GCE

ICT

Advanced GCE

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

Mark Scheme for January 2012

Annotations

Annotation	Meaning
^	Omission mark
BOD	Benefit of doubt
C	Subordinate clause/Consequential error
Cross	Cross
E	Expansion of a point
FT	Follow through
NAQ	Not answered question
NBOD	Benefit of doubt not given
P	Point being made
REP	Repeat
/	Slash
Tick	Tick
TV	Too vague
ZERO	Zero (big)

Question	Answer	Marks	Guidance
1	1 for identification, 1 for expansion / example: • the analysis stage concludes with a set of requirements (1) the analysis determines what needs to be done (1) • analysis involves questionnaires/interviews/document analysis/observation (1) of current system (1) • the finished system is tested against the requirements specification (1) the testing determines whether what has been done works or not (1) • testing is to find bugs/errors (1) using normal/extreme/erroneous data/following a test plan (1) • analysis is the first stage/comes before design (1) • testing comes after implementation/before installation (1)	4	
2	<table><tr><td>4</td><td>**Two complete** comparisons</td></tr><tr><td>3</td><td>**One complete** comparison and **one individual** point</td></tr><tr><td>2</td><td>**One complete** comparison</td></tr><tr><td>1</td><td>**One individual** point about either side</td></tr></table> Answers for comparison may include eg; • the course of interviews can change during the process *whereas* the structure of questionnaires are fixed in advance • questionnaires are anonymous *whereas* you see and talk to the person being interviewed • questionnaires are structured clearly and provide opportunities for short answers *whereas* an interview provides an opportunity to offer additional information that the analyst may not have considered • body language can offer conclusions about answers being given during interviews *whereas* with questionnaires you do not get to see the person filling them in	4	*If point is the same / different for both then the candidate must explain why it is for both to gain marks for comparison*

Question			Answer	Marks	Guidance
3	(a)		One mark for point, one for expansion eg: • a model is built and evaluated (1) to enable an approved version to be put into production (1) • an iterative process of design (1) and evaluation/repeated until an interface is satisfactory (1) • a working user interface is created (1) which does not process any data (1) • evolutionary – model is used as basis for development (1) • throwaway – model is redeveloped from scratch in development (1)	2	
	(b)		1 mark for identification, 1 for expansion / exemplification to max 6; • **normal/correct/valid data** (1) everyday data that is expected /should not generate any error messages on entry (1) • **extreme/boundary data** (1) data at the upper/lower boundaries of tolerance (1) • **erroneous/incorrect/invalid data** (1) incorrect data outside the boundaries of tolerance or wrong data type / should generate error messages on entry/not be accepted (1)	6	
4			1 for identification, 1 for expansion / example: • list the order that tasks need to be completed in (1) and any necessary predecessor tasks (1) • an overall plan can be constructed (1) indicating where simultaneous tasks can take place / total time of project (1) • each task is represented as a block of time (1) each block gives an indication of how long each task is expected to take compared with other tasks (1) • individuals can be allocated to tasks (1) and people and equipment hired at the right time (1) • pressure points can be identified (1) when all members of the team are working at capacity and all resources have been allocated (1)	4	*Focus of the question is as a tool for project planning*

Question			Answer	Marks	Guidance
5			One mark for point, one for expansion eg • maintains minimum stock levels for each product (1) so that the user knows how quickly stock is used and decides upon an appropriate time to re-order (1) • monitor and adjust re-order amounts for each product (1) depending upon how quickly stock is used (to cope with large orders) (1) • monitors the sales and stock level of each product (1) to help the management to plan purchases for the future (1) • (automatic) reordering (1) to allow a more efficient and profitable system (1) • keeps a track of purchase dates of goods (1) to make sure they are sold within date (1)	4	

Question			Answer	Marks	Guidance
6			Allow fully annotated diagram.	6	*Allow answers related to cellular or satellite phones*

5 – 6	Described steps which cover the whole process
3 – 4	Identified some steps in the process and has gone on to describe these steps
0 – 2	Identified some steps in the process

Points may include:
- each cell has a cell tower and a cell base station/base station transceiver (BST)
- the Mobile Telecommunications Switching Office (MTSO) / Mobile Switching Centre (MSC) keeps track of the mobile phone's location in a database
- MTSOs / MSCs from different service providers communicate if the mobile telephone enters the cells of other service providers
- the emergency services contact the mobile telephone companies monitoring their MTSOs / MSCs
- the emergency services ascertain the mobile telephone's location (and its pattern of movement) by triangulating the signal from more than one base station (which are controlled by the MTSOs / MSCs)

