

PALESTINE POLYTECHNIC UNIVERSITY
COLLEGE OF INFORMATION TECHNOLOGY AND COMPUTER ENGINEERING
COMPUTER AND PROGRAMMING PRINCIPLES
MIDTERM EXAM – 2024

Student Name: [REDACTED]

Date: 21/11/2024

Duration: 55 Minutes

Stu [REDACTED]

Section [REDACTED]

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Question	Q1(10)	Q2(16)	Q3(11)	Q4(7)	Q5(16)	Total Grade / 60
Mark:						52

Question 1: (10 Marks) Determine whether each of the following sentences is TRUE or FLASE.

#	Sentence	T/F
1.	When the computer's power is switched off, ^{متطايرة} volatile memory keeps its contents.	F
2.	An ATM needs special heat-sensitive paper to print receipts.	T
3.	Solid state drives (SSD) have mechanical parts like platters and motors.	F
4.	A smartglass is one example of wearable devices.	T
5.	Microsoft Office Word is an example of utility software.	F
6.	Projan horse is a type of malicious software designed to block access to computer system until a sum of money is paid.	F
7.	33 ₁₀ is larger than 33 ₈ → $8 \times 3 + 8 \times 3 = 24 + 3 = 27$	T
8.	Blue-ray is a type of magnetic disk. ^{optical disk}	F
9.	Usually website that uses https protocol is less secure than http website.	F
10.	A WAN is a network of computers that usually resides and located in one office or building.	F

Question 2: (16 Marks) Fill in the table below with most correct answer for the statements:

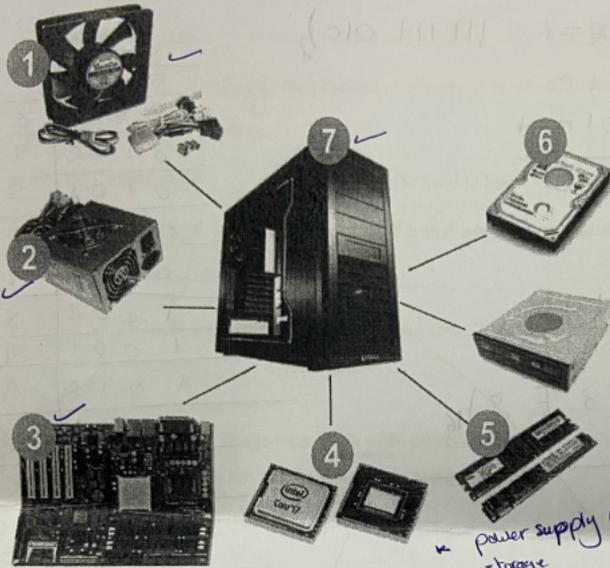
(ان يتم احتساب علامة السؤال في حال عدم تعبئة الجدول بالإجابات)

1	2	3	4	5	6	7	8
D	B	C	B	D	B	A	A

1	Which term is true regarding screen resolution?	<p>A. The higher a monitor's resolution, the clearer the image produced.</p> <p>B. Measured by the number of horizontal and vertical pixels in a display.</p> <p>C. The sharpness of the image is measured in PPI.</p> <p>D. All the choices.</p>
2	One of the following is an example of personal <u>computer</u> operating system.	<p>A. HarmonyOS</p> <p>B. Linux</p> <p>C. iOS</p> <p>D. Android</p>
3	A firewall is:	<p>A. Hardware</p> <p>B. Software</p> <p>C. Can be Hardware or Software</p> <p>D. None of the choices</p>
4	Data Over the <u>Internet</u> is, by default, sent _____ <small>network</small> <small>as</small> <small>unencrypted packets</small>	<p>A. Encrypted</p> <p>B. Unencrypted</p> <p>C. Protected</p> <p>D. None of the choices</p>
5	Command Line Interface (CLI) is also called	<p>A. Terminal</p> <p>B. Shell</p> <p>C. Console</p> <p>D. All the choices</p>
6	The number that immediately <u>successor</u> to (507) is? <small>0-7</small> <small>510₈</small>	<p>A. 508₈</p> <p>B. 510₈</p> <p>C. 506₈</p> <p>D. 511₈</p>
7	How many <u>cases</u> in binary can be formed by a number of 5 digits? $2^n = 2^5 = 32$	<p>A. 32</p> <p>B. 128</p> <p>C. 64</p> <p>D. None of the choices</p>
8	The <u>speed</u> of the printer is measured by <small>ppm</small> <small>printed page per minute</small>	<p>A. PPM</p> <p>B. DPI</p> <p>C. MHz</p> <p>D. None of the choices</p>

