

**SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE**

Bachelor of Computer Application (BCA)

Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 24/04/2019	II	Introduction to Logic Circuits and Digital Design	11.00 AM TO 1.30 PM	2101	75

Instructions: All questions are compulsory.

Section – I

Q.1 A) Fill in the blanks:

05

- 1) A flip flop hasstable states
- 2) Binary number system has digits ----- and-----
- 3) Ais an algebraic form of Boolean expression
- 4) Variable used can have only two value as binary 1 for HIGH and binary 0 for
- 5) is used to analyze and simplify the digital(logic) circuits.

Q.1 B) State True or False

05

- 1) In NOR Gate Output is 0 if any input is 1
- 2) In Boolean algebra, $A + 1 = 1$.
- 3) SOP stands for sum-of-powers
- 4) Binary value of 303 is 0011000011
- 5) Hexadecimal Value of 11 is C

Q.2 A) Choose correct answers from options (Single)

05

- 1) The logic circuits whose outputs at any instant of time depends only on the present input but also on the past outputs are called
 - a) Combinational circuits
 - b) Sequential circuits
 - c) Latches
 - d) Flip-flops
- 2) In SR flip-flop, input labeled 'S' stands for
 - a) Systematic
 - b) Static
 - c) Set
 - d) Stable
- 3) Whose operations are more faster among the following?
 - a) Combinational circuits
 - b) Sequential circuits
 - c) Latches
 - d) Flip-flops
- 4) DeMorgan's theorem states that
 - a) $(AB)' = A' + B'$
 - b) $(A + B)' = A' * B$
 - c) $A' + B' = A'B'$
 - d) None of the Mentioned
- 5) Half adder circuits requires two
 - a) Inputs
 - b) Outputs
 - c) Digits
 - d) Both a and b

Q.2 B) Choose correct any two answers from options.

- 1) Below are the combinational gates
a) Not b) AND c) NAND d) NOR
- 2) Below are basic gates
a) OR b) NOT c) EX-NOR d) EX-OR
- 3) Below are sequential gates
a) JKFF b) SRFF c) NAND d) NOR
- 4) Which is used to add two single bit binary number
a) NAND b) NOT c) Half Adder d) Full Adder
- 5) Which is used to subtract two single bit binary number
a) NAND b) NOT c) Half Subtractor d) Full Subtractor

Q.3 Write a short note on following (any Five)

20

- 1) Convert the given octal number to binary
a) (447)₈ b) (260)₈
- 2) Explain Full Adder
- 3) Explain Combinational Gates with truth table
- 4) Design 1:16 Demux by using 1:4 Demux
- 5) Explain Half Subtractor
- 6) Explain T-Flip flop

Section – II

Instructions: 1) Answer any six questions from the following.
2) Each question carries five marks.

30

- Q.4 A) Explain Basic Gates.**
B) Explain 4: 1 Multiplexer
C) Explain SR Flip Flop with truth table and circuit diagram
D) i) Binary to Hexadecimal
 a) 11101101 b) 101101011
 ii) Hexadecimal to Binary
 a) F7E b) ABC
E) What is Universal Gate? List them.
 prove that why these gates are universal gate.
F) Explain D-Flip Flop.
G) Explain POS (Product of Sum) form
H) Explain K-Map of 4-Variable.
I) Explain Full Adder
J) Explain Min term and Max term

*****All The Best*****

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Bachelor of Computer Application (BCA)

Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 25/04/2019	II	Discrete Structures & Graph Theory	11.00 AM TO 1.30 PM	2102	75

Instructions: All questions are compulsory.

Section - I

05

Q.1 A) Fill in the blanks:

1. The Cartesian product of two set A & B denoted by _____.
2. If there are more than one edge between two nodes then they are known _____.
3. A graph in which edges is not specified with direction /arrows is known as _____.
4. The different selection possible from collection of items are called _____.
5. A _____ is an ordered collection of objects.

Q.1 B) State True or False

05

1. A set which contain only one element is called single tone.
2. $\{a\} \in \{d, e, f, a\}$
3. Graph can be represented as $G = \langle V, E \rangle$.
4. The relation R on set A is called ant symmetric relation. If $x R y$ & $y R x$ implies $x=y$.
5. $\emptyset \in G\{1,2,3\}$.

Q.2 A) Choose correct answers from options (Single)

05

1. If we are dealing with the set of all computers programmers in the world ,then which of the following can be a universal Set.
a) Set Of all men in the world . b) Set Of all women in the world.
c)Set Of all people in the world . d) Set Of all Indians in the world
2. Which of the following is Subset of set $\{1,2,3,4\}$
a) $\{1,2\}$ b) $\{1,2,3\}$ c) $\{1\}$ d) All of above.
3. The compliment of set A is _____.
a) $A-B$ b) $A-U$ c) $U-A$ d) $B-A$
4. The symmetric difference of $A = \{1,2,3\}$ and $B = \{3,4,5\}$ is _____.
a) $\{1,2\}$ b) $\{1,2,4,5\}$ c) $\{4,3\}$ d) $\{2,5,1,4,3\}$
5. Pictorial representation of sets represented by closed figures are called _____.
a) Set b) Venn diagram c) Function d) Transitive

Q.2 B) Choose correct any two answers from options.

10

1. If $A = \{1,2,3,4,5\}$ and $B = \{2,4,5\}$ then which of the following holds?

1. a) A C B b) B C A c) $A=B$ d) $A \in B$
2. A set which contain only one is called .
 a) Set b) single set c) finite d) Unit
3. A relation is an equivalence relation if it is Reflexive.
 a) Transitive b) Symmetric c) Anti-symmetric d) None of these
4. Set can be classified into many type
 a) Finite b) Infinite c) Graph d) single tone
5. A set which does not contain any element is called as _____
 a) Empty Set b) null set c) Universal d) Single tone

Q.3 Write a short note on following (any Five)

20

1. Restore & set builder form
2. Directed & Undirected Graph
3. Transitive relation & Symmetric relation
4. Inverse of function
5. Methods of GCD
6. Symmetric graph & Sub graph
7. Venn Diagram.

Section – II

**Instructions: 1) Answer any six questions from the following.
 2) Each question carries five marks.**

30

Q4. Answer any six questions from the following

- A) Consider $S = \{1, 2, 3, 4, 5\}$
 $R = \{(1,1), (2,2), (3,3), (4,4), (5,5), (1,2), (2,1), (2,3), (3,2), (1,3), (3,1)\}$
 Find $[1], [2], [3], [4], [5]$
- B) Write De'morgans law with example ?
- C) A box contain two white ball, three black ball & four red balls, In how many ways can 3 balls be drawn from the box. If at least 1 black balls is to be included in the draw?
- D) What is the method of LCM
- E) Let $f(x) = x+5$ & $g(x) = 3x+2$ find $(f \circ g)(x)$ & $(g \circ f)(x)$
- F) In how many different ways can the letters of the word 'CORPORATION' be arranged so, that vowels always come together .
- G) Explain isomorphic graph & complement of graph with example .
- H) Explain handshaking thermo.
- I) Shows $1 + 2 + \dots + n = n(n+1)/2$ by using principal of mathematical Induction.
- J) Define following terms with suitable examples.
 1) Subset 2) Equal set 3) Universal set 4) Graph 5) Relation

*****All The Best*****

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Bachelor of Computer Application (BCA)

Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 26/04/2019	II	Introduction to Programming and Problem Solving using C	11.00 AM TO 1.30 PM	2103	75

Instructions: All questions are compulsory.

