

**Time Allowed: 03 Hrs.**

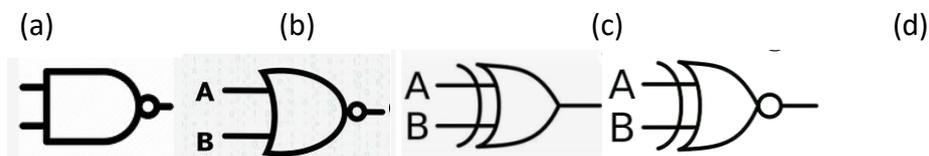
**MM-70**

**General Instructions:**

1. This question paper is divided into four sections A, B, C and D.
2. Sec-A contains 21 questions of 1 mark each.
3. Sec-B contains 11 questions of 2 marks each.
4. Sec-C contains 5 questions of 3 marks each.
5. Sec-D contains 3 questions of 4 marks each.

**Sec-A**

1. ABH is a valid hexadecimal number. [T/F]
2. The correct symbol of NAND gate is-



3. The base of any number system is also called as radix. [T/F]
4. What will be the result of the given equation:  $6 * 3 + 4 ** 2 // 5 - 8$   
(a) 13      (b) 14      (c) Error      (d) None
5. Which of the following is a valid variable name in Python?  
A) lvariable      B) variable\_1  
C) variable-1      D) None of the above
6. Given the string `s = "PythonProgramming"`, what does `s[1:10:2]` return?  
A) 'yhnPr'      B) 'ythPor'  
C) 'yhnPo'      D) 'yhnrg'
7. What will be the output of the given code:  

```
print(2* [12,45])
```

  
A) [12,12,45,45]      C) [24,90]  
B) [12,45,12,45]      D) [12,45][12,45]
8. Consider the given expression: `True OR False AND True AND NOT True`  
What will be the correct output when the given expression evaluated?  
A) False      B) True      C) None      D) None of these
9. How would you delete the second element in the list `myList = [0, 1, 2, 3, 4]`?  
A) `del myList[1]`      B) `myList.pop(2)`      C) `myList.remove(2)`      D) `del myList[2]`

10. Consider the given code:

```
myList = ['a', 'b', 'c', 'd']
myList.pop(myList.index('c'))
print(myList)
```

What will be the output of the given code:

- A) ['a','b','c','d']
- B) ['a','b','d']
- C) ['a','b','','d']
- D) None of these

11. A logical error does not stop execution but the program behaves incorrectly. [T/F]

12. \_\_\_\_ function returns the ASCII/Unicode (ordinal) of the character.

13. Which of the following will give "Simon" as output;

Str1="Hari, Simon, Vinod"

- A) print(str1[-7:-12])
- B) print(str1[-11:-7])
- C) print(str1[-11:-6])
- D) print(str1[-7:11])

14. \_\_\_\_\_ address is assigned to network cards by manufacturer.

- A) IP
- B) Domain
- C) MAC
- D) Unique

15. Which type of network is formed if you connect two mobiles using Bluetooth to transfer a picture file?

- A) LAN
- B) MAN
- C) PAN
- D) WAN

16. \_\_\_\_ is a communication methodology designed to deliver both voice and multimedia communications over Internet Protocol.

- A) SMTP
- B) VoIP
- C) PPP
- D) HTTP

17. What will be the output of the following code fragment?

```
D={0:'a', 1:'b', 2:'c'}
for x in D.keys():
    print(x, ":", D[x], end='...')
```

- A) 0: a ... 1: b ... 2:c ...
- B) 0: a 1: b 2:c
- C) 0: a, 1: b, 2:c
- D) 0: a ... 1: b ... 2 : c ...

18. Which is not a universal gate:

- A) NAND
- B) AND
- C) NOR
- D) None of these

19. \_\_\_\_\_ is a device that amplifies a signal being transmitted on the network.

