CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary Level and GCE Advanced Level

MARK SCHEME for the October/November 2013 series

9713 APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

9713/13 Paper 1 (Written A), maximum raw mark 80

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 October/November 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

1 (a) **Two** from:
Involves working the same number of hours as normal/in a week
Work more hours per day…
…over a shorter number of days
Usually involves working 4½ days in a week/9 days out of 10 in a period of two weeks **[2]**

(b) **Two** from:
Earn the same amount of money but work fewer days
They can have long weekends by finishing early on Fridays or not working Fridays
Travel to work fewer days so less time spent travelling
Travel to work fewer days so less money spent travelling **[2]**

(c) **Two** from:
Allowing for programmers' individual needs leads to lower absenteeism/better punctuality among programmers
Programmers prefer flexibility so are more productive/more motivated
Appeals to programmers so helps recruitment and retention of staff **[2]**

2 (a) **Three** from:
There are personal (users' own) calendars and public calendars
Pietr would open his private calendar to see when he is free
Pietr would open the public calendar showing when other workers are free
He would see when there would be a suitable time for a meeting/ identify a suitable time when he is free and when others are free/where there are no clashes
Calendar software would advise him of any clashes.
Pietr would type in the details of the meeting
Petr sets an alarm to alert him when the meeting starts
Calendar function keeps a record of appointments and meeting times **[3]**

(b) **Three** paired descriptions from:
Acts as a stopwatch device to time tasks…
…enables tasks to be allocated equitably
Pietrr just clicks on a specific task…
…computer reminds them how long they have been working on that task
Can look at many tasks…
….computer informs them how long has been spent on each task
Can see what emphasis is being placed on each task...
....if too much time is being spent on a task by one programmer
Allows the manager to allocate extra workers to a task/redistribute workload…
....allows the manager to allocate extra resources to a task
Software can also be used as a predictor/if Pietr is accurate at predicting the time needed on a task...
...he will be able to allocate resources appropriately
Using Gantt charts….
….. can see the effect of changing order of tasks more easily/helps with daily and weekly planning
Using Critical Path Analysis…
...to find the optimum time to spend on a task/ensuring an equitable workload for all workers **[6**

3 (a) **Four** from:
Meetings can be called at short notice.
No time is spent on travelling.
No money is spent on travelling.
No money is spent on booking conference facilities.
It saves companies money in wages, as while their workers are travelling they still have to be paid. **[4]**

(b) Four **from:**
Confidential documents may need to be seen in their original form.
There can be poor quality of the video because of bandwidth
Interruption to, or breakdowns of, the transmission can occur.
Power cuts may prevent the conference from continuing or taking place in the first instance.
Description of hacking into video conference
May be problems with time lag/connection
Difficult to allow participants to answer in turn **[4]**

4 (a) **Five** from:
A list of the features of the new system that are required/system requirements/ information requirements
It contains general requirements such as what the user wants the overall system to do/ user requirements
It will also include specific requirements such as what the user wants individual parts of the system to do
Examples of specific and general requirements related to the scenario may be awarded marks
He will have issued questionnaires/interviewed the users to ascertain their requirements
He will have observed the users and recorded this…
He will have/examined documents and recorded this…
…will have used this to ascertain the user requirements **[5]**

(b) **Five** from:
It needs to be as simple as possible/easy to use/read
Screen output should not contain any extra material other than that required.
Each screen of output must have a consistent theme
The user should not get confused by changing appearances
Instructions on how to navigate between screens should be included on the screen.
Should be easy to navigate from screen to screen
Must meet user requirements
Need to consider who is going to use it
The formats need to be relevant to the output produced
The formats need to be based on what the user is comfortable with.
Needs to be attractive to look at
Needs to limit the potential for inaccurate input **[5]**

(c) *Pilot running*
Description – involves running new system in one branch of the organisation whilst o system still operates in other branches
Advantage – If there is a problem with the new system only one branch is affected [
Disadvantage – the method is a lot slower than direct changeover (as all branches have to have their systems running before system is fully implemented) **[1]**

