

CHINIOT ISLAMIA PUBLIC SCHOOL AND COLLEGE

1ST QUARTERLY TEST

testing1 - CS O1 P1

Name: _____

Section: _____

Roll No: _____

Time: 2 Hours

Total Marks: 100

Q1 .

1. Data can be transmitted from one device to another. (a) Tick (3) one box to show which of the terms is not a method for transmitting data.

★ (a) serial

★ (b) simplex

★ (c) parallel

★ (d) parity [1] (b) Data is broken down into smaller units to be transmitted from one device to another. Give the name of the unit that data is broken down into

o.

[1] (c) Data is often encrypted when it is transmitted from one device to another. (i)

Explain how data is encrypted using symmetric encryption

n. [4]

(ii) Give the purpose of encryption

n.

[1]

2. The table contains statements about error detection methods. Complete the table by giving the correct error detection method for each statement

error detection method	statement
.....	An odd or even process can be used.
.....	A value is calculated from the data, using an algorithm. This happens before and after the data is transmitted.
.....	A copy of the data is sent back to the sender by the receiver.
.....	Acknowledgement and timeout are used.
.....	A value is appended to data that has been calculated using the data. This value is checked on data entry.

[5]

3. A register stores the binary number: 1 1 1 0 0 0 1 1

- ★ (a) Give the denary number for the binary number stored in the register

r.[1]

Working space

e

- ★ (b) Give the hexadecimal

r.

Working space

- ★ (c) A logical left shift of two places is performed on the binary number stored in the register. Complete the binary register to show its contents after this logical left shift. [1]

- ★ (d) The negative denary show the binary number
Working space

e

Register:

11100011 Add the two
Show all your work

e

4. A student uses the internet for their schoolwork to research what is meant by pharming.

★ (a) State the aim of pharmin

★ (b) Draw and annotate :

g. [1]



★ (c) The student uses a web browser to access data on the internet. Explain the purpose of the web browse

★ (d) Storing cookies is o
browser.

r. [2]

1

2

3

(e) A student visits a we
the difference between

s.

5. An employee uses a web browser on their computer.

★ (a) Describe the main purpose of a web browse

★ (b) The employee want
using the internet. Ident
e.

r. [2]

★ (c) The employee wants to be able to quickly access websites that he regularly uses. Identify the function of a web browser that could be used for this purpos

★ (d) The web browser us
securely over the intern

e. [1]

n.

6. A theme park has a game where a player tries to run from the start to the finish without getting wet. The system for the game uses sensors and a microprocessor to spray water at a player as they run past each sensor. Describe how the sensors and the

microprocessor are used in this system.

[illegible]

7. The binary number 10100011 is stored in random access memory (RAM). A logical left shift of three places is performed on the binary

★ (a) Give the 8-bit binary number that will be stored after the shift has taken place.

e. [1]

★ (b) Tick (3) one box to show which is correct. A It would divide by 2. C It would divide the binary number by 8.

★ (c) 10100011 can be stored as a two's complement integer. Convert the two's complement integer 10100011 to denary. Show all your working.

★ (d) The binary number 10100011 is stored in a kibibyte (KiB).

g. [2]

8. Data packets are transmitted across a network from one computer to another computer. (a) Describe the structure of a data packet.

t. [3] (b) Packet switching is used to transmit the data packets across the network. Identify the device that controls which path is taken by each data packet. [1] (c) Serial data transmission is used to transmit the data packets across the network. Explain why serial data transmission is used to transmit the data packet.

