



Part A

Answer all questions

1. Add the following binary numbers

A. 1111111_2
 $\underline{111_2} \quad +$

D. 00011110_2
 $\underline{110_2}$
 $\underline{11_2} \quad +$

B. 101_2
 000011_2
 $\underline{11_2} \quad +$

E. 111_2
 111_2
 $111_2 \quad +$
 $\underline{111_2}$

C. 111_2
 $\underline{00001111_2} \quad +$

2. Subtract the following binary numbers

A. 1111111_2
 $\underline{111_2} \quad -$

D. 00011110_2
 $\underline{11_2} \quad -$

B. 100001_2
 $\underline{1001_2} \quad -$

E. 11100000_2
 $\underline{000111_2}$

C. 111_2
 $\underline{00001111_2} \quad -$

3.

A. Give 3 characteristics of information

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B. Give 3 qualities of information

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C. Give 3 values of information

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D. Draw the abstract model of information



E. Draw the graph of value of information vs time.

F. Explain the "Golden rule of information"

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4.

A. Classify the computer system in to 4 main components

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B. What are the two main types of printers

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C. Give 2 differences between RAM and ROM

RAM

ROM

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D. What are the 3 main components of a system

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E. Give four examples of communication devices

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Name:.....

Part B

Answer all questions

(1) Calculate the following

I. Multiply the following numbers

- A. $111101_2 \times 11_2$
- B. $110101_2 \times 1001_2$
- C. $110101_2 \times 1001_2$
- D. $110101_2 \times 1001_2$
- E. $110101_2 \times 1001_2$

II. Divide the following numbers

- A. $111101_2 / 11_2$
- B. $110101_2 / 101_2$
- C. $11011_2 / 11_2$
- D. $110101_2 / 1010_2$
- E. $110101_2 / 111_2$

(2) Convert the following numbers in to binary

- A. 256.52_{10}
- B. 856.85_{10}
- C. 757.76_8
- D. 321.72_8
- E. $CAD.ECD_{16}$
- F. $DAD.BAD_{16}$

(3) Convert the following numbers in to octal

- A. 256.52_{10}
- B. 856.85_{10}
- C. 1110101.101_2
- D. 10101.1011_2
- E. $CAD.ECD_{16}$
- F. $DAD.BAD_{16}$

(4) Convert the following numbers in to hexadecimal

- A. 256.52_{10}
- B. 856.85_{10}
- C. 757.76_8
- D. 321.72_8
- E. 1110101.101_2
- F. 10101.1011_2

(5) Calculate the following decimal numbers with 1's complements (show all the steps)

- A. $4+(-9)$
- B. $(-29)+13$
- C. $(-8)+52$
- D. $(-65)+63$
- E. $[-64]+9$