APPLIED INFORMATION & COMMUNICATION TECHNOLOGY   **9713/32**

Paper 3 Written B   **March 2017**

MARK SCHEME

Maximum Mark: 80

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the March 2017 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

This document consists of **6** printed pages.

Question	Answer	Marks
1	***Eight** from e.g.:* Design accurate drawings of kitchen components/parts …using database/library of pre-prepared components/parts to speed up design process Component tested/matched before produced …under variety of conditions/positions/configurations Can be saved/edited/copied for later use/sending to company 3D views to allow walk-around/view final product …zoom feature to show enlarged views Total cost of whole kitchen can be calculated …using a database of parts/prices held by program	8

Question	Answer	Marks
2	***Six** from e.g.:* SSID hidden/not broadcast …so network is not visible to public RF shielding …covering windows/buildings to attenuate Wi-Fi signals MAC filtering …only known MAC addresses allowed to connect Static IP address used …users required to enter own IP address deters (causal) intruders Network/encryption key required to join/connect to wireless network …use of latest encryption system/do not use WEP …transfer of data by wireless uses strong encryption Use of USB/software/smart card tokens …combined with server/router software will change encryption key at intervals File encrypted …using keys known only to users	6

Question	Answer	Marks
3	***Six** descriptions from e.g.:* Email can be used to send messages Email messages can have documents attached Messages can be sent via webmail using the company website Documents can be transferred by using FTP VoIP used for telephone calls to/from company personnel Group discussions/visual discussions can be carried out by video conferencing Chat rooms can be used for discussions/sharing information Text messages can be sent using proprietary software Private connections can be made to company intranet via VPN	6

Question	Answer	Marks
4	***Eight*** *from:* Requests queued by booking system as received Input – choice/requested seat by first in queue Process – check if seat available/has seat already been booked? …if already booked then output request for booking declined …if available then seat is flagged as reserved/booked/not available …output – message that seat is booked for user/ticket issued Input – second request to book/reserve seat Process – check seat availability/seat is booked Output – message that seat not available	**8**

Question	Answer	Marks
5	***Six*** *from:* Event recorded/captured by digital video camera Video/audio encoded for transmission to studio Video/audio sent to studio for editing/commentary Video/audio transmitted via microwave/cable/communications link to studio Video/audio sent from studio to uplink station Signal uplinked to satellite Satellite transponder changes signal carrier frequency Satellite broadcasts signal to cinema dish Dish connected to decoder at cinema Decoder uses codec to decode signal into video/audio for display Digital projector used to display event on screen	**6**

Question	Answer	Marks
6	***Six*** *from e.g.:* Infrastructure/telecommunications system/mobile phone network may not be adequate Computing devices may not be available Cost as access to internet is not free Language difficulties as most of internet may not be in native language Literacy as use of internet requires ability to read/comprehend Age issues – older people have difficulties with technology Disabilities – physical/cognitive difficulties may deter users	**6**

Question	Answer	Marks
7	***Six*** *from e.g.:* Economy improves due to an increase in business opportunities/access to global markets Social mobility as a result of access to education/employment opportunities by citizens leads to improved quality of government members Members of the government have easier access to opinions of citizens Members of the government can explain their views more easily to citizens Government dissemination of information can reach more citizens Government provision of online services makes centralisation of records easier Increased status of country in technological world …leading to increase in international influence	**6**

Question	Answer	Marks
8	***Six*** *from e.g.:* Investment in infrastructure …provision of telecommunication systems Costs of ICT training provision Cost of ICT equipment provision/subsidies Cost of recycling ICT equipment Cost of increased provision of laptops/computers in schools/for children Cost of the provision of ICT/internet connected 'drop in' centres	**6**

Question	Answer	Marks
9(a)	***Four*** *from:* Works at Application layer Uses two ports …data port and command port Client initiates connection on any port (>1023) …to connect to servers command port (port 21) …tells server which port it is listening on for data Server sends back response to client …initiates data connection to client's data port Client acknowledges server's response	**4**
9(b)	***Four*** *from:* Use secure FTP/SFTP/FTPS over SSL/TLS …to encrypt the data during transmission …require digital certification Change the port number …to an obscure number/port number not usually known for use with FTP …so not recognised by others/port scanners as FTP traffic	**4**

Question	Answer	Marks
10	*Four* from: *Issue: (Firewall problem with active mode FTP is on the client side)* FTP client tells the server what port it is using for listening on …the server connects back to the specified port on the client Client firewall sees this as outside system initiating a connection to an internal client/device… …blocks the connection as this is not allowed *Solution:* Use passive (PASV) mode for FTP… …server tells client which port to use for data …client initiates connection so firewall allows it Use web browser to connect/as an FTP client… …web browsers only use passive mode for FTP connections *Max 3 for all issue or all solution*	4

Question	Answer	Marks
11	*Three* from: Defines the action of web servers in response to requests from web browsers Defines how data is transmitted… …and formatted Defines the action of a web browser in response to commands in the data… …to display and format contents of message/data Sets up a 'stateless' connection… …command has no idea of the commands that preceded it Sets up a client server connection Converts a URL into an IP address… …which is used to locate the server	3

Question	Answer	Marks
12(a)(i)	Piece of text/object contains address of/reference to item/page/document When clicked on/selected directs user to new item	2
12(a)(ii)	(Graphical) control box Contains list of items/objects chosen by select/click by user	2

Question	Answer	Marks
12(b)	***Three*** from: Part of document is exported to editor/document edited …imported back to original document Different data can be added to main document… …by linking e.g. images/text Changes in master document are/should be reflected in any document that references master document Creates compound documents/documents with parts/data from different sources Used for drag and drop of items from clipboard/storage area	3
13	***Six*** from: Enables collaboration between staff on documents/projects… …speed of information flow is increased c.f. paper trails …group could be informed when a deadline is near/when project has been completed Data/documents/protocols/resources/policies/memos can be stored for all staff to access …only one copy needs to be updated/no need to send updated versions of documents to all staff Automatically alert specific authors/users about/dates of documents/projects data/ documents/protocols/ resources/ policies/memos due to expire Backup/security is managed centrally/not dependant on individual staff Can manage access to external sites/information …can automatically provide live information/RSS feeds *Drawbacks:* Security of information issues All staff may not read all of the information available/memos Reduced face-to-face interaction between staff Cost of setup/maintenance *Max 5 marks for all benefits or all drawbacks* *One mark available for a reasoned conclusion.*	6
	Total:	**80**