Section - I

05

Q.1 A) Fill in the blanks:

- 1) A file can be a text file or binary file depending upon its contents
- 2) The Process of allocating memory during program execution is called dynamic allocation
- 3) A Structure is a group of data elements that may have different data types.
- 4) A Pointer is a variable that can hold the memory address of another variable
- 5) Each string is terminated with a character Null/'0'.

Q.1 B) State True or False

- | | |
|---|-------|
| 1) Arrays allow random access. | True |
| 2) Expression *ptr++ and ++*ptr are same | False |
| 3) Structure and Union are same | False |
| 4) In memory allocation functions pointers are not used | False |
| 5) All files must be explicitly closed | True |

Q.2 A) Choose correct answers from options (Single)

- 1) "&" is called as _____ in pointer concept.
- | | |
|-------------------------|---------------------|
| a) Conditional Operator | b) Logical Operator |
| b) Address Operator | d) None of these |

Ans : b) Address Operator

- 2) In C, if you pass an array as an argument to a function, what actually gets passed?

- | | |
|-------------------------------|---|
| a) Value of elements in array | b) First element of the array |
| c) Base address of the array | d) Address of the last element of array |

array

Ans : c) Base address of the array

- 3) Presence of code like "s.t.b = 10" indicates _____
- a) Syntax Error
 - b) Structure
 - c) double data type
 - d) An ordinary variable name

Ans : b) Structure

- 4) A line drawn in the background color is
- a) Visible
 - b) Invisible
 - c) Visible or Invisible
 - d) None of these

Ans : b) Invisible

Q.2 B) Choose correct any two answers from options.

10

- 1) Using and function ,we can draw triangle
- a) line()
 - b) rectangle()
 - c) polygon()
 - d) init()

Ans : a) line() c) polygon()

- 2) A is a group of data elements that may have different data types are collected together in and
- a) pointer
 - b) structure
 - c) array
 - d) Union

Ans : b) structure d) Union

- 3) These are function related to the FILE Concept
- a) clrscr()
 - b) printf()
 - c) fopen()
 - d) fclose()

Ans : c) fopen() d) fclose()

- 4) Which functions are used to allocate memory
- a) free()
 - b) int
 - c) calloc()
 - d) malloc()

Ans : c) calloc() d) malloc()

- 5) which are following Syntax of code same
- a) arr[i]
 - b) i[arr]
 - c) arr[arr]
 - d) i[i]

Ans : a) arr[i] b) i[arr]

Q.3 Write a short note on following (any Five)

20

- 1) What is Array? Explain with example

Arrays are a kind of data structure that can store a fixed-size sequential collection of elements of the same type. An array is used to store a collection of data, but it is often more useful to think of an array as a collection of variables of the same type.

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Bachelor of Computer Application (BCA)
Part - II SEM-II, Examination: April.-2019.

Day and Date	Part	Subject Name	Time	Code	Marks
Wednesday 27/04/2019	II	Environment Science & RTI	11.00 AM TO 1.30 PM	2104	75

Instructions: All questions are compulsory.

Section – I

Q.1 (A) Select correct answer from given alternatives. (10)

- 1) The blanket of gases and vapours around the earth is known as.
a) Troposphere b) Stratosphere c) Atmosphere d) Ionosphere
- 2) Example of an omnivore is
a) Grasshopper b) Vulture c) Blue whale d) Cockroaches
- 3) The best source of energy in the environment is
a) Soil b) Water c) Ponds d) Trees
- 4) The depletion in the ozone layer is caused by
a) Nitrous Oxide b) Carbon dioxide
c) Chlorofluoro carbon d) methane
- 5) Sound level meter is a device for measuring
a) The noise level b) Intensity of noise
c) Effect of noise d) None of these
- 6) The air prevention and control of pollution Act,
a) 1981 b) 1972 c) 1986 d) 1974
- 7) A biotic is a
a) Living component b) Non living component
c) Both a and b d) None of the above
- 8) Coal is composed of
I) Carbon II) Hydrogen III) O₂ and N₂ IV) Sulphur
a) Only I b) I and II c) All the above d) None of these
- 9) Which one of the following is not an agent of erosion.
a) Weathering b) Water c) ICE d) Wind
- 10) Biodiversity hot spots are recognized on the basis of
a) The no. of endemic species they contain
b) Their proximity to national parks and reserves
c) The degree to which the included species are threatened with extinction
d) Both (b) and (c)

B) Match of the following.

(05)

Group A

- a) Fertile soil is lost
- b) Low atmosphere pressure
- c) Measured at Richter Scale
- d) Movement of Rock Waste
- e) Molten material ejected out from

Group B

- 1) Land slide
- 2) Earthquake
- 3) Flood
- 4) Volcanoes
- 5) Cyclones

C) Select correct answer from given True and False.

(05)

- 1) Red data book has a record of all animal.
- 2) Inversion that occurs near earth surface is called radiation inversion.
- 3) Super phosphate is a complex in organic fertilizer.
- 4) The wildlife (protection) act was passed by Indian Parliament on June 1972 (Sept.)
- 5) Liquefied Natural Gas is the full from of LNG.

Q.2 Answer any two of the following.

(20)

- 1) Define Biodiversity and Discuss methods that can be used to conserve the biodiversity.
- 2) Define water pollution? Discuss different causes of water pollution, what are the effects of water pollution on man?
- 3) Give salient features of wildlife protection Act of India.

Q.3 Answer any four of the following.

(20)

- 1) Define environment and what is the scope of environment science?
- 2) What is a solid waste? Discuss the method used solid waste management.
- 3) What is the role of an Individual in Conservation of Resources?
- 4) Write the short note on environmental protection Act.1986.
- 5) Define noise pollution. Give an account of Different sources of noise pollution.

Q.4 Write Short notes any five.

(15)

- 1) Earthquake
- 2) Hot spots of biodiversity
- 3) Ozone depletion
- 4) Human population and the environment
- 5) Genetic diversity
- 6) Desertification

BCA
First Year
SEM-II
(October -November)

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Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 25/04/2019	II	Discrete Structures & Graph Theory	11.00 AM TO 1.30 PM	2102	75

Instructions: All questions are compulsory.

Section - I

05

Q.1 A) Fill in the blanks:

- 1) A _____ is an ordered collection of objects.
- 2) A set which contain only one element is called _____.
- 3) A Relation R on set A is called _____ If a \in A is related to a (a R a).
- 4) In a graph their is an edge from a node to itself, it is known as _____.
- 5) _____ are the different ways in which a collection of items can be arrange.

05

Q.1 B) State True or False

- 1) Every element in the co domain is the image of at least one element in the domain.
- 2) Finite set is also called equal set.
- 3) Graph is a non-linear data structure.
- 4) Permutation are the different ways in which collection of item can be arrange.
- 5) $\emptyset \in (1,2,3)$.

Q.2 A) Choose correct answers from options (Single Ans.)

05

- 1) If $A = (1,3,9)$ then which of the following power set of the A ?
 - i) $\{ \{1,3\}, \{3,9\}, \{3,1\}, \{9,3\}, \{1,9\} \}$
 - ii) $\{ \{ \}, \{1\}, \{3\}, \{9\}, \{1,3\}, \{1,9\}, \{3,9\}, \{1,3,9\} \}$
 - iii) $\{ \{ \emptyset \}, \{1,4\}, \{1,9\}, \{3,7\}, \{A\} \}$
 - iv) $B = \{ \{1,3\}, \{3,9\} \}$
- 2) A _____ is an ordered collection of objects.
 - a) Relation b) Function c) Set d) Proposition.
- 3) In how many ways can the letter of the word 'LEADER' be arrange?
 - a) 72 b) 144 c) 360 d) None of these.
- 4) Power set of empty set has exactly _____ Subset.
 - a) One b) Two c) Zero d) Three.
- 5) A digraph in which each pair of vertices have either on edge or no edges is known as _____.
 - a) Directed graph b) Undirected graph
 - c) Asymmetric digraph d) simple graph

Q.2 B) Choose correct any two answers from options.