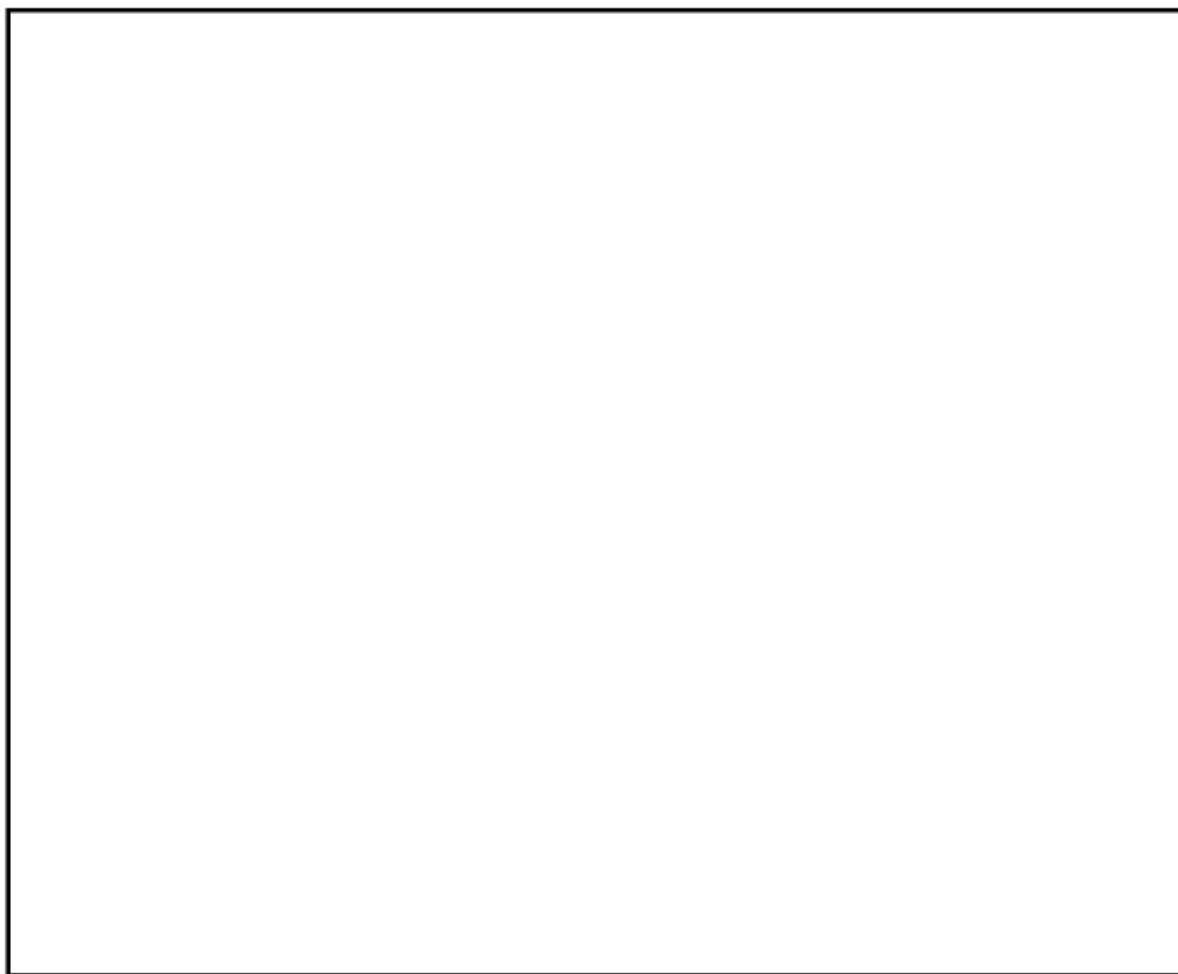
s. [3]

9. A security light system is used by a factory. The light only comes on when it is dark and when movement is detected. The light will stay on for 1 minute before switching off. Sensors and a microprocessor are used to control the security light system. (a) Identify two sensors that would be used in the security light system. Sensor

1 Sensor

2 [2] (b) Describe how the sensors and the microprocessor control the security light system. [8]

10. A distributed denial of service attack (DDoS) is a cyber security threat. (a) Draw and annotate a diagram to represent the process of a DDoS. [6]



(b)

State two aims of carrying out a DDoS attack.

1

2 [2] (c) Give two security solutions that
can be used to help prevent a DDoS attack being successful.

1

2 [2]

11. (a) Complete the statements about cookies. Use the terms from the list. Some of the terms in the list will not be used. Some terms may be used more than once. compression executable hypertext markup language (HTML) hypertext transfer protocol (HTTP) image internet protocol (IP) address persistent session sound text uniform resource locator (URL) web browser web server Cookies are small files that are sent between a and

a cookies are stored in memory and not in the user's secondary storage. When the web browser is closed a cookie is lost, whereas

a cookie is not lost. [6] (b) Give three functions of a cookie.

1

2

3 [3]

12. A company has a website. Users use the internet and the world wide web to access the website. (a) Describe the difference between the internet and the world wide we
- b.[2] (b) The website has a uniform resource.....
locator (URL). The URL has three different parts. Identify the three different parts that are included in the URL.
- 1
2
3[3] (c) One function of a web browser is to
provide an address bar for a user to enter a URL. Give three other functions of a web browser.
- 1
2
3[3]

13. The three binary numbers in the registers X, Y and Z have been transmitted from one computer to another.

								Parity bit
Register X	1	0	0	1	0	0	1	0
Register Y	1	1	1	0	0	1	1	1
Register Z	1	1	1	0	1	0	0	1

Only **one** binary number has been transmitted correctly. This is identified through the use of a parity bit.

