

*Examination papers and memoranda can sometimes 'date' with time, especially in a dynamic subject such as CAT.
In some cases additional options or answers may now be applicable, while others may no longer be applicable.*

Study Opportunities

September 2014

COMPUTER APPLICATIONS TECHNOLOGY

Grade 12

Paper 2 – Written

MEMORANDUM

TIME: 3 HOURS

MARKS: 150

This memorandum consists of 10 pages (cover page included)

Question 1: Multiple Choice

1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.10
A	C	D	C	A	B	B	D	A	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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Question 2: Modified True or False

- 2.1 True ✓ (1)
- 2.2 False ✓ captcha ✓ (2)
- 2.3 False ✓ RFID ✓ (2)

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Question 3: Matching Items

3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	3.10
K	F	A	E	C	D	P	H	B	M
OCR	OS X	VoIP	NFC	ROM	DPI	OLE	EFT	GPS	AUP
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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Question 4: Systems Technologies

- 4.1.1 Processing ✓
Output ✓ (2)
- 4.1.2 So as not to have a negative impact on your health ✓
[Accept specific examples, e.g. to reduce likelihood of RSI / CTS] (1)
- 4.1.3 Any ONE of: ✓
• Not as accurate or precise as a mouse
• Some people find it hard to use (because of its small size, etc.) (1)
- 4.1.4 Any ONE of: ✓
• Braille keyboard
• Large-key keyboard
• Magnification device (only if specifically related to INPUT of data, e.g. touch screen) (1)
- 4.2.1 RAM (memory) ✓
CPU (processor) ✓
[Not necessary to mention AMOUNT of memory or SPEED / TYPE of processor] (2)
- 4.2.2 Smaller in capacity ✓
More expensive ✓ (2)
- 4.3.1 inches ✓ (1)
- 4.3.2 aspect ratio ✓ (1)

- 4.3.3 Any ONE of: ✓
- Better image quality BECAUSE the signals are digital (i.e. not analogue)
[*must supply reason*]
 - HDMI cable carries video AND audio.
 - Can connect directly to TV / data projectors. (1)
- 4.4 Advantage: Higher resolution gives better quality pictures. ✓
Disadvantage: Higher resolution results in larger file sizes. ✓ (2)
- 4.5 The source code (program code in which program was written) is freely available. ✓ (1)
- 4.6.1 path ✓ (1)
- 4.6.2 Setting the read-only attribute would mean that the file could not be changed or saved under the same name. ✓
- This would be particularly useful in the case of a BACKUP file which by definition should NOT be able to be changed independently of the original file. ✓
- [*Mark the understanding of the concept, not the wording!*] (2)
- 4.6.3 Takes up less space on storage device, allowing more and/or larger files to be stored on the same device ✓ (1)
- 4.6.4 In case of theft / fire / other disaster, the backup files would be lost together with the original files, making a 'restore' of the original files impossible. ✓ (1)
- 4.7.1 A program used to let certain programs run at specific times ✓ (1)
- 4.7.2 Any ONE of (*except file name*): ✓
- Type of file, i.e. file extension
 - Text within file
 - File size
 - Date created
 - Author, etc.
- [*These are the most common. You can search on any property that appears in the file list headings in Windows Explorer (Details view)*] (1)
- 4.7.3 Ctrl+Alt+Del ✓
- Most often used to end a program that is not responding ✓ (2)
- 4.8 Any ONE of (*except USB cable*): ✓
- Bluetooth
 - WiFi network
 - Memory card (SD card)
 - Via cloud storage, e.g. Dropbox (1)

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Question 5: Internet and Network Technologies

- 5.1.1 A (powerful) computer used to provide resources and services to other computers in the network. ✓
[Accept relevant specific descriptions, e.g. 'computer used to store users' files and manage e-mail in a network] (1)
- 5.1.2 The software is always up to date. ✓
Saves local storage space (you don't have to download and install the application). ✓
[Do not accept accessibility from any Internet-connected computer / device] (2)
- 5.2 To allow previously visited web pages to load more quickly.
[Also accept: to speed up browsing] ✓ (1)
- 5.3 Any TWO examples: ✓✓
 - Any hardware example e.g. printer
 - Any file- or data-sharing example
 - Any software (application-sharing) example e.g. using program off server
 - Any example related to e-communications e.g. shared Internet connection etc.(2)
- 5.4.1 To set up WiFi hotspot for mobile devices / provide wireless connectivity ✓ (1)
- 5.4.2 Any ONE of (*except that it is not a mobile solution*): ✓
 - ADSL may not be available in a particular area
 - Data speed can depend on location – max bandwidth may decrease the further you are from ADSL exchange.(1)
- 5.4.3 Any ONE of: ✓
 - Dedicated WiFi technology (e.g. iBurst, Neotel)
 - Cellular technology (3G/4G)*[Also accept a specific example]* (1)
- 5.5.1 A keylogger is a spyware program that records your keystrokes ✓
to capture secure/confidential information like passwords. ✓ (2)
- 5.5.2 A Trojan is a destructive program disguised as a useful application. ✓ (1)
- 5.6.1 An audio file (often in MP3 format) ✓ that can be downloaded from the Internet. ✓ (2)
- 5.6.2 Operating system ✓ (1)