- 1) Pictorial representation of Sets represented by closed figures are called-----
a) Set b) Venn diagram c) Function d) Set diagrams.
- 2) A relation is an equivalence relation if it is Reflexive----- & -----
a) Transitive b) symmetric c) antisymmetric d) none of these
- 3) Which are the following is the well defined set.
a) All the colors in the rainbow. b) All the honest members in the family.
c) All the prime no's less than 100. d) None of these.
- 4) The set of all x values is called ----- and the set of all y values is called-----
a) Set b) Domain c) Relation d) Range.
- 5) Set can be classified as -----
a) Finite b) Graph c) Infinite d) Range

Q.3 Write a short note on following (any Five)

20

- 1) Inverse of Function
- 2) Directed & Undirected Graph.
- 3) Types of Sets.
- 4) Explain GCD & LCM with example.
- 5) Roster & Set Builder form.
- 6) Complement of graph.
- 7) Reflexive relation & Antisymmetric relation

Section – II

Instructions: 1) Answer any six questions from the following.

2) Each question carries five marks.

30

- Q. 4 A) Let $f(x) = x + 2$ & $g(x) = 2x + 1$ find $(f \circ g)(x)$ & $(g \circ f)(x)$.
- B) Consider $S = \{1, 2, 3, 4, 5\}$
 $R = \{ (1, 1), (2, 2), (3, 3), (4, 4), (5, 5),$
 $(1, 2), (2, 1), (2, 3), (3, 2), (1, 3), (3, 1) \}$
 Find $[1], [2], [3], [4], [5]$.
- C) How many different word can be formed with the letter of the word 'SUPER' such that the vowels always come together?
- D) Shows $1+2+ \dots + n = n(n+1) / 2$ by using principal of Mathematical induction
- E) Explain complement of graph & sub graph with example.
- F) Consider the set $A = \{a, b, 3, d\}$ compute $P(A)$ the Power set of A.
- G) Solve the recurrence relation $f_n = 5f_{n-1} - 6f_{n-2}$ where $f_0 = 1$ & $f_1 = 4$.
- H) In how many ways can a committee of 1 Men & 3 Women can be formed from a group of 3 Men & 4 Women?
- I) Define following terms with suitable example.
- i) Subset
 - ii) Equal set
 - iii) Singleton set / Unit set
 - iv) Universal set
 - v) Infinite set.

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 Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 26/04/2019	II	Introduction to Programming and Problem Solving using C	11.00 AM TO 1.30 PM	2103	75

Instructions: All questions are compulsory.

Section - I

05

Q.1 A) Fill in the blanks:

- 1) A file can be a text file or depending upon its contents
- 2) The Process of allocating memory during program execution is called
- 3) A..... is a group of data elements that may have different data types.
- 4) A..... is a variable that can hold the memory address of another variable
- 5) Each string is terminated with a character.....

05

Q.1 B) State True or False

- 1) Arrays allow random access.
- 2) Expression *ptr++ and ++*ptr are same
- 3) Structure and Union are same
- 4) In memory allocation functions pointers are not used
- 5) All files must be explicitly closed

05

Q.2 A) Choose correct answers from options (Single)

- 1) "&" is called as _____ in pointer concept.
 - a) Conditional Operator
 - b) Logical Operator
 - b) Address Operator
 - d) None of these
- 2) In C, if you pass an array as an argument to a function, what actually gets passed?
 - a) Value of elements in array
 - b) First element of the array
 - c) Base address of the array
 - d) Address of the last element of array
- 3) Presence of code like "s.t.b = 10" indicates _____
 - a) Syntax Error
 - b) Structure
 - c) double data type
 - d) An ordinary variable name
- 4) A line drawn in the background color is
 - a) Visible
 - b) Invisible
 - c) Visible or Invisible
 - d) None of theses

10

Q.2 B) Choose correct any two answers from options.

- 1) Using and function ,we can draw triangle
 - a) line()
 - b) rectangle()
 - c) polygon()
 - d) init()

- 2) A is a group of data elements that may have different data types are collected together in and
- a) pointer b) structure c) array d) Union
- 3) These are function related to the FILE Concept
- a) clrscr() b) printf() c) fopen() d) fclose()
- 4) Which functions are used to allocate memory
- a) free() b) int c) calloc() d) malloc()
- 5) which are following Syntax of code same
- a) arr[i] b) i[arr] c) arr[arr] d) i[i]

Q.3 Write a short note on following (any Five)

20

- 1) What is Array? Explain with example
- 2) What is Pointer? Explain with example
- 3) Give difference between Structure and Union
- 4) Write a C Program of using Recalloc() function
- 5) Explain fopen() function, and describe different types of mode used in function
- 6) Write important applications of computer graphics

Section – II

Instructions: 1) Answer any six questions from the following.

2) Each question carries five marks.

30

- Q.4 A) Explain multidimensional array and write a program to accept two dimensional array as matrix and print it on screen.
- Q.4 B) Explain array and string and write a c program to take your name as a input and write it on screen
- Q.4 C) Write a C program to write addition of two matrixs.
- Q.4 D) Write a C program to show working of calloc() and free() function.
- Q.4 E) Explain Raster method with diagram.
- Q.4 F) What is file? Explain different operation of file.
- Q.4 G) Explain gets() and puts() function.
- Q.4 H) Explain different devices used in Computer Graphics as Input and Output devices. .(Each two devices)
- Q.4 I) Explain graphics function with example as line() and rectangle()
- Q.4 J) What is Structure ? Explain it with example.

*****All The Best*****

C) reuse, reimburse and regain D) None of the above
appeal to the heart it draws upon the audiences feelings is called as -----

B) Match of the following.

(05)

Group A

- A) Biomagnificating
- B) Thermal Polluting
- C) Oil spills
- D) Biological oxygen demand
- E) Dissolved oxygen

Group B

- 1) BOD
- 2) Leakage from oil tank
- 3) DO
- 4) DDT
- 5) Hot industrial effluent

C) Select correct answer from given True and False.

(05)

- 1) Alkaline and Saline soil also known as saline alluvial soils.
- 2) Nuclear power is the cleanest source of energy.
- 3) Tropical grassland with scattered trees are also known as savannas.
- 4) Destructive power of tsunami result mainly from its momentum and long wavelength.
- 5) The atmosphere pressure is measured by manometer.

Q.2 Answer any two of the following.

(20)

- 1) Discuss the concept of green - IT? Approaches of green - IT such as virtualization and power management.
- 2) Define Soil Pollution? Discuss sources, effect and control measure of soil pollution?
- 3) What are natural resources? Give the types of natural resources. Discuss forest as a resources.

Q.3 Answer any four of the following.

(20)

- 1) What adverse effect can e-waste? How can the solid waste be managed.
- 2) Discuss the State Information Commission and their duties.
- 3) What are food chain and food web? Give example and discuss their significance.
- 4) Define Radioactive Pollution? Enumerate source of exposure to radiation?
- 5) Give disaster management of earthquake.

Q.4 Write Short notes any five.

(15)

- 1) Telecommunication
- 2) Benefit of Green IT
- 3) Soil erosion
- 4) Ecological pyramid
- 5) Landslides.
- 6) Human rights

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Day and Date	Part	Subject Name	Time	Code	Marks
Friday 25/04/2019	II	Discrete Structures & Graph Theory	11.00 AM TO 1.30 PM	2102	75

Instructions: All questions are compulsory.