Question			Answer	Marks	Guidance
7	(a)		One for identify, second for description e.g • provides the same services as the internet (1) availability limited to within an organisation / within the physical network infrastructure of the organisation (1) • requires username and password to gain access (1) only used by authorised people from within the organisation (1) • closed/private network/no outside access (1) only those computers that are part of the company's LAN can gain access (1) • uses the TCP / IP protocol (1) and html used to display web pages (1)	4	
	(b)		One for identify, second for description to max 2 e.g • email (1) sending messages to other employees (1) • file transfer (1) sharing files (1) • web pages (1) sharing information (1) • chat (1) immediate response from fellow employee (1)	2	*Identification of one task that can be completed using the intranet and how it would be used*
8			One mark for point, one for expansion eg • actual expenditure can be summarised against planned expenditure (1) can be used to monitor budgets and cut expenditure if required (1) • sales trends for different products can be assessed against the time of year (1) production schedules can be planned (1) • information on demographics can be gathered/ to identify which customers bought which products (1) to create a target advertising campaign (1) • marketing campaigns can be monitored / analyse sales during that period (1) to see if more tv/radio/newspaper advertising is required (1)	4	*First mark for information required, second mark for decision made using that information.*

Question			Answer	Marks	Guidance
9	(a)			4	*If point is the same / different for both then the candidate must explain why it is for both to gain marks for comparison*

4	Two complete comparisons
3	One complete comparison and one individual point
2	One complete comparison
1	One individual point about either side

Answers for comparison may include eg;

geography
- a LAN is within a locally defined area such as a building *whereas* workstations in a WAN are geographically remote

communication
- a LAN is connected by high speed connections within the business *whereas* a WAN uses external telecommunications / external hardware
- communication in a LAN is handled by internal hardware such as switches and servers *whereas* a WAN needs an ISP to connect externally to the internet to enable communication between sites

connectivity
- a LAN is connected by cables owned by the business *whereas* a WAN is connected by third party cables (1)

configuration
- a virtual network can be configured to exist across *both* multiple LANs and a WAN

Question			Answer	Marks	Guidance
	(b)		One mark for point, one for expansion eg: • direct line-of-sight required (1) laser beam cannot be bent around any intervening building / obstacle (1) • atmospheric changes (e.g rain, smoke and fog) (1) can affect quality of signal (1) • both ends of communication need the hardware (1) the cost of set up can be inhibiting (1)	6	
10	(a)		One mark for point, one for expansion e.g: • a model the end user creates in their mind (1) of how the system should work (1) • preconceived ideas/experiences (1) related to software they are using (1) • Example (max 1) e.g. red is bad, green is good/recycle bin is not permanently deleted (1)	2	

Question			Answer				Marks	Guidance
	(b)		7 – 8	4	The candidate is able to explain in detail how a client's mental model can be used in the design stage and has provided relevant examples. 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.		8	*Examples in band 2 will not be related to the design of the system, they will be descriptions.*
			5 – 6	3	The candidate is able to explain how a client's mental model can be used in the design stage, however explanations may lack specific detail. Some examples may be given. Subject specific terminology will be used accurately and appropriately.			*Examples in band 3 will be shown how they are used by the designer when designing a new system.*
			3 – 4	2	The candidate is able to describe how a client's mental model can be used in the design stage but their responses will show a limited understanding and lack depth. Examples may be irrelevant or not given. Some subject specific terminology will be used.			
			0 – 2	1	The candidate is able to identify how a client's mental model can be used in the design stage. The information may be poorly expressed and may be in the form of a list of points. Examples will be missing. Subject specific terminology may be limited or missing.			