Identify which register contains the binary number that has been transmitted **correctly**. Explain the reason for your choice.

The binary number that has been transmitted correctly is in **Register**

Explanation

.....

.....

.....

.....

.....

[4]

14. A band is recording their new song. They need to consider the sample rate and sample resolution of their recording.

★ (a) Give one benefit of using a higher sample rate to record the son

★ (b) Give one drawback

g. [1] g.

★ (c) Describe what is meant by sample resolution

★ (d) The band wants to c
removed. Identify the c
d.

n. [2]

15. A company owner has installed a new network. Data is correct before it is transmitted across the network. The company owner is concerned that data might have errors after transmission. (a) Explain how the data might have errors after transmissio

n. [3] (b) The company owner decides to
introduce an error detection system to check the data for errors after transmission. The error detection system uses an odd parity
check and a positive automatic repeat query (ARQ). (i) Describe how the error detection system operates to check for error

s. [8] (ii) Give two other error detection methods
that could be used. 1
2 [2]

16. The table contains terms and descriptions about the internet. Complete the table with the missing terms and descriptions

Term	Description
.....	the collective name for all the web pages available
.....	a small text file, stored by the web browser, that can store a user's personal data
uniform resource locator (URL)	
web server	
.....	the language used to create a website. Example tags are <head> and <body>
.....	a protocol that is used to request and send web pages

17. A company has a website that is suffering a distributed denial of service (DDoS) attack. (a) Draw and annotate a diagram to show the process of the DDoS.



(b)

Identify a solution that can be used to help prevent the DDoS attack being successful

1.[1]

18. Malware can be used to corrupt data stored on a computer. (a) Tick one box to show which cyber security threat is not a type of malware.

★ (a) Phishing

★ (b) Ransomware

★ (c) Virus

★ (d) Worm [1] (b) Identify one other example of malware than those given in part 1

(a).

[1] (c) Identify the type of software that is used to find and remove malware from a computer

r.

[1]

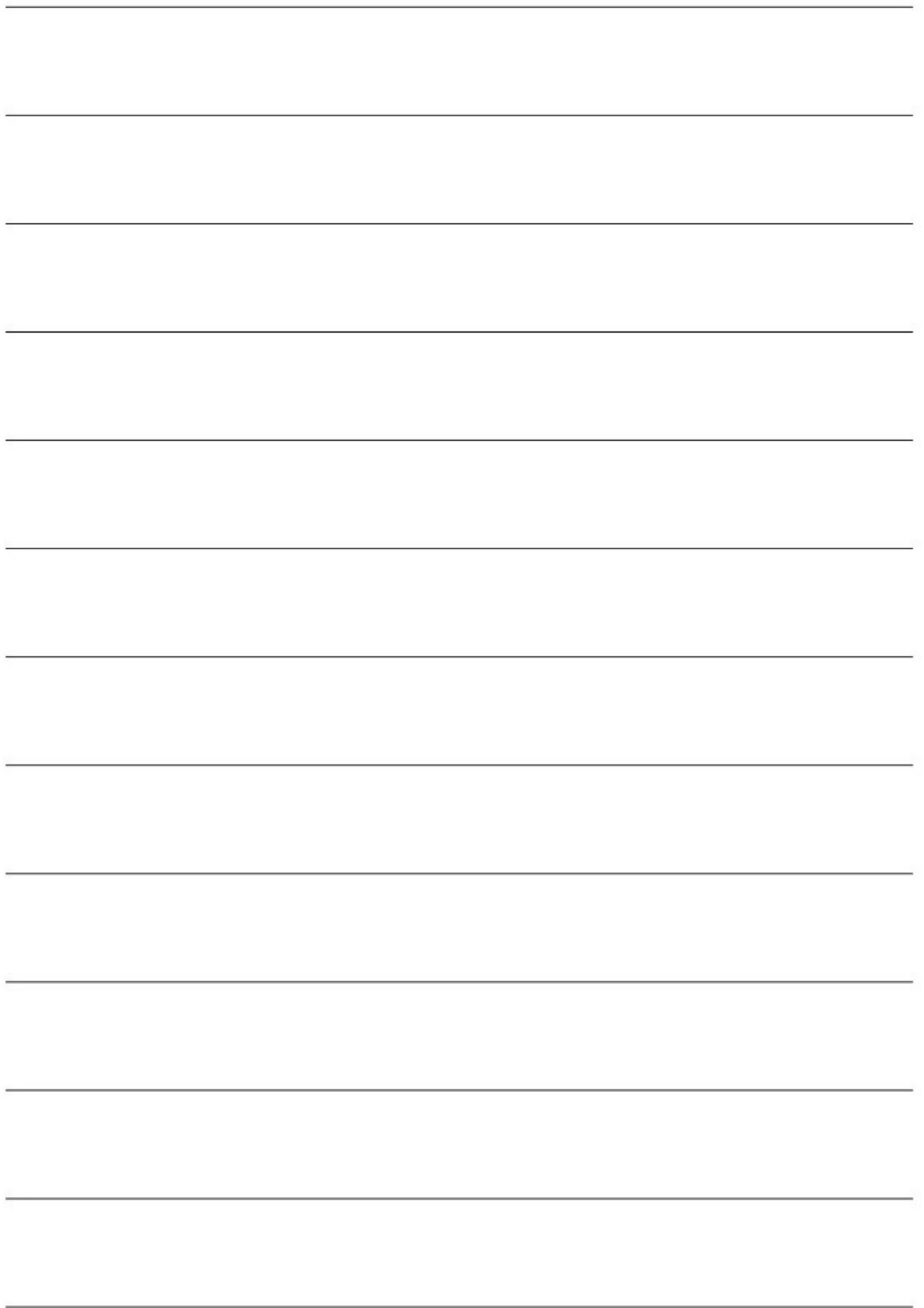
19. Jamelia has a greenhouse that she uses to grow fruit and vegetables. She needs to make sure the temperature in the greenhouse stays between 25 °C and 30 °C (inclusive). A system that has a temperature sensor and a microprocessor is used to maintain the temperature in the greenhouse. The system will: • open a window and turn a heater off if it gets too hot • close a window and turn a heater on if it gets too cold. Describe how the system uses the temperature sensor and the microprocessor to maintain the temperature in the greenhouse.