Section - I

Q.1 A) Fill in the blanks:

05

- 1) A----- is an ordered collection of objects.
- 2) A set which contain only one element is called-----.
- 3) A Relation R on set A is called-----If $a \in A$ is related to a (a R a).
- 4) In a graph their is an edge from a node to itself, it is known as -----
- 5) ----- are the different ways in which a collection of items can be arrange.

Q.1 B) State True or False

05

- 1) Every element in the co domain is the image of at least one element in the domain.
- 2) Finite set is also called equal set.
- 3) Graph is a non-linear data structure.
- 4) Permutation are the different ways in which collection of item can be arrange.
- 5) $\emptyset \in (1,2,3)$.

Q.2 A) Choose correct answers from options (Single Ans.)

05

- 1) If $A = (1,3,9)$ then which of the following power set of the A ?
 - i) $\{ \{1,3\}, \{3,9\}, \{3,1\}, \{9,3\}, \{1,9\} \}$
 - ii) $\{ \{ \}, \{1\}, \{3\}, \{9\}, \{1,3\}, \{1,9\}, \{3,9\}, \{1,3,9\} \}$
 - iii) $\{ \{ \emptyset \}, \{1,4\}, \{1,9\}, \{3,7\}, \{A\} \}$
 - iv) $B = \{ \{1,3\}, \{3,9\} \}$
- 2) A----- is an ordered collection of objects.
 - a) Relation b) Function c) Set d) Proposition.
- 3) In how many ways can the letter of the word 'LEADER' be arrange?
 - a) 72 b) 144 c) 360 d) None of these.
- 4) Power set of empty set has exactly----- Subset.
 - a) One b) Two c) Zero d) Three.
- 5) A digraph in which each pair of vertices have either on edge or no edges is known as-----,
 - a) Directed graph b) Undirected graph
 - c) Asymmetric digraph d) simple graph

Q.2 B) Choose correct any two answers from options.

10

- 1) Pictorial representation of Sets represented by closed figures are called-----
a) Set b) Venn diagram c) Function d) Set diagrams.
- 2) A relation is an equivalence relation if it is Reflexive----- & -----
a) Transitive b) symmetric c) antisymmetric d) none of these
- 3) Which are the following is the well defined set.
a) All the colors in the rainbow. b) All the honest members in the family.
c) All the prime no's less than 100. d) None of these.
- 4) The set of all x values is called ----- and the set of all y values is called-----
a) Set b) Domain c) Relation d) Range.
- 5) Set can be classified as -----
a) Finite b) Graph c) Infinite d) Range

Q.3 Write a short note on following (any Five)

20

- 1) Inverse of Function
- 2) Directed & Undirected Graph.
- 3) Types of Sets.
- 4) Explain GCD & LCM with example.
- 5) Roster & Set Builder form.
- 6) Complement of graph.
- 7) Reflexive relation & Antisymmetric relation

Section – II

Instructions: 1) Answer any six questions from the following.

2) Each question carries five marks.

30

- Q. 4 A) Let $f(x) = x + 2$ & $g(x) = 2x + 1$ find $(f \circ g)(x)$ & $(g \circ f)(x)$.
- B) Consider $S = \{1, 2, 3, 4, 5\}$
 $R = \{ (1,1), (2,2), (3,3), (4,4), (5,5), (1,2), (2,1), (2,3), (3,2), (1,3), (3,1) \}$
Find $[1], [2], [3], [4], [5]$.
- C) How many different word can be formed with the letter of the word 'SUPER' such that the vowels always come together?
- D) Shows $1+2+ \dots + n = n(n+1) / 2$ by using principal of Mathematical induction
- E) Explain complement of graph & sub graph with example.
- F) Consider the set $A = \{a, b, c, d\}$ compute $P(A)$ the Power set of A.
- G) Solve the recurrence relation $f_n = 5f_{n-1} - 6f_{n-2}$ where $f_0 = 1$ & $f_1 = 4$.
- H) In how many ways can a committee of 1 Men & 3 Women can be formed from a group of 3 Men & 4 Women?
- I) Define following terms with suitable example.
- i) Subset
 - ii) Equal set
 - iii) Singleton set / Unit set
 - iv) Universal set
 - v) Infinite set.

**SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
 SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE**

Bachelor of Computer Application (BCA)
 Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 26/04/2019	II	Introduction to Programming and Problem Solving using C	11.00 AM TO 1.30 PM	2103	75

Instructions: All questions are compulsory.

Section - I

05

Q.1 A) Fill in the blanks:

- 1) A file can be a text file or depending upon its contents
- 2) The Process of allocating memory during program execution is called
- 3) A..... is a group of data elements that may have different data types.
- 4) A..... is a variable that can hold the memory address of another variable.
- 5) Each string is terminated with a character.....

05

Q.1 B) State True or False

- 1) Arrays allow random access.
- 2) Expression *ptr++ and ++*ptr are same
- 3) Structure and Union are same
- 4) In memory allocation functions pointers are not used
- 5) All files must be explicitly closed

05

Q.2 A) Choose correct answers from options (Single)

- 1) "&" is called as _____ in pointer concept.
 - a) Conditional Operator
 - b) Logical Operator
 - c) Address Operator
 - d) None of these
- 2) In C, if you pass an array as an argument to a function, what actually gets passed?
 - a) Value of elements in array
 - b) First element of the array
 - c) Base address of the array
 - d) Address of the last element of array
- 3) Presence of code like "s.t.b = 10" indicates _____
 - a) Syntax Error
 - b) Structure
 - c) double data type
 - d) An ordinary variable name
- 4) A line drawn in the background color is
 - a) Visible
 - b) Invisible
 - c) Visible or Invisible
 - d) None of theses

Q.2 B) Choose correct any two answers from options.

10

- 1) Using and function ,we can draw triangle
 - a) line()
 - b) rectangle()
 - c) polygon()
 - d) init()

- 2) A is a group of data elements that may have different data types are collected together in and
- a) pointer b) structure c) array d) Union
- 3) These are function related to the FILE Concept
- a) clrscr() b) printf() c) fopen() d) fclose()
- 4) Which functions are used to allocate memory
- a) free() b) int c) calloc() d) malloc()
- 5) which are following Syntax of code same
- a) arr[i] b) i[arr] c) arr[arr] d) i[i]

Q.3 Write a short note on following (any Five)

20

- 1) What is Array? Explain with example
- 2) What is Pointer? Explain with example
- 3) Give difference between Structure and Union
- 4) Write a C Program of using Realloc() function
- 5) Explain fopen() function, and describe different types of mode used in function
- 6) Write important applications of computer graphics

Section – II

Instructions: 1) Answer any six questions from the following.

2) Each question carries five marks.

30

- Q.4**
- A) Explain multidimensional array and write a program to accept two dimensional array as matrix and print it on screen.
 - B) Explain array and string and write a c program to take your name as a input and write it on screen
 - C) Write a C program to write addition of two matrixs.
 - D) Write a C program to show working of calloc() and free() function.
 - E) Explain Raster method with diagram.
 - F) What is file? Explain different operation of file.
 - G) Explain gets() and puts() function.
 - H) Explain different devices used in Computer Graphics as Input and Output devices. (Each two devices)
 - I) Explain graphics function with example as line() and rectangle()
 - J) What is Structure ? Explain it with example.

*****All The Best*****

**SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE**

Bachelor of Computer Application (BCA)
Part - II SEM-II, Examination: April.-2019.

Day and Date	Part	Subject Name	Time	Code	Marks
Wednesday 27/04/2019	II	Environment Science & RTI	11.00 AM TO 1.30 PM	2104	75

Instructions: All questions are compulsory.