Points may include:
- mental models vary between users therefore the interface must reflect the perception of the majority of users / maintain an appropriate/natural way of completing an action
- the interface display must reflect the accurate state of the system for the user to affect the system further
- auditory indicators provide prompts for the user
- visual indicators such as red for bad, green for good can be applied by the designer into error messages
- the order in which a form is accessed is matched by the tab key presses
- consistent use of graphics/wording increases confidence of users

Question			Answer	Marks	Guidance
	(c)		One mark for point, one for expansion eg: • to make sure it still meets its purpose (1) to decide if a new system is required (1) • to report any bugs/errors that exist (1) so they can be corrected (1) • To make changes to the system to make it more efficient to use (1) e.g. adding shortcuts (1) • to update the system based on external factors (1) e.g. government legislation/new technologies/new hardware (1)	6	*This is post evaluation and installation of the system* *Mentioning different of maintenance does not get any marks, the candidate needs to expand on their purpose.*

Question			Answer	Marks	Guidance
	(d)		1 for identification, 1 for description and 1 for advantage for each method • direct/big bang (1) • when the old system stops and the new system starts [with no overlap] Advantage • costs less than other methods because staff only have to run one system / cheapest method in terms of staff and time costs (1) • parallel (1) • the old system and the new system are run side by side for a **determined period of time** before the old system is stopped (1) Advantage • the old system can be compared to the new system for accuracy and consistency (1) • if problems are found with the new system the organisation can continue to function (1) • training can take place and then be immediately used (1)	6	Allow labelled diagrams

Question			Answer	Marks	Guidance
11	(a)		One from, two marks each; • a set of rules (1) used to ensure the correct transfer of data between devices (1) • a set of rules (1) allow devices to work together (1) • A benchmark (1) that ensures minimum performance level (1)	2	*No marks for examples of standards*
	(b)		Two from, two marks each: • Devices can be purchased from different manufactures (1) and known to work together /additional hardware not required(1) • Allows competition between manufacturers (1) giving better value for money/choice/lower price/innovation (1) • Performance level guaranteed (1) no need to test yourself/know performance will meet requirements (1)	4	

Question			Answer	Marks	Guidance
	(c)		One mark for recommendation, one for expansion eg • user names / passwords (1) this will prevent unauthorised access (1) • use of secure links (1) needed when updating database to ensure no interception takes place during transmission (1) • virus protection / anti-spyware (1) updated regularly at each location to guard against latest versions and prevent intrusion (1) • firewall (1) to examine / control data coming into and out of the system to prevent unauthorised users gaining entry to the database / executing any programs which may affect its running (1) • access levels / rights (1) limits individuals at each site as to what they can do/see and maintains the integrity of the data (1) • individual made responsible for security / physical security at each location (1) locked doors / security patrols will ensure only authorised people will be allowed in (1) • auditing of database changes (1) transaction logs will identify any unauthorised changes that have taken place (1) • encryption of data (1) this will make it meaningless if it is intercepted (1)	8	*Candidates need to identify what they are talking about for the recommendation mark **before** getting the second mark for an expansion.*

Question			Answer	Marks	Guidance
12	(a)		1 for identification, 2nd for expansion / example: • managers require a level of ICT competency to use the system (1) they will need to firstly learn the new system in order to undertake the training/may have it and get frustrated by going through the basic training (1) • impersonal training methods (1) these may not be suitable for all people / learning styles and therefore less effective (1) • self motivation required (1) a tutor will not always be there to monitor progress (1) • access to a tutor to ask questions will not always be available (1) so their progress will be limited and training time not maximised (1)	4	
	(b)		One mark for point, one for expansion eg: • accents/may not understand (1) the training system may not discern between different pronunciations of words (1) • interference (1) background noise could affect the accuracy of input to the system (1) • audibility (1) the manager would have to ensure they spoke loud enough for their instructions to be recognised (1) • speed of input (1) the need for faster input using speech may be at the expense of accuracy (1)	4	

Question			Answer	Marks	Guidance
	(c)	(i)	One from eg; • a back up is a copy of the data (1) an archive is the original which has been moved (1) • backing up takes place constantly (1) archiving happens irregularly (1)	2	
		(ii)	Max two eg; • to prevent total loss of data (1) • to protect data from corruption (1) • to guard against physical dangers (such as fire / flood / hardware failure) (1)	2	

Question			Answer				Marks	Guidance
13							11	
			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 more than one position. 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. There may be a reasoned conclusion. Subject specific terminology will be used accurately and appropriately.			
			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 explain 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.			
			0 – 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: • methods of communication • planning of communication lines • clarity of purpose • need for change • consideration of parties • rumour and misinformation • consultation • motivation of staff • discussion of benefits • discussion of need for training • discussion of need for redundancies • reassurance		

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14						11	
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			0 – 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: • mobile devices used for payment • wireless mobile connectivity in salons • inclusion of biometric technology to make transactions safer • biometrics for advertising • virtual styling / modelling • cyber theft • encryption • cost increase to allow for technological advances		

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