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Question 6: Information Management

- 6.1.1 'B' allows you to enter options that are not catered for in 'A', e.g. Word or Excel ✓ (1)
- 6.1.2 Any TWO of: ✓✓
- Easier and quicker for respondent to select ('tick') the required option/s
 - Easier to capture (type in) the answers on a computer
 - Easier to process the answers on a computer, e.g. using a spreadsheet
 - Irrelevant / vague / unnecessary answers can be eliminated
 - Responses can be restricted to meet the purpose of the questionnaire. (2)
- 6.2 Any TWO of: ✓✓
- Easier to obtain, because many different ways to transfer digital information (e.g. e-mail, 'cloud', SMS, portable storage)
 - Less work needed, because not necessary to retype/scan data sources into digital format
 - More likely to be up to date, because distribution of digital data is faster than hard copy (2)
- 6.3 Any TWO of: ✓✓
- Better for working with / linking to large amounts of data
 - Better for performing queries on the data
 - Better for producing (professional) reports, etc. (2)
- 6.4 Any TWO of: ✓✓
- Input mask
 - Default value
 - Validation rule (and text)
 - Combo Box or List Box (2)
- 6.5 The character (e.g. comma, tab, space) that separates each piece of data (each field) ✓ (1)
- [10]**

Question 7: Social Implications

- 7.1.1 Any TWO of: ✓✓
- Cost related to the need to hire extra staff/outsource functions
 - Costs related to maintenance
 - Costs related to upgrades
 - Costs related to training
 - Costs related to consumables
 - Costs related to data communications/cap etc.
 - Costs related to ancillary building requirements, e.g. aircon and security
 - Costs related to insuring IT equipment
- [Do not accept answers related to the initial purchases of any hardware or software.]* (2)

- 7.1.2 Any TWO of: ✓✓
- Save on the cost of paper because of electronic versions
 - Save on communication costs by using VoIP technologies /Skype
 - Save on advertising costs using the Internet
 - Save on labour with need to employ fewer employees
 - Can work 24/7/365, which leads to improved production
 - Save on banking charges and other financial transactions
 - Save on rental space with no need for large premises etc. (2)
- 7.2 Any TWO of: ✓✓
- Learn to read quickly and to identify key points
 - Learn to analyse & compare sources of info
 - Take a disciplined / structured approach to dealing with info
Accept specific examples, e.g.
 - *Create a fixed routine / allocate specific time to dealing with info*
 - *Remove distractions (e.g. IM, tweets, browsing Web)*
 - *Filter e-mail / create 'categories' etc.*
 - *Use RSS feeds*
 - *Use search tools properly (advanced searches, good keywords, etc.)*
 - Don't add to problem by forwarding unnecessary info to others (2)
- 7.3.1 'Commuting' ('travelling') to work simply by connecting to the Internet or network, without having to travel to and from an office. ✓ (1)
- 7.3.2 Any ONE of: ✓
- Save travelling costs
 - Save travelling time
 - Increase in worker productivity
 - Easier for people who need to be mobile (e.g. sales reps) to keep in touch
 - Reduces traffic congestion and pollution (1)
- 7.4 Any attempt to manipulate or trick someone into revealing information like passwords or account numbers, ✓ which can then be used to impersonate them (for fraudulent purposes). ✓
- [Also accept a suitable example / scenario, e.g. description of phishing, provided that the essential concepts of manipulation/tricking into disclosure of sensitive information, and impersonation, are both present] (2)*

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Question 8: Solution Development

- 8.1.1 To prevent a single line of a paragraph from appearing at the top or bottom of a page, i.e. on a page other than that which contains the rest of the paragraph ✓ (1)
- 8.1.2 To include further information about some text on the page, at the bottom of the page ✓ (1)