Section - I

(10)

Q.1 (A) Select correct answer from given alternatives.

- 1) Acid rain is formed due to contribution from the following pair of gases.
A) Methane & Ozone B) Oxygen and Nitrous oxide
C) Methane and Sulphur dioxides D) Carbon dioxide and Sulphur dioxide
- 2) The concentration of which gas is highest in our environment.
A) O₂ B) H₂ C) N₂ D) CO₂
- 3) Which of the following are the example of municipal and Industrial discharged pipe.
A) Non point source of polluting B) Agricultural runoff
C) Point source of pollution D) Irrigation
- 4) Which of the following is not as consequence of global warming.
A) Rising sea level B) Increased agricultural productivity worldwide
C) Worsening health effect D) Increased storm frequency and intensity
- 5) Which of following is a logical sequence.
A) Producer – Decomposer – Consumer
B) Decomposed – Consumer – Producer
C) Producer – Consumer – Decomposer
D) Decomposer – Consumer – Producer
- 6) Green computing or Green IT is the study and practice of
I) Designing,
II) Manufacturing,
III) Disposing of computer associated subsystem using
A) Only I B) I and II C) All of the above D) None of these
- 7) Which method use the dispose e waste
A) Land filing B) Compositing C) Recycler D) Incineration
- 8) The law RTI is passed by parliament in which year.
A) 2001 B) 2005 C) 2013 D) 2016
- 9) Which of the following is the smallest soil particle.
A) Clay B) Fine sand C) Gravel D) Silt
- 10) The three R's of waste management hierarchy is / are
A) Reduce, reuse and recycle B) Reduce, redox and reoxidation

C) reuse, reimburse and regain D) None of the above
appeal to the heart it draws upon the audiences feelings is called as -----

B) Match of the following.

(05)

Group A

- A) Biomagnificating
- B) Thermal Polluting
- C) Oil spills
- D) Biological oxygen demand
- E) Dissolved oxygen

Group B

- 1) BOD
- 2) Leakage from oil tank
- 3) DO
- 4) DDT
- 5) Hot industrial effluent

C) Select correct answer from given True and False.

(05)

- 1) Alkaline and Saline soil also known as saline alluvial soils.
- 2) Nuclear power is the cleanest source of energy.
- 3) Tropical grassland with scattered trees are also known as savannas.
- 4) Destructive power of tsunami result mainly from its momentum and long wavelength.
- 5) The atmosphere pressure is measured by manometer.

Q.2 Answer any two of the following.

(20)

- 1) Discuss the concept of green - IT? Approaches of green - IT such as virtualization and power management.
- 2) Define Soil Pollution? Discuss sources, effect and control measure of soil pollution?
- 3) What are natural resources? Give the types of natural resources. Discuss forest as a resources.

Q.3 Answer any four of the following.

(20)

- 1) What adverse effect can e-waste? How can the solid waste be managed.
- 2) Discuss the State Information Commission and their duties.
- 3) What are food chain and food web? Give example and discuss their significance.
- 4) Define Radioactive Pollution? Enumerate source of exposure to radiation?
- 5) Give disaster management of earthquake.

Q.4 Write Short notes any five.

(15)

- 1) Telecommunication
- 2) Benefit of Green IT
- 3) Soil erosion
- 4) Ecological pyramid
- 5) Landslides.
- 6) Human rights

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
 SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE
 Bachelor of Computer Application (BCA)
 Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 25/04/2019	II	Discrete Structures & Graph Theory	11.00 AM TO 1.30 PM	2102	75

Instructions: All questions are compulsory.

Section - I

Q.1 A) Fill in the blanks:

05

- 1) A----- is an ordered collection of objects.
- 2) A set which contain only one element is called-----.
- 3) A Relation R on set A is called-----If $a \in A$ is related to a ($a R a$).
- 4) In a graph their is an edge from a node to itself, it is known as -----
- 5) ----- are the different ways in which a collection of items can be arrange.

Q.1 B) State True or False

05

- 1) Every element in the co domain is the image of at least one element in the domain.
- 2) Finite set is also called equal set. \checkmark
- 3) Graph is a non-linear data structure.
- 4) Permutation are the different ways in which collection of item can be arrange.
- 5) $0 \in (1,2,3)$.

Q.2 A) Choose correct answers from options (Single Ans.)

05

- 1) If $A = (1,3,9)$ then which of the following power set of the A ?
 - i) $\{ \{1,3\}, \{3,9\}, \{3,1\}, \{9,3\}, \{1,9\} \}$
 - ii) $\{ \{ \}, \{1\}, \{3\}, \{9\}, \{1,3\}, \{1,9\}, \{3,9\}, \{1,3,9\} \}$
 - iii) $\{ \{ \emptyset \}, \{1,4\}, \{1,9\}, \{3,7\}, \{A\} \}$
 - iv) $B = \{ \{1,3\}, \{3,9\} \}$
- 2) A----- is an ordered collection of objects.
 - a) Relation b) Function c) Set d) Proposition.
- 3) In how many ways can the letter of the word 'LEADER' be arrange?
 - a) 72 b) 144 c) 360 d) None of these.
- 4) Power set of empty set has exactly----- Subset.
 - a) One b) Two c) Zero d) Three.
- 5) A digraph in which each pair of vertices have either on edge or no edges is known as-----,
 - a) Directed graph b) Undirected graph
 - c) Asymmetric diagraph d) simple graph

Q.2 B) Choose correct any two answers from options.

10

- 1) Pictorial representation of Sets represented by closed figures are called-----
a) Set b) Venn diagram c) Function d) Set diagrams.
- 2) A relation is an equivalence relation if it is Reflexive----- & -----
a) Transitive b) symmetric c) antisymmetric d) none of these
- 3) Which of the following is the well defined set.
a) All the colors in the rainbow. b) All the honest members in the family.
c) All the prime no's less than 100. d) None of these.
- 4) The set of all x values is called ----- and the set of all y values is called-----
a) Set b) Domain c) Relation d) Range.
- 5) Set can be classified as -----
a) Finite b) Graph c) Infinite d) Range

Q.3 Write a short note on following (any Five)

20

- 1) Inverse of Function
- 2) Directed & Undirected Graph.
- 3) Types of Sets.
- 4) Explain GCD & LCM with example.
- 5) Roster & Set Builder form.
- 6) Complement of graph.
- 7) Reflexive relation & Antisymmetric relation

Section – II

Instructions: 1) Answer any six questions from the following.

2) Each question carries five marks.

30

- Q. 4 A) Let $f(x) = x + 2$ & $g(x) = 2x + 1$ find $(f \circ g)(x)$ & $(g \circ f)(x)$.
- B) Consider $S = \{1, 2, 3, 4, 5\}$
 $R = \{(1, 1), (2, 2), (3, 3), (4, 4), (5, 5),$
 $(1, 2), (2, 1), (2, 3), (3, 2), (1, 3), (3, 1)\}$
Find $[1], [2], [3], [4], [5]$.
- C) How many different words can be formed with the letters of the word 'SUPER' such that the vowels always come together?
- D) Show $1 + 2 + \dots + n = n(n+1) / 2$ by using the principle of Mathematical induction
- E) Explain complement of graph & sub graph with example.
- F) Consider the set $A = \{a, b, c, d\}$ compute $P(A)$ the Power set of A.
- G) Solve the recurrence relation $f_n = 5f_{n-1} - 6f_{n-2}$ where $f_0 = 1$ & $f_1 = 4$.
- H) In how many ways can a committee of 1 Men & 3 Women be formed from a group of 3 Men & 4 Women?
- I) Define following terms with suitable example.
- i) Subset
 - ii) Equal set
 - iii) Singleton set / Unit set
 - iv) Universal set
 - v) Infinite set.

**SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE**

Bachelor of Computer Application (BCA)
Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 26/04/2019	II	Introduction to Programming and Problem Solving using C	11.00 AM TO 1.30 PM	2103	75

Instructions: All questions are compulsory.

Section - I

05

Q.1 A) Fill in the blanks:

- 1) A file can be a text file or depending upon its contents
- 2) The Process of allocating memory during program execution is called
- 3) A..... is a group of data elements that may have different data types.
- 4) A..... is a variable that can hold the memory address of another variable
- 5) Each string is terminated with a character.....

05

Q.1 B) State True or False

- 1) Arrays allow random access.
- 2) Expression *ptr++ and ++*ptr are same
- 3) Structure and Union are same
- 4) In memory allocation functions pointers are not used
- 5) All files must be explicitly closed

05

Q.2 A) Choose correct answers from options (Single)

- 1) "&" is called as _____ in pointer concept.
 - a) Conditional Operator
 - b) Logical Operator
 - c) Address Operator
 - d) None of these
- 2) In C, if you pass an array as an argument to a function, what actually gets passed?
 - a) Value of elements in array
 - b) First element of the array
 - c) Base address of the array
 - d) Address of the last element of array
- 3) Presence of code like "s.t.b = 10" indicates _____
 - a) Syntax Error
 - b) Structure
 - c) double data type
 - d) An ordinary variable name
- 4) A line drawn in the background color is
 - a) Visible
 - b) Invisible
 - c) Visible or Invisible
 - d) None of theses

Q.2 B) Choose correct any two answers from options.

10

- 1) Using and function ,we can draw triangle
 - a) line()
 - b) rectangle()
 - c) polygon()
 - d) init()

- 2) A is a group of data elements that may have different data types are collected together in and
- a) pointer b) structure c) array d) Union
- 3) These are function related to the FILE Concept
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- 4) Which functions are used to allocate memory
- a) free() b) int c) calloc() d) malloc()
- 5) which are following Syntax of code same
- a) arr[i] b) i[arr] c) arr[arr] d) i[i]

20

Q.3 Write a short note on following (any Five)

- 1) What is Array? Explain with example
- 2) What is Pointer? Explain with example
- 3) Give difference between Structure and Union
- 4) Write a C Program of using Realloc() function
- 5) Explain fopen() function. and describe different types of mode used in function
- 6) Write important applications of computer graphics

Section – II

**Instructions: 1) Answer any six questions from the following.
2) Each question carries five marks.**

30

- Q.4 A) Explain multidimensional array and write a program to accept two dimensional array as matrix and print it on screen.
- B) Explain array and string and write a c program to take your name as a input and write it on screen
- C) Write a C program to write addition of two matrixs.
- D) Write a C program to show working of calloc() and free() function.
- E) Explain Raster method with diagram.
- F) What is file? Explain different operation of file.
- G) Explain gets() and puts() function.
- H) Explain different devices used in Computer Graphics as Input and Output devices. .(Each two devices)
- I) Explain graphics function with example as line() and rectangle()
- J) What is Structure ? Explain it with example.

*****All The Best*****

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
 SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE

Bachelor of Computer Application (BCA)
 Part - II SEM-II, Examination: April.-2019.

Day and Date	Part	Subject Name	Time	Code	Marks
Wednesday 27/04/2019	II	Environment Science & RTI	11.00 AM TO 1.30 PM	2104	75

Instructions: All questions are compulsory.

Section - I

(10)

Q.1 (A) Select correct answer from given alternatives.

- 1) Acid rain is formed due to contribution from the following pair of gases.
 A) Methane & Ozone
 B) Oxygen and Nitrous oxide
 C) Methane and Sulphur dioxides
 D) Carbon dioxide and Sulphur dioxide
- 2) The concentration of which gas is highest in our environment.
 A) O₂ B) H₂ C) N₂ D) CO₂
- 3) Which of the following are the example of municipal and Industrial discharged pipe.
 A) Non point source of polluting
 B) Agricultural runoff
 C) Point source of pollution
 D) Irrigation
- 4) Which of the following is not as consequence of global warming.
 A) Rising sea level
 B) Increased agricultural productivity worldwide
 C) Worsening health effect
 D) Increased storm frequency and intensity
- 5) Which of following is a logical sequence.
 A) Producer - Decomposer - Consumer
 B) Decomposed - Consumer - Producer
 C) Producer - Consumer - Decomposer
 D) Decomposer - Consumer - Producer
- 6) Green computing or Green IT is the study and practice of
 I) Designing,
 II) Manufacturing,
 III) Disposing of computer associated subsystem using
 A) Only I B) I and II C) All of the above D) None of these
- 7) Which method use the dispose e waste
 A) Land filing B) Compositing C) Recycler D) Incineration
- 8) The law RTI is passed by parliament in which year.
 A) 2001 B) 2005 C) 2013 D) 2016
- 9) Which of the following is the smallest soil particle.
 A) Clay B) Fine sand C) Gravel D) Silt
- 10) The three R's of waste management hierarchy is / are
 A) Reduce, reuse and recycle B) Reduce, redox and reoxidation

C) reuse, reimburse and regain D) None of the above
appeal to the heart it draws upon the audiences feelings is called as -----

B) Match of the following.

(05)

- | Group A | Group B |
|-----------------------------|----------------------------|
| A) Biomagnificating | 1) BOD |
| B) Thermal Polluting | 2) Leakage from oil tank |
| C) Oil spills | 3) DO |
| D) Biological oxygen demand | 4) DDT |
| E) Dissolved oxygen | 5) Hot industrial effluent |

C) Select correct answer from given True and False.

(05)

- 1) Alkaline and Saline soil also known as saline alluvial soils. **T**
- 2) Nuclear power is the cleanest source of energy. **F**
- 3) Tropical grassland with scattered trees are also known as savannas. **T**
- 4) Destructive power of tsunami result mainly from it's momentum and long wavelength. **T**
- 5) The atmosphere pressure is measured by manometer. **F**

Q.2 Answer any two of the following.

(20)

- 1) Discuss the concept of green - IT? Approaches of green - IT such as virtualization and power management.
- 2) Define Soil Pollution? Discuss sources, effect and control measure of soil pollution?
- 3) What are natural resources? Give the types of natural resources. Discuss forest as a resources.

Q.3 Answer any four of the following.

(20)

- 1) What adverse effect can e-waste? How can the solid waste be managed.
- 2) Discuss the State Information Commission and their duties.
- 3) What are food chain and food web? Give example and discuss their significance.
- 4) Define Radioactive Pollution? Enumerate source of exposure to radiation?
- 5) Give disaster management of earthquake.

Q.4 Write Short notes any five.

(15)

- 1) Telecommunication
- 2) Benefit of Green IT
- 3) Soil erosion
- 4) Ecological pyramid
- 5) Landslides.
- 6) Human rights

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
 SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE
 Bachelor of Computer Application (BCA)
 Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 24/04/2019	II	Introduction to Logic Circuits and Digital Design	11.00 AM TO 1.30 PM	2101	75

Instructions: All questions are compulsory.

Section - I

Q.1 A) Fill in the blanks:

05

- 1)circuits are memory less digital logic circuits whose output at any instant in time depends only on combination of its inputs.
- 2) Incombinational circuit there are only one inputs and n data output.
- 3) Boolean algebra was invented by in 1854
- 4) A NOT gate is also known as
- 5) Base of Octal number system is

Q.1 B) State True or False

05

- 1) Decimal value of hexadecimal E is 14
- 2) The product-of-sums (POS) is basically the ORing of ANDED terms
- 3) Binary number system has digits 2 and 1.
- 4) In Boolean algebra, $\bar{\bar{A}} = A$.
- 5) The binary value of 1010 is converted to the product term $\bar{A}B\bar{C}D$.

