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Question #	1(15)	2(21)	3(4)	Total Grade (40)
Grade	12	17	4	33

Question1 (15 points):

Read these sentences carefully then answer with true (T) or false (F)

1.	Twisted pair cable speed is more than the coaxial cable speed	T ✓
2.	HTTP is an internet protocol	F ✗
3.	15.15.15.15 is an invalid IP address	F ✓
4.	The speed of the downstream is 8 times the speed of the upstream	T ✓
5.	The fiber-optics cable is more expensive than the twisted pair cable	T ✓
6.	Modem is a device that connects two or more networks together	F ✓
7.	Viruses and Worms can replicate themselves	T ✓
8.	A cookie is a malware program stored on the user hard disk	F ✗
9.	Normally, it is a good practice to change your password frequently	T ✓
10.	A malware is a system program that has a malicious intent	T ✗
11.	Cybercrime is an internet-based crime includes illegal act on a computer	T ✓
12.	Antivirus is a software that detect and remove viruses	T ✓
13.	Spyware is a malware program that monitor and spies on his victim	T ✓
14.	Encryption is the process of converting high level language to machine language	F ✓
15.	The number $(47)_8$ is greater than the number $(41)_{10}$.	F ✓

$$7 \times 8^0 + 4 \times 8^1 = 7 + 32 = (39)_{10}$$
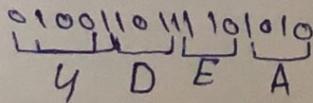
(17)

Question2 (7 x3 = 21 points):

a) Perform the following conversions (show your work) :

1. Convert $(136)_{10}$ = (210 $)_8$

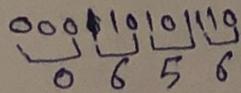| Base	num.	rem
8	136	
8	17	0
8	2	1
	0	2

12
13
$96 + 8 = 104 + 8 = ?$

2. Convert $(46752)_8$ = (4DEA $)_{16}$ using only tables

0100 110 111 101 010
4   D   E   A

Binary	H.D
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

$16^2 \ 16^1 \ 16^0$

3. Convert $(1AE)_{16}$ = (~~0656~~ 310 $)_{10}$

0001 1010 1110
0   6   5   6

$E \vee 16^0 + A \times 16^1 + 1 \times 16^2$ 256
$14 \times 1 + 10 \times 16 + 1 \times (136) = 14 + 160 + 136$
$174 + 136$
$)_{10} =$
$180 + 130$
$= 310$

4. Convert $(101)_6$ = (13 $)_{10}$

$1 \times 6^0 + 0 \times 6^1 + 1 \times 6^2$
$1 + 0 + (12)$ $\frac{4}{36}$ -1
2 · 36

2

b) **Perform the following calculations (show your work):**

1. Calculate:

$(1011)_{10} + (101011)_2 = (\;\sout{001000110100}\;)_2$ |||||0||00

$\sout{00100000}10011)_2$

Base	num	rem
2	1011
2	505	1
2	252	1
2	126	0
2	63	①
2	31	1
2	15	1
2	7	1
2	3	1
2	1	1
	0	1

$\sout{1+0+011}$

$(00100000 10011)_2$

$(101011)_2 +$
_____
$00100011 0100$

$11111 0011$
10011 $+$
_____
$11110 10100$

2. Calculate:

$(62)_{10} + (101101)_2 = (\;\sout{1000111}\;)_2$ 1000011

$(110010)_2$

① 101101
$110010 +$
_____
1011111

11110
10101 $+$
_____
1000011

2 | 62
--- | --- | ---
2 | 31 | 0
2 | 15 | 1
2 | 7 | 1
2 | 3 | 1
2 | 1 | 1
  | 0 | 1

3

3. Calculate :

$(44)_5 + (55)_6 = ($ 59 $)_{10}$

$2 \times (44)_5 = (88)_{10}$

44

$4 \times 5^0 + 4 \times 5^1$

$4 + 20 + 5 \times 6^0 + 5 \times 6^1$

$24 + 5 + 30$

$29 + 30 = 59$

Question3 (4 points):

List the network components

1 - Protocol

2 - Data

3 - Transmisson Device

4 - Transmisson medium (channel)

القناة

End of the exam

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