

IMSc CS (NEP) Sem.-1 Examination
Fundamentals of Computer & Programming
January-2025

Time : 2-00 Hours]

[Max. Marks : 50

Q.1 A. Each question carries 3 marks

6+4

- i) Write modes of data transfer and explain any one.
- ii) Explain asynchronous data transfer hand shaking method.

B. Each question carries 2 marks

- i) Explain all types of printer.
- ii) Write any two points of comparison between SSD and HDD.

OR

Q.1 A. Each question carries 3 marks

6+4

- i) Convert in binary and multiply in binary number system. $(36)_{10} \times (11)_{10}$
- ii) Subtract using r's complement method.
 - (p) $(1011)_2 - (1000)_2$
 - (q) $(80.4)_{10} - (5.27)_{10}$
 - (r) $(FBA)_{16} - (BCD)_{16}$

B. Each question carries 2 marks

- i) Explain error detecting parity code.
- ii) Explain gray code to binary and binary to gray code conversion.

- Q.2** Explain Typical 128×8 RAM chip and 512×8 ROM chip. Also explain memory mapping and show 4 RAM chips and One ROM chip connection to CPU. 10

OR

- Q.2** Explain types of RAM & ROM. Also explain bootstrap loader. 10

Q.3 A. Attempt the following (Each question carries 3 marks) 6+4

1. Draw a flowchart to count the sum of first five odd numbers.
2. Give suitable example for exit controlled loop

B. List (Each question carries 2 marks)

1. Any 4 relational operators supported by 'C' language
2. Any 2 'C' language keywords with their meaning

OR

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- Q.3 A. Write program to (Each question carries 3 marks)** 6+4
1. Find length of a string using while loop.
 2. Calculate average of numbers stored in an array.

- B. Differentiate between (Each question carries 2 marks)**
1. Else-if ladder and switch case
 2. Local variable and static variable.

- Q.4 A. Explain (Each question carries 3 marks)** 6+4
1. Passing a 2-dimensional array to a function
 2. Linear search

- B. Define (Each question carries 2 marks)**
1. structure
 2. nested if

OR

- Q.4 A. Explain with suitable example: (Each question carries 3 marks)** 6+4
1. Recursive function
 2. String handling function: "strlen()".

- B. Differentiate between: (Each question carries 2 marks)**
1. Actual parameters and formal parameters
 2. Implicit and explicit type conversion

- Q.5 Answer any 10 out of 12** 10

1. $(1101)_2 = (\dots\dots\dots)_{2421} = (\dots\dots\dots)_{\text{EXCESS-3}}$
2. $(2102)_3 = (\dots\dots\dots)_5$
3. $(F0CP)_{16} = (\dots\dots\dots)_8$
4. Explain instruction format in computer.
5. Write generations of the computer.
6. Explain types (number of gates) of integrated circuit?
7. Give Output of following program

```
main()
{
    int a=10,b=2,n;
    n=(a>b ? a++ : b++);
    printf("%d %d %d",n,a,b);
}
```

8. Give Output of following program

```
#include<stdio.h>
main()
{
    int a=10,b=2;
    if(a>b)
    {
        if(b>5)
            printf("%d",b);
    }
    else
        printf("%d",a);
    printf("%d",a*b);
}
```

9. Give Output of following program

```
int main() {
    char str1[20]="condensation",str2[10];
    int i,j=0;
    i=strlen(str1);
    while (i>0)
        str2[j++]=str1[i-=2];
    str2[j]='\0';
    for(i=j-1;str2[i]!='\0';i--)
        printf(" %c",str2[i]);
    printf("\n");
}
```

10. State the difference between following 'C' statements

- int arr[5]={};
- int arr[5];

11. Identify error in following code

```
int main() {
    int const[5][6];
}
```

12. Give Output of following program

```
int main() {
    int p=1,a=2,b=3,d=2,c=0,e=1;
    printf(" %d",++p+a*b--/d+p-e);
}
```

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