Q.2 A) Choose correct answers from options (Single)

05

- 1) In Boolean algebra, the OR operation is performed by which properties?
 - a) Associative properties
 - b) Commutative properties
 - c) Distributive properties
 - d) All of the Mentioned
- 2) According to Boolean law: $A + 1 = ?$
 - a) 1
 - b) A
 - c) 0'
 - d) A'
- 3) In NAND Gate Output is 0 if any input is
 - a) 0
 - b) 1
 - c) all input 1
 - d) none
- 4) Half adder circuits requires two
 - a) Inputs
 - b) Outputs
 - c) Digits
 - d) Both a and b
- 5) Full adder circuits requires two
 - a) Inputs
 - b) Outputs
 - c) Digits
 - d) Both a and b

Q.2 B) Choose correct any two answers from options.

10

- 1) Below are the combinational gates
a) Not b) AND c) NAND d) NOR
- 2) Below are basic gates
a) OR b) NOT c) EX-NOR d) EX-OR
- 3) Below are sequential gates
a) JKFF b) SRFF c) NAND d) NOR
- 4) Which is used to add two single bit binary number
a) NAND b) NOT c) Half Adder d) Full Adder
- 5) Which is used to subtract two single bit binary number
a) NAND b) NOT c) Half Subtractor d) Full Subtractor

Q.3 Write a short note on following (any Five)

20

- 1) What is Number System? Explain in brief.
- 2) Explain Decimal Number system
- 3) What is binary logic and explain its function or operation
- 4) Explain Basic Gates with truth table and circuit diagram
- 5) Convert Binary to Decimal
a) $(11010.11)_2$ b) $(1011101)_2$
- 6) What is sequential circuit explain with diagram

Section – II

Instructions: 1) Answer any six questions from the following.

2) Each question carries five marks.

30

- Q.4 A) Explain J K FF with block diagram, truth table and circuit diagram
B) Explain 4:1 Multiplexer
C) What is Universal Gate? List them.
D) Write Explain SOP (Sum of Product) form
E) Simplify below expression
a) $\overline{\overline{A+B}} + \overline{\overline{A+B}}$
b) $A'B'C' + A'B'C + A'C'$
F) Explain Minterm and Maxterm
G) Explain 2 variable K-Map.
H) Design 4:1 Mux by using 2:1 Mux.
I) Explain Demultiplexer with block diagram and its example
J) Explain Half Adder.

*****All The Best*****

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
 SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE
 Bachelor of Computer Application (BCA)
 Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 25/04/2019	II	Discrete Structures & Graph Theory	11.00 AM TO 1.30 PM	2102	75

Instructions: All questions are compulsory.

Section - I

Q.1 A) Fill in the blanks:

05

- 1) A----- is an ordered collection of objects. *set*
- 2) A set which contain only one element is called----- *singleton*
- 3) A Relation R on set A is called-----If $a \in A$ is related to a ($a R a$). *Reflexive*
- 4) In a graph their is an edge from a node to itself, it is known as *loop*
- 5) ----- are the different ways in which a collection of items can be arrange. *Permutation*

Q.1 B) State True or False

05

- 1) Every element in the co domain is the image of at least one element in the domain.
- 2) Finite set is also called equal set.
- 3) Graph is a non-linear data structure.
- 4) Permutation are the different ways in which collection of item can be arrange.
- 5) $\emptyset \in (1,2,3)$.

Q.2 A) Choose correct answers from options (Single Ans.)

05

- 1) If $A = (1,3,9)$ then which of the following power set of the A ?
 - i) $\{ \{1,3\}, \{3,9\}, \{3,1\}, \{9,3\}, \{1,9\} \}$
 - ii) $\{ \{ \}, \{1\}, \{3\}, \{9\}, \{1,3\}, \{1,9\}, \{3,9\}, \{1,3,9\} \}$
 - iii) $\{ \{ \emptyset \}, \{1,4\}, \{1,9\}, \{3,7\}, \{A\} \}$
 - iv) $B = \{ \{1,3\}, \{3,9\} \}$
- 2) A----- is an ordered collection of objects.
 - a) Relation b) Function c) Set d) Proposition.
- 3) In how many ways can the letter of the word 'LEADER' be arrange?
 - a) 72 b) 144 c) 360 d) None of these.
- 4) Power set of empty set has exactly----- Subset.
 - a) One b) Two c) Zero d) Three.
- 5) A digraph in which each pair of vertices have either on edge or no edges is known as-----
 - a) Directed graph b) Undirected graph
 - c) Asymmetric diagram d) simple graph

Q.2 B) Choose correct any two answers from options.

10

- 1) Pictorial representation of Sets represented by closed figures are called-----
 a) Set b) Venn diagram c) Function d) Set diagrams.
- 2) A relation is an equivalence relation if it is Reflexive----- & -----
 a) Transitive b) symmetric c) antisymmetric d) none of these
- 3) Which of the following is the well defined set.
 a) All the colors in the rainbow. b) All the honest members in the family.
 c) All the prime no's less than 100. d) None of these.
- 4) The set of all x values is called ----- and the set of all y values is called-----
a) Set b) Domain c) Relation d) Range.
- 5) Set can be classified as -----
 a) Finite b) Graph c) Infinite d) Range

Q.3 Write a short note on following (any Five)

20

- 1) Inverse of Function
- 2) Directed & Undirected Graph.
- 3) Types of Sets.
- 4) Explain GCD & LCM with example.
- 5) Roster & Set Builder form.
- 6) Complement of graph.
- 7) Reflexive relation & Antisymmetric relation

Section – II

Instructions: 1) Answer any six questions from the following.

2) Each question carries five marks.

30

- Q. 4 A) Let $f(x) = x + 2$ & $g(x) = 2x + 1$ find $(f \circ g)(x)$ & $(g \circ f)(x)$.
- B) Consider $S = \{1, 2, 3, 4, 5\}$
 $R = \{(1, 1), (2, 2), (3, 3), (4, 4), (5, 5),$
 $(1, 2), (2, 1), (2, 3), (3, 2), (1, 3), (3, 1)\}$
Find $[1], [2], [3], [4], [5]$.
- C) How many different words can be formed with the letters of the word 'SUPER' such that the vowels always come together?
- D) Shows $1 + 2 + \dots + n = \frac{n(n+1)}{2}$ by using principle of Mathematical induction
- E) Explain complement of graph & sub graph with example.
- F) Consider the set $A = \{a, b, c, d\}$ compute $P(A)$ the Power set of A .
- G) Solve the recurrence relation $f_n = 5f_{n-1} - 6f_{n-2}$ where $f_0 = 1$ & $f_1 = 4$.
- H) In how many ways can a committee of 1 Men & 3 Women can be formed from a group of 3 Men & 4 Women?
- I) Define following terms with suitable example.
- i) Subset
 - ii) Equal set
 - iii) Singleton set / Unit set
 - iv) Universal set
 - v) Infinite set.

**SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE**

Bachelor of Computer Application (BCA)
Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 26/04/2019	II	Introduction to Programming and Problem Solving using C	11.00 AM TO 1.30 PM	2103	75

Instructions: All questions are compulsory.

Section - I

Q.1 A) Fill in the blanks:

- 1) A file can be a text file or depending upon its contents 05
- 2) The Process of allocating memory during program execution is called
- 3) A..... is a group of data elements that may have different data types.
- 4) A..... ..is a variable that can hold the memory address of another variable
- 5) Each string is terminated with a character.....