- 8.1.3 To move down to the next line of text, without having to end the current paragraph (or add another item in a bulleted or numbered list) ✓ (1)
- 8.2.1 Hanging indent ✓ (1)
- 8.2.2 Any ONE of: ✓
- Limit number of consecutive hyphens
 - Increase line spacing (1)
- 8.3.1 Format the cells as Number or General ✓ (1)
- 8.3.2 Freeze Panes ✓ [Also accept: Freeze Top Row] (1)
- 8.3.3 Can specify which row(s) to repeat at the top of each printed page – useful for column headings ✓ (1)
- 8.4.1 A primary key is a field which identifies each record with a unique value. None of the existing fields is suitable because the values in these fields are not necessarily unique. ✓ (1)
- 8.4.2 Age can be calculated as required (in queries and reports), by using the Date_Of_Birth field ✓ (1)
- 8.4.3 If the length (number of characters) of any value in the field is GREATER than the reduced field size, these value will be truncated, i.e. all characters after the specified size will simply be lost. ✓
- [Also accept a practical example that correctly describes the concept] (1)
- 8.4.4 It may be difficult or impossible to manipulate (access / sort) the records with reference to only ONE of the two pieces of information stored in the same field. ✓
- [Also accept a suitable example, e.g. "If the value in the Grade_Team field appeared as 10_TeamBlue, you could not sort the pupils by TeamBlue."] (1)
- 8.5.1 To change the size of the image ✓
- To help the browser load the image more quickly ✓ (2)
- 8.5.2 Pixels ✓ (1)

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Question 9: Integrated Scenario

- 9.1.1 Advantage: cheaper ✓
- Disadvantage: less powerful ✓
- [Also accept lower specifications, e.g. slower CPU, less RAM, etc] (2)
- 9.1.2 Monitor / screen ✓ (1)
- 9.1.3 DVD Writer ✓
- Any ONE of: ✓
- Other media (e.g. flash drive, external hard drive, Internet) are more commonly used for backing up and transferring information
 - Software is mainly bought online and downloaded (2)
- 9.2.1 The NIC is integrated in (part of) the motherboard. ✓ (1)

- 9.2.2 If the OS were damaged, or needed to be reinstalled, it could be repaired / reinstalled from the original installation disks. ✓ (1)
- 9.2.3 Defragmenting a disk can be a lengthy operation, consuming system resources (RAM) and generally slowing the PC down, so best run when PC is unlikely to be used for user applications ✓ (1)
- 9.2.4 Service packs contain the patches for all known bugs, not just a specific bug. It is thus a more comprehensive solution than a patch (will fix 'bugs' that Ross was not even aware of) ✓ (1)
- 9.3.1 Advantage: High quality colour copies could be made ✓
Any ONE disadvantage: ✓
- Slow
 - Expensive to print (ink)
 - General print quality can be poor (especially if incorrect type of paper used) (2)
- 9.3.2 Printer could be connected to network wirelessly (thus easy to reposition printer in room, and no need for cables or USB ports) ✓ (1)
- 9.4.1 Any TWO of: ✓✓
- Can be distributed to a much wider audience (potentially global readership, wider exposure for advertising and promoting the school, etc.)
 - Much cheaper (no paper / printing costs)
 - Much faster to distribute
 - Easier to correct mistakes (no need to reprint whole paper)
 - Environmentally more friendly (no paper to dispose of)
 - Can include multimedia content (e.g. sound, video)
 - Can obtain online responses from readers (two-way communication)
 - No physical storage space needed to keep / archive old copies, etc. (2)
- 9.4.2 Set the newspaper site as the Home Page. ✓ (1)
- 9.4.3 Username ✓ Password ✓ (2)
- 9.4.4 Subscribe to RSS feeds ✓ that will automatically provide him with updated content from the other blogs and websites (1)
- 9.4.5 To view additional specialised multimedia content (e.g. flash animations) ✓ (1)
- 9.5.1 Add more RAM ✓
Limit the number of applications that are running at the same time, i.e. close all applications that are not being used. ✓ (2)
- 9.5.2 Any ONE of: ✓
- Protects computer against power surges / spikes
 - Provides temporary source of power in case of power failure (gives enough time to save work and shut down properly) (1)