Question 3: (11 Marks)

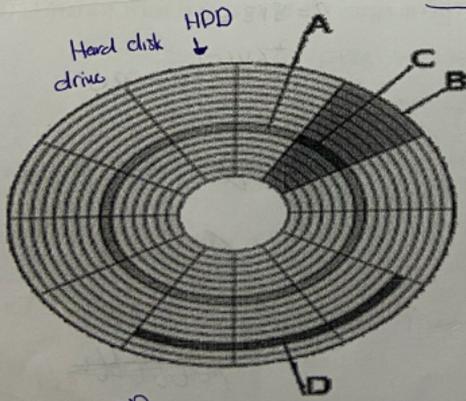
[A] Name each hardware component based on the indicated number?



- 1) ~~refrigerator and fans~~
- 2) coolers
- 3) mother board
- 4) storage & memory
- 5) parts
- 6) on/off switch
- 7) house case (chassis)

* power supply (battery).
 * storage
 * extension card parts.

[B] Name each disk part based on the indicated symbol?



- A. electronic part
- B. sector (track)
- C. magnetic field
- D. mechanical part.

HDD
 SSD
 optical
 Fiber

Question 4: (7 Marks)

Perform the following operations showing your work:

[A] $(111101110)_2 + (772)_8 = (\quad)_{16}$ Using Binary Addition

First: $(772)_8 \rightarrow \text{E} = (111111010)_2$

Then adding:

$$\begin{array}{r} 011110110 \\ + 011111010 \\ \hline 111110100 \end{array}$$

$= (0111110100)_2$

$= (3E8)_{16}$

0000	0
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9
1010	A
1011	B
1100	C
1101	D
1110	E
1111	F

[B] $(567)_8 = (\quad)_{10}$

$= 5 \times 8^2 + 6 \times 8^1 + 7 \times 8^0$

$= 320 + 48 + 7$

$= (375)_{10}$

$8 \times 8 \times 8 = 64$

$64(5) = 320$

~~18~~

~~16~~

~~16~~

Question 5: (16 Marks)

[A] (9 Marks) Complete the following sentences:

1. Data and programs responsible for starting up the computer are stored in ROM
2. back up is used to create an identical copy of the data (replica).
3. Internet topology is the physical arrangement in which computer systems or network devices are connected to each other.
4. A repeater is a network device used to boost the signal to extend the distance it will travel.
5. When visiting a website, a small data file that saved on the client's side to track user behavior and preferences is called: cookies
6. ICT stands for (acronym for): Information and Communication Technology.

[B] (7 Marks) For an image with width 1024 pixels and height 512 pixels, each pixel represented by 8 bits:

1) (2 Marks) What is the resolution of this image?

$$\text{Resolution} = 1024 \times 512 = 524288 \text{ pixels}$$

$$\text{also} = 2^{10} \times 2^9 = 2^{19} \text{ pixels}$$

2) (2 Marks) What is the aspect ratio of this image?

$$\text{aspect ratio} = \frac{\text{width}}{\text{height}} = \frac{1024}{512} = \frac{2^{10}}{2^9} = 2 = 2:1$$

3) (3 Marks) What is the size of this image in GB?

$$1 \text{ pixel} \rightarrow 8 \text{ bits} = 2^3 \text{ bits}$$

$$2^{19} \text{ pixel} \rightarrow ??$$

$$\text{size} = 2^{19} \times 2^3 = 2^{22} \text{ bits}$$

$$1 \text{ GB} \rightarrow 2^{33} \text{ bits}$$

$$8 \rightarrow 2^3$$

$$= \frac{2^{22}}{2^3} = 2^{19} \text{ GB}$$

"END OF EXAM"

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$$8 \text{ GB} \rightarrow 1 \text{ GB}$$

$$1 \text{ GB} \rightarrow 2^3 \text{ GB}$$

$$8 \rightarrow 2^3$$

$$= \frac{2^{19}}{2^3} = 2^{16} \text{ GB}$$

b
B
KB
MB
GB = 2^{30}
TB
PB

$$\begin{array}{r} 1152 \\ 015X \\ \hline 015A \\ 115E. + \\ 0100... \\ \hline 05E5AA \end{array}$$

$$128 = 2^7$$

$$256 = 2^8$$

$$512 = 2^9$$

$$= \frac{2^{11}}{2^3} = 2^{11-3} = 2^{8} \text{ GB}$$