

The City School

Unified Mid-Year Examinations

2017 - 2018

CLASS 9



SCHOOL NAME:

INDEX NUMBER:

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DATE:

COMPUTER SCIENCE

Paper 1 Theory

2210/12

1 hour 45 minutes

Candidates answer on the Question Paper
No additional Materials are required
No calculators allowed

READ THESE INSTRUCTION FIRST

Write your School name, Index number and date in the spaces at the top of this page.

Write in dark blue or black pen.

You may use a soft pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer all questions.

No marks will be awarded for using brand names of software packages or hardware.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

The maximum number of marks is 75.

Invigilated By: _____ Checked By: _____ Marks Talled By: _____

This document consists of 11 printed pages and 1 blank page.

1. List three pointing devices and their pointing functions.

Pointing device	Function

[3]

2.

a) Five sensors and five applications are shown below.

Draw a line to link each sensor to its most appropriate application.

Sensor	Application
Light sensor	Monitor the pollution levels in a river
Moisture sensor	Control the switching off and on of street lights
Gas sensor	Detect intruders breaking into a building
pH sensor	Monitor the amount of water left in clothes in a dryer
Pressure sensor	Monitor acidity levels in the soil in a greenhouse

[5]

4. Write an application of QR codes and its two advantages?

Application

.....
.....
.....[2]

Advantages

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.....
.....[2]

5. Modern curved televisions use OLED technology.

Give two advantages of using this new technology compared to the older cold cathode fluorescent lamp (CCFL) method.

Advantage 1

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.....
.....[2]

Advantage 2

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.....
.....[2]

6. A company produces animation effects using computers rather than producing them manually. Each image takes about 400 kilobytes of storage. 25 images per second are produced. How much memory (in gigabyte) would be needed to store a 30-minute animation?

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.....
.....[2]

7. State the use of each device with an application of each.

i. 3D printer

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.....
.....[2]

ii. Computed tomographic (CT) scanner

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.....[2]

iii. 2D/3D cutters

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.....[2]

iv. Actuators

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.....[2]

8. Six descriptions and six devices are shown below; draw a line to link each description to the correct device

Description	Device
Allows a user to write on a surface using a pen; text and drawings are then captured electronically and stored for later use.	Digital Light Projector
Converts sound into an electrical signal/voltage.	Inkjet printer
Uses thermal bubble and piezoelectric technology to produce a hard copy.	Interactive whiteboard
Uses a bright white light source and micro mirrors (on a chip) to produce an image to be shone onto a wall or screen.	Laser printer
Converts a hard copy document into an electronic form to be stored as a file on a computer.	Microphone
Uses negatively charged images on a rotating drum and positively charged toner to output a hard copy.	Scanner (2D)

[6]

9. The steps to print a document using a laser printer are shown in the table below. Put each step in the correct order. The first step has been done for you.

Step	Order
As the printing drum rotates, a laser scans across it; this removes the positive charge in certain areas	
The printing drum is coated in positively-charged toner; this then sticks to the negatively-charged parts of the printing drum	
The paper goes through a fuser which melts the toner so it fixes permanently to the paper	
The printer driver ensures that the data is in a format that the laser printer can understand	1
A negatively-charged sheet of paper is then rolled over the printing drum	
Data is then sent to the laser printer and stored temporarily in the printer buffer	
The toner on the printing drum is now transferred to the paper to reproduce the required text and images	
The printing drum is given a positive charge	
Negatively-charged areas are then produced on the printing drum; these match exactly with the text and images to be printed	

[8]

10. Modern laptop computers and tablets use capacitive touch screen technology

a)

i. Describe how capacitive touch screen works to allow a user to make selections by touching the screen.

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.....[2]

ii. Give one benefit and one drawback of capacitive technology when used as tablet touch screen.

Benefit.....
.....[1]

Drawback.....
.....[1]

b) Name another type of touch screen technology used in tablet computers; write one benefit and one drawback of that technology.

.....[1]

Benefit.....
.....[1]

Drawback.....
.....[1]

11. Give two examples of primary, secondary and off-line storage.

Primary

Example 1

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.....

Example 2

.....
.....

Secondary

Example 1

.....
.....

Example 2

.....
.....

Off-line

Example 1

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.....

Example 2

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.....

[6]

12. A security system contains a password (16 characters long), a username (20 characters long), a small photo (25 × 64) pixels in size) and a security question (up to 72 characters long). Estimate the file size needed to store all this data.

Note: You may assume that 1 character occupies 1 byte and 1 pixel occupies 3 bytes of memory.

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.....[2]

13. Write three advantages of SSD (Solid-state Drive) over HDD (Hard-disk Drive)

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.....[3]

14. Five descriptions and five file formats are shown below; draw a line to link each description to the correct file format. [5]

JPEG

Associated with the storage of music file and is a communication protocol that allows electronic musical instruments to interact with each other.

MIDI

Type of lossy file compression applied on an image to reduce its size.

MP3

Type of File compression in which all the data bits from the original file are reconstructed when the file is again uncompressed.

Lossless

Known as **AUDIO COMPRESSION** to convert music and other sounds, this compression technology will reduce the size of a normal music file by about 90 per cent

Lossy

File compression algorithm eliminates unnecessary bits of data. It is impossible to get the original file back once it is compressed.

15. Describe how ROM and RAM chips could be used in a remote-controlled Drone (aircraft) camera; the movement of the drone and its camera eye lens is controlled by a hand-held device (wireless remote control).

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.....[2]

16. A digital camera is having built-in internal storage capacity of 4 GB, one scene captured through this camera device create an image file of 2.5 MB in size. Estimate maximum no of images this device can store into its built-in storage. (You may assume 1 GB = 1000 MB estimated*)

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.....[2]