- 9.5.3 Any TWO of: ✓✓
- Large capacity (can be larger than original internal hard drive)
 - Portability (small and easy to transport data)
 - No need to open the casing and install the drive (which can be time-consuming and require technical expertise)
 - Can be used to store backups safely, away from the computer (off-site)
- [Do not accept ease of (daily) use, USB connectivity, high speed, reliability etc., as question asked for advantages over internal hard drive (not over optical media)]* (2)
- 9.5.4 More accurate ✓ (1)
- 9.6.1 Google Drive is 'cloud storage', i.e. storage space on a (remote) server on the Internet, whereas a USB port would only be used for local storage (e.g. flash drive, external hard drive) ✓ (1)
- 9.6.2 Because of relatively small amount of storage space for free usage (not the best solution for them, as they will need 'several gigabytes' to archive previous editions) ✓ (1)
- 9.7.1 Set the HP Officejet as the default printer ✓ (1)
- 9.7.2 *Spooling* is the process of sending the print jobs to disk ✓ (until the printer is ready to print them). The jobs are placed in a printer queue.
- He should have opened the printer *queue*, and simply deleted the print job (which had not yet been sent to the printer). ✓ (2)
- 9.7.3 Sending it back to manufacturer will ensure that the ink cartridge will be disposed of in an environmentally responsible manner, as these cartridges contain plastics / circuitry / chemicals which are NOT environmentally friendly (not bio-degradable). ✓
- [Insufficient only to state harmful nature of cartridge – must also give the (positive) action of the manufacturer. Mark the understanding of the concept, not the wording.]* (1)
- 9.7.4 Add Joey to the *To:* (or the *Cc:*) field ✓
- Add the English teacher to the *Bcc:* field ✓ (2)
- 9.7.5 Any ONE of: ✓
- Via social networking site (e.g. Facebook)
 - Via IM or VoIP connection (e.g. Skype)
 - Via blog / vlog
- [Also accept other communication means such as YouTube and podcasts]* (1)
- 9.7.6 Thesaurus ✓ (1)
- 9.7.7 Spreading of computer viruses: Viruses added to e-mail attachments spread easily because e-mail is commonly used to transfer files ✓
- Phishing attacks: E-mail is the medium in which the user is requested to respond to the phishing ploy, by clicking on a link that redirects him/her to the fake website. ✓
- [Marking: Not necessary to describe in detail how phishing works, only the role that E-MAIL plays in phishing attacks.]* (2)
- 9.8.1 JPG files are already highly compressed, and their size cannot be significantly reduced by further compression attempts. ✓ (1)

- 9.8.2 Any ONE of: ✓
- Via FTP (File Transfer Protocol)
 - Via a cloud storage solution, e.g. Dropbox, Google Drive
 - By using a 'file splitter' utility, e.g. WinZip (and others), and attaching smaller 'pieces' to a series of ordinary e-mails, for re-assembly at the destination
- [Do not accept solutions involving transfer by flash drive, portable hard drive etc., as scenario stipulates electronic transfer (i.e. via cabled or wireless medium)]* (1)
- 9.9.1 EULA is a legally binding contract between the user and the software company. It describes what you may and may not do with the software. ✓ (1)
- 9.9.2 Single user license: You may only install one copy of the software, i.e. on a single computer (although you may usually make one backup copy of the media) ✓
- Site license: Allows a company or organisation an unrestricted number of installations of the software within the company or organisation ✓ (2)
- 9.10.1 Pop-up ✓ (1)
- 9.10.2 Use a feature of the browser to restrict or completely block pop-ups (the level of blocking can be decided by the user) ✓ (1)
- 9.11.1 QR codes can store much more data than a conventional barcode ✓
Read / scanned by a suitable imaging device (smartphone) ✓ (2)
- 9.11.2 Closed padlock is a visual indication that the site is secure (URL begins with https://) ✓ (1)
- 9.11.3 (Consumer) tablet ✓
Any ONE benefit of: ✓
- Gives users mobility in class – not restricted to location of desktop computer
 - Can be used in classrooms and locations other than the 'computer room'
 - Eliminate need to transfer files via flash drives etc.
 - Convergence – combines books, diaries, calculators etc. into single device
 - New ways of doing exercises, tests, homework etc., in all subjects
 - Easily positioned for maximum comfort (unlike bulkier desktops)
 - Facilitates teacher / pupil communication and record of progress
- [Any other meaningful response]* (2)
- 9.11.4 A way in which the spare resources (processing power and time) of different computers are shared and used at the same time to solve a single problem. The processing needed to solve the problem is distributed among the computers, which increases the total processing power. ✓ (1)

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