20. Digital currency can be used to pay for products and services. Digital currencies are often tracked using digital ledgers. (a) Give two other features of digital currency.

1

2 [2] (b) Identify the process that uses a
digital ledger to track the use of digital currency. [1]

21. Jamelia has a greenhouse that she uses to grow fruit and vegetables. She needs to make sure the temperature in the greenhouse stays between 25°C and 30°C (inclusive). A system that has a temperature sensor and a microprocessor is used to maintain the temperature in the greenhouse. The system will: • open a window and turn a heater off if it gets too hot • close a window and turn a heater on if it gets too cold. Describe how the system uses the temperature sensor and the microprocessor to maintain the temperature in the greenhouse.



An automated water tap system uses a sensor and a microprocessor to operate. Water flows from the tap when a person's hands are placed underneath the tap. Water stops flowing when the person's hands are removed from underneath the tap.

(a) Explain how the water tap system uses a sensor and a microprocessor to operate.

[6]

(b) Three descriptions are shown of different systems.

Identify the most suitable sensor that could be used in each system.

Description of system	Sensor
it checks the air is dry enough in a garage that spray paints cars	
it automatically switches on the headlights on a car when it is dark	
it checks that the soil in a greenhouse has the correct level of acidity	

[3]

23. A photographer takes an image with a digital camera. The photographer sets the resolution and colour depth for the image.

★ (a) State what is meant by the image resolution

★ (b) State what is meant

n. [1] h.

★ (c) Give one benefit of increasing the colour depth of the image

★ (d) The photographer chooses a colour depth and resolution

e. [1] uses.

[1] (e) One benefit for colour depth is
other benefits of compression

1.

2.

24. Four 7-bit binary values are transmitted from one computer to another. A parity bit is added to each binary value creating 8-bit binary values. All the binary values are transmitted and received correctly. (a) Identify whether each 8-bit binary value has been sent using odd or even parity by writing odd or even in the type of parity column. [4]

8-bit binary value	Type of parity
01100100	
10010001	
00000011	
10110010	

(b) An error may not be detected when using a parity check. Identify

why an error may not be detected

d. [1] (c) The data is sent using parallel half-duplex data transmission.

(i) Describe how data is sent using parallel half-duplex data transmission

n. [4] (ii) State two drawbacks of using parallel data transmission.

Drawback

1. Drawback

2. [2]