

(4)

16. Solve the equation

$$\frac{dy}{dx} = \frac{1+y^2}{1+x^2}$$

17. Solve the equation

$$\frac{d^2y}{dx^2} - 9y = 0$$

18. Solve the equation

$$\frac{d^2y}{dx^2} + \frac{dy}{dx} + y = e^{-x}$$

$$\frac{1}{a^2 + x^2} \rightarrow \frac{1}{a} \tan^{-1} \frac{x}{a}$$

VUG (1)-BCA (F-1002)
Basic Math.

2019 -22

Full Marks : 70

Time : 3 hours

Answer from **both** Sections as directed.

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

SECTION-A

(Long Answer Type Questions)

Answer any *four* questions : 10 × 4

1. Define homogeneous function of degree n . State and prove Euler's theorem on partial differentiation.

2. If $y = \tan^{-1} \frac{x}{a}$ find y'' .

3. Find maxima and minima of the function
 $x^3 + y^3 - 12x - 3y + 15$

(Turn Over)

$$\frac{1}{1+x^2}$$

(2)

(3)

4. Find length of the loop of the curve

$$3ay^2 = x(x-a)^2.$$

5. Find volume of the solid formed by the revolution of the loop of the curve $9ay^2 = x(3a-x)^2$ about x-axis.

6. Change the order of integration of the double integral

$$\int_0^a \int_x^{a-x} f(x,y) dx dy \quad y = \frac{3\sqrt{x}}{2} [3a-x]$$

7. Solve the equation

$$(1+y^2) \frac{dx}{dy} + x = \tan^{-1} y$$

8. Solve the equation

$$\frac{d^2y}{dx^2} - 4 \frac{dy}{dx} + 3y = 2e^{2x} + \cos x$$

SECTION-B

(Short Answer Type Questions)

Answer all questions :

3 × 10

9. If $y = \sin^{-1} x$ prove that $(1-x^2)y_2 - xy_1 = 0$.

10. Find expansion of $\cos x$ in ascending powers of x .

11. If $u = \tan^{-1} \frac{x^2+y^2}{x-y}$, prove that

$$x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = \sin 2u$$

12. Find maxima and minima of the function

$$4x - 6y - 2x^2 - y^2$$

13. Find area of the circle of radius a having centre at the origin.

14. Find volume of the cone of height h and circular base of radius r .

15. Evaluate $\int_0^a \int_0^{a-x} (x^2 + y^2) dx dy$.

VUG(1)-BCA(F-1001)Bus.Comm.

2019-22

Full Marks : 70

Time : 3 hours

Answer from Both the groups as directed.

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP-A

Answer any *four* questions

10 × 4

- 1. What is effective communication? Discuss the seven C's of effective communication.**
- 2. 'The single most significant element of non-verbal communication is the body language.' Discuss the statement.**
- 3. What are the precautions a presenter should keep in mind while going for non-verbal communication with three different groups of audiences?**

(2)

4. Explain various types of interviews. How should an interviewer prepare for a selection interview?
5. Write a letter to the newspaper editor regarding printing mistakes in the newspaper.
6. Write an email to the IBM company placing order for the supply of one hundred computers with new features.
7. Prepare a report on the annual prize distribution function which was held in your college/ university.
8. Large shopping malls are replacing small shops. Your opinion? Good or bad.

GROUP-B

Answer *all* questions

3 × 10

9. What is communication apprehension?
10. What are the different communication barriers?

(3)

11. What are the different components of a communication?
12. What is sign language? Explain with example.
13. What is the difference between verbal and non-verbal communication?
14. Define the template of a notice.
15. What is the difference between interview and group discussion?
16. What is the difference between encoding and decoding.
17. Explain the format of a business letter with suitable example.
18. What is the difference between hearing and listening.

**VUG(1)-BCS+BCA(F-1003)- New
Bus.Prac.Mgt**

2019-22

Full Marks : 60

Time : 3 hours

Answer any six questions

The questions are of equal value.

*Candidates are required to give their answers in
their own words as far as practicable.*

1. What do you understand by business environment?
Distinguish between micro and macro environment.
2. What do you mean by business practices and management ? Discuss the function of management.
3. Define the term planning. Enumerate the steps involved in the planning process .
4. What is M.B.O ? Explain the process and utility of M.B.O programme in an organization.

5. Define the concept of organizing ? Discuss the nature and significance of organizing.
6. What is communication ? Discuss the process and types of communication network.
7. What do you understand by managerial control ? Discuss the techniques of control.
8. Briefly explain the human relations and bureaucratic theory of organization.
9. What is organization structure ? Distinguish between formal and informal organization.
10. Write notes on any *two* of the following :
 - (a) Motivation
 - (b) Sole trader
 - (c) Centralization
 - (d) Co-operative organization

**VUG(1)-BCA(C-1004)Intro.to.
Comp.SC.**

2019-22

Full Marks : 70

Time : 3 hours

Answer all the Groups as directed

The figures in the right-hand margin indicate marks.

*Candidates are required to give their answers in
their own words as far as practicable.*

GROUP-A

Answer any *four* questions

10 × 4

1. Write and explain the characteristics of Computers.
2. (a) Write about applications of Computer.
(b) What is logic gates? Explain.
3. What is memory? Write and explain the types of memory.

(2)

4. Discuss

- (i) Speech recognition
- (ii) Projectors

5. What is operating systems? Write and explain the types of O/S.

6. (a) What is software, hardware, firmware?
(b) Write about flowchart.

7. What is Computer Network ? Write and explain the network topology.

8. Discuss

- (a) Search engine
- (b) Internet and virus

GROUP-B

Answer all questions 3×10

9. What is binary coding ?

10. Write types of ROM.

(3)

11. What is Boolean Algebra ?

12. What is pointing devices ?

13. What is pseudocode ?

14. What is transmission media ?

15. What is soft copy ?

16. What is the concept of over flow ?

17. What is language ?

18. Write about network devices.

(4)

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17. Write a program to check whether the number is Armstrong or not.

18. Explain pointer to function.

VUG(1)-BCA(C-1005) Prob.
Sol Inc

2019-22

Full Marks : 70

Time : 3 hours

Answer from **Both** the Groups as directed.

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP-A

Answer any *four* questions 10 × 4

1. (a) What is token ? What are the different types of token ?
(b) Explain different types of data type involved in C-programming language.
2. (a) What are the key features of C-programming language ?
(b) What do you mean by syntax error ?

(2)

3. (a) Write a program to check 'entered number is palindrome or not'.
(b) Write a program to find factorial of a number using recursion.
4. (a) Write down different mathematical functions with their uses.
(b) Explain operator precedence.
5. What are the purpose of 'loop'? Explain different types of loop.
6. (a) Explain the difference between call by value and call by address.
(b) Write a program to swap two numbers using call by address.
7. (a) What is structure ? How it is different from union ?
(b) Explain enum with the help of a program.
8. (a) Explain chain of pointer with example.

(3)

- (b) Write a program to show different functions of life.

GROUP-B

Answer all questions

3 × 10

9. Write a program to find greatest among three numbers.
10. Explain else-if ladder.
11. What is array ? Explain its types.
12. Explain different string handling functions with their purpose.
13. Explain Bit-fields.
14. Explain structure within structure.
15. Write a program that shows the use of switch statement.
16. Write a program to print following pattern using loop