Parallel Running
Description – running the old system alongside the new system **[1]**
Advantage – If there is a problem with the new system still have the old system as a backup unlike direct changeover **[1]**
Disadvantage – more expensive as you have to employ two sets of workers/the method is a lot slower than direct changeover as you have to wait until system is fully operational before closing down existing system **[1]**

(d) **Three** from:
Using actual test results to compare with the expected results.
Obtaining feedback from users regarding how easy the system is to use
Identifying limitations of the system
Discussing with managers whether new system has met the original objectives **[3]**

5 **(a)** **Three** from:
Word processing software to edit/format the reporter's story
Image editing software to crop the images to remove unwanted material/ to reduce the size to fill the layout
Desk Top Publishing software to produce the layout of the magazine page. **[3]**

(b) **Three** from:
(Digital) Signals are used to send the pages up to a satellite…
…satellite transmits the signal to the printing plant (and then received by the antenna/ receiver)
Signal passed over to Computer-to-Plate equipment.
The (digital) signal is changed to a laser beam.
A new plate is created
The plate is then loaded on to the printing press. **[3]**

6 **Six** from:
ICT make lessons more interesting/entertaining
ICT make lessons more varied
Internet allows students to investigate ideas
Internet allows students to carry out research
Neatness of students work makes it easier for teacher to mark
ICT provides more interactive learning environment
ICT resources can help students with special needs
Teachers have more varied teaching aids/can make use of multimedia in lessons
Teachers can use/produce computer based tests/can use ICT to assess students' performance
Teachers can use spreadsheets/databases to record test scores/produce graphs of progress
Easier to compare class/students performance/track progress
Tests can be computer-marked
Computers can provide feedback on tests **[6]**

7 **(a)** **Four** from:
Data is ordered sequentially
A table of indices is stored
Data is stored on disk
Index is a pointer to whereabouts on the disc it is stored
When searching data prior to the whereabouts of the index can be ignored
This allows direct access
Each record consists of fixed length fields **[4]**

(b) **Four** from:
They may need to send out reports to all/many students at the same time
File will need to be in sequential order for batch processing of reports
After an exam they may need to update the records of all/many students at the same time
File will need to be in sequential order for batch processing of student scores
Exam scores may be on a transaction file for a short time
Transaction file will be sorted in student number order
Master file will need to be in sequential order for batch processing...
...For ease of updating using transaction file
Parent may phone to/teacher may enquire about progress of a student...
...Fast access to data will be required
Indexes will make sequential file faster to search **[4]**

(c) **Three** matched pairs from:
Range check on student score so it is between 0 and 100
Invalid character/Type check on exam score so it is numeric only
Length check on student number so it is ten digits/characters long
Invalid character/Type check on student number so it is numeric only
Check digit on student number
Range check on student number so it is between 1000000000 and 9999999999

Reasons:
Data may have been transcribed wrongly
Digits may have been transposed
Length check on student number won't trap letters being entered
Type check on student number won't trap fewer/more than 10 digits
Type check on exam mark might still allow abnormal data to be entered **[6]**

8 **(a)** **Three** from:
Don't have to rent so many main street premises so company saves money
Don't have to employ so many shop assistants so company saves money/pays less in wages
Lower running costs for electricity, heating and lighting
Because of lower costs, prices are cheaper so more customers are attracted
Can be open 24/7 thereby increasing their sales/earnings/ could gain increased profits **[3]**

(b) **Three** from:
Can order goods/books and they don't get delivered
Goods are not to the same standard as those ordered/wrong goods/books delivered
May be hidden costs such as delivery charges
Expense of buying a computer with a broadband internet connection
You can't check the quality of the goods/books/you can't be sure the goods/books are in stock
The order confirmation may be delayed/not be received **[3]**

(c) **Two** from:
Phishing – e-mail appear to be from customer's shop/bank
ask for customer's details - password, card/account number, other security details.
e-mail makes up plausible reason includes a website address for customer to go to which looks just like the actual bank/shop's website but is a fake website

two from:
Pharming – installs a piece of malicious code on customer's PC
redirects genuine website's traffic to own website
customer is now sending personal details to fraudster's website

two from:
Spyware is downloaded/software used to gather user's personal details
Software detects key presses of user logging on to bank site **[6]**