- A) Router
- B) Bridge
- C) Repeaters
- D) Switch

Q 20 and 21 are ASSERTION AND REASONING based questions. Mark the correct choice as

- (a) Both A and R are true and R is the correct explanation for A
- (b) Both A and R are true and R is not the correct explanation for A
- (c) A is True but R is False
- (d) A is false but R is True

20. **Assertion (A):** UNICODE is used for multilingual encoding.

**Reason (R):** Unicode provides a unique number for all the characters of every written language of the world.

21. **Assertion (A):** The SWAPCASE function converts an input string into a toggle case.

**Reason (R):** The SWAPCASE function converts all uppercase characters into its lower form.

### Sec-B

Q22. State any one Demorgan's law and verify it using truth table.

Q23. Observe the given loop and tell that how many times the loop will run and also tell the value of variable 'a' ?

```
num=30
val=500
a=0
while True:
    val=2*val
    num+=3
    a+=1
    if num>50:
        break

print(a)
```

Q23. Write difference between Gateways and Bridges.

OR

Write difference between Hubs and Switches.

Q24. Perform the following operations of tuple

voters=('Manisha','Kavita', 'Saroj,' Anirudh', 'Dhawal' ,Garvit', 'Hemant')

- (i) Input a name and find how many times it appears in a tuple.
- (ii) Sort the voters in ascending order.

Q25. Covert following as instructed;

- (a)  $(10011001110)_2$  into Octal number
- (b)  $(1011.101)_2$  into Decimal number

Q26. Write a program to input one string and replace all the digits with '%' sign.

Q27. What is negative index in python, explain with example.

Q28. What are different ways to delete an item in a Tuple, give suitable example.

Q29. Differentiate between split and partition functions with examples.

Q30. Draw the Truth table and logic circuit diagram of NAND gate.

Q31. Underline the errors in the given program and also write the corrected code:

```
a==10
for i in (a,20):
    print(i end=' ')
    i++2
print("output"=a)
```

Q32. Draw the circuit diagram for the given Boolean expression:  $(A'+B).C+D'$

**Sec-C (Attempt any 5)**

Q33. Write a program to create a list of 10 numbers, create another list from this, which will have all those numbers which are unique in first list.

Example L=[1,2,6,1,5,6,3,4,6,7]

New\_list=[2,3,4,5,7]

Q34. Write a program which assigns grades in an exam as per the following conditions:

Marks	Grades
>90 and <=100	A
>80 and <=90	B
>60 and <=80	C
otherwise	D

Input the marks of 'n' students and store them in a list and store grades in another list as per the above conditions. Display marks and grades of all students having grades "B" and "D".

Q35. Write a program to store students names their percentage and stream in a dictionary for three students. Input one name and change stream of that student if present otherwise display message "student not found".

Q36. Write a program to create a tuple of 5 strings, display its largest and smallest string.

Q37. Write a program to input one string, remove all the vowels and convert all the upper case letters to '#' and all lowercase letters to its upper case form, display both original and modified strings.

Q38. Predict the output:

```
T="Mind@Work!"
ln=len(T)
nText=""
for i in range(0,ln):
    if T[i].isupper():
        nText=nText+T[i].lower()
    elif T[i].isalpha():
        nText=nText+T[i].upper()
    else:
        nText=nText+'A'
print(nText)
```

**Sec-D (Attempt any three)**

Q39. Define following terms (Any two with examples):

- (a) Network Protocols                      (b) Network devices      (c) Star Topology

Q40. Define any two methods with examples:

- (a) Setdefault()    (b) Partition()    (c) Fromkeys()

Q41. Draw the truth table and circuit diagram of the following Boolean expression:

$$(A+B'+C)(A+(B+C)')$$

Q42. (a) Write a program to display the given pattern:

```
A
B   C
D   E   F
G   H   I   J
K   L   M   N   O
```

(b) Write a program to input a number and find sum of all its digits. Ensure that number entered should be more than a three-digit number.

**OR (only for (42-b))**

Write a program to input one sentence, display all words with its length in descending order (Z to A)