specific knowledge to support and inform the answer 3–5 2 The candidate is able to describe reasons why change should be managed but their responses will show a limited understanding and lack depth. There may be some errors in spelling, punctuation and grammar. Some subject specific terminology will be used. 1–2 1 The candidate is able to identify reason(s) for managing change. The information may be poorly expressed and may be in the form of a list of points. Subject specific terminology may be limited or missing. Points may include: • decreasing resistance to change • getting the users on side so it does not come as a surprise to them • allows smooth transition from old to new system • allows all relevant parties to be informed, staff, suppliers, customers so if something goes wrong they will be more understanding • lots of tasks to complete, by managing it makes sure they are all completed and not forgotten and not done.	11	

Question			Answer		Marks	Guidance
16			9–11	4	The candidate is able to discuss clearly the impact and consequences. Candidates will show a detailed level of understanding and be able to explain in detail both the impacts **and** consequence**s** of hardware and software. Logical arguments are produced to demonstrate a clear understanding of the question. Ideas will be expressed clearly and fluently using specific knowledge to support and inform the discussion. Subject specific terminology will be used accurately and appropriately.	11	
			6–8	3	The candidate is able to discuss the impact(s) and consequences(s) Candidates will show a limited understanding and be able to explain, at least one impact **and** associated consequence of a given position, however explanations may lack specific detail and/or concentrate on either an impact or consequence with a limited explanation of the other. Subject specific terminology will be used accurately and appropriately.		
			3–5	2	The candidate is able to describe the impact(s) or consequences(s) Candidates will show a limited understanding and be able to explain, at least one impact **or** consequence of a given position, however explanations may lack specific detail. The explanation, though informed, may stray from the point but specific knowledge will be evident. Some subject specific terminology will be used.		
			1–2	1	The candidate is able to describe superficially the impact **or** consequences. The information may be poorly expressed and may be in the form of a list of points. Subject specific terminology may be limited or missing.		

Question			Answer	Marks	Guidance
			Points may include: • inclusion of biometric technology to make funds transactions safer • encryption • biometrics for advertising • virtual styling • 3D modelling • holographic representations • virtual tours • cost increases to allow for technological advances.		

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