Q.1 B) State True or False

- 1) Arrays allow random access. 05
- 2) Expression *ptr++ and ++*ptr are same
- 3) Structure and Union are same
- 4) In memory allocation functions pointers are not used
- 5) All files must be explicitly closed

Q.2 A) Choose correct answers from options (Single)

- 1) "&" is called as _____ in pointer concept. 05
 - a) Conditional Operator
 - b) Logical Operator
 - b) Address Operator
 - d) None of these
- 2) In C, if you pass an array as an argument to a function, what actually gets passed?
 - a) Value of elements in array
 - b) First element of the array
 - c) Base address of the array
 - d) Address of the last element of array
- 3) Presence of code like "s.t.b = 10" indicates _____
 - a) Syntax Error
 - b) Structure
 - c) double data type
 - d) An ordinary variable name
- 4) A line drawn in the background color is
 - a) Visible
 - b) Invisible
 - c) Visible or Invisible
 - d) None of theses

Q.2 B) Choose correct any two answers from options.

10

- 1) Using and function ,we can draw triangle
 - a) line()
 - b) rectangle()
 - c) polygon()
 - d) init()

- 2) A is a group of data elements that may have different data types are collected together in and
- a) pointer b) structure c) array d) Union
- 3) These are function related to the FILE Concept
- a) clrscr() b) printf() c) fopen() d) fclose()
- 4) Which functions are used to allocate memory
- a) free() b) int c) calloc() d) malloc()
- 5) which are following Syntax of code same
- a) arr[i] b) i[arr] c) arr[arr] d) i[i]

Q.3 Write a short note on following (any Five)

20

- 1) What is Array? Explain with example
- 2) What is Pointer? Explain with example
- 3) Give difference between Structure and Union
- 4) Write a C Program of using Realloc() function
- 5) Explain fopen() function. and describe different types of mode used in function
- 6) Write important applications of computer graphics

Section – II

Instructions: 1) Answer any six questions from the following.

2) Each question carries five marks.

30

- Q.4 A) Explain multidimensional array and write a program to accept two dimensional array as matrix and print it on screen.
- B) Explain array and string and write a c program to take your name as a input and write it on screen
- C) Write a C program to write addition of two matrixs.
- D) Write a C program to show working of calloc() and free() function.
- E) Explain Raster method with diagram.
- F) What is file? Explain different operation of file.
- G) Explain gets() and puts() function.
- H) Explain different devices used in Computer Graphics as Input and Output devices. .(Each two devices)
- I) Explain graphics function with example as line() and rectangle()
- J) What is Structure ? Explain it with example.

*****All The Best*****

Day and Date	Part	Subject Name	Time	Code	Marks
Wednesday 27/04/2019	II	Environment Science & RTI	11.00 AM TO 1.30 PM	2104	75

Instructions: All questions are compulsory.

Section - I

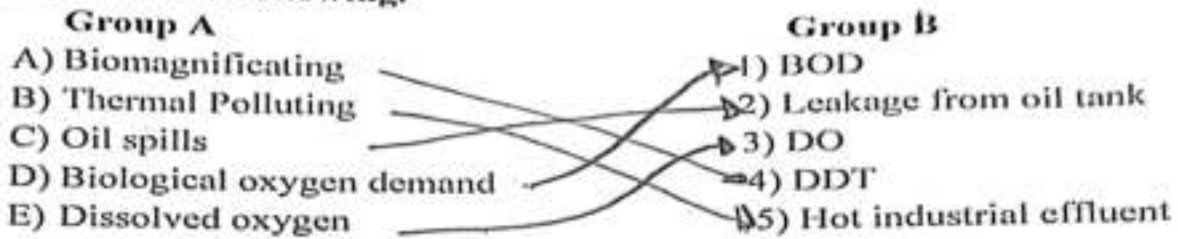
Q.1 (A) Select correct answer from given alternatives. (10)

- 1) Acid rain is formed due to contribution from the following pair of gases.
 - A) Methane & Ozone
 - B) Oxygen and Nitrous oxide
 - C) Methane and Sulphur dioxides
 - D) Carbon dioxide and Sulphur dioxide
- 2) The concentration of which gas is highest in our environment.
 - A) O₂
 - B) H
 - C) N
 - D) CO₂
- 3) Which of the following are the example of municipal and Industrial discharged pipe.
 - A) Non point source of polluting
 - B) Point source of pollution
 - C) Agricultural runoff
 - D) Irrigation
- 4) Which of the following is not as consequence of global warming.
 - A) Rising sea level
 - B) Increased agricultural productivity worldwide
 - C) Worsening health effect
 - D) Increased storm frequency and intensity
- 5) Which of following is a logical sequence.
 - A) Producer - Decomposer - Consumer
 - B) Decomposed - Consumer - Producer
 - C) Producer - Consumer - Decomposer
 - D) Decomposer - Consumer - Producer
- 6) Green computing or Green IT is the study and practice of
 - I) Designing,
 - II) Manufacturing,
 - III) Disposing of computer associated subsystem using
 - A) Only I
 - B) I and II
 - C) All of the above
 - D) None of these
- 7) Which method use the dispose e waste
 - A) Land filing
 - B) Compositing
 - C) Recycler
 - D) Incineration
- 8) The law RTI is passed by parliament in which year.
 - A) 2001
 - B) 2005
 - C) 2013
 - D) 2016
- 9) Which of the following is the smallest soil particle.
 - A) Clay
 - B) Fine sand
 - C) Gravel
 - D) Silt
- 10) The three R's of waste management hierarchy is / are
 - A) Reduce, reuse and recycle
 - B) Reduce, redox and reoxidation

C) reuse, reimburse and regain D) None of the above
appeal to the heart it draws upon the audiences feelings is called as -----

B) Match of the following.

(05)



C) Select correct answer from given True and False.

(05)

- 1) Alkaline and Saline soil also known as saline alluvial soils. *True* ✓
- 2) Nuclear power is the cleanest source of energy. *False* ✗
- 3) Tropical grassland with scattered trees are also known as savannas. ✓
- 4) Destructive power of tsunami result mainly from it's momentum and long wavelength. ✓
- 5) The atmosphere pressure is measured by manometer. ✗

Q.2 Answer any two of the following.

(20)

- 1) Discuss the concept of green - IT? Approaches of green - IT such as virtualization and power management.
- 2) Define Soil Pollution? Discuss sources, effect and control measure of soil pollution?
- 3) What are natural resources? Give the types of natural resources. Discuss forest as a resources.

Q.3 Answer any four of the following.

(20)

- 1) What adverse effect can e-waste? How can the solid waste be managed.
- 2) Discuss the State Information Commission and their duties.
- 3) What are food chain and food web? Give example and discuss their significance.
- 4) Define Radioactive Pollution? Enumerate source of exposure to radiation?
- 5) Give disaster management of earthquake.

Q.4 Write Short notes any five....

(15)

- 1) Telecommunication
- 2) Benefit of Green IT
- 3) Soil erosion
- 4) Ecological pyramid
- 5) Landslides.
- 6) Human rights

**SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE**

Bachelor of Computer Application (BCA)
Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 24/04/2019	II	Introduction to Logic Circuits and Digital Design	11.00 AM TO 1.30 PM	2101	75

Instructions: All questions are compulsory.

Section - I

05

Q.1 A) Fill in the blanks:

-circuits are memory less digital logic circuits whose output at any instant in time depends only on combination of its inputs.
- Incombinational circuit there are only one inputs and n data output.
- Boolean algebra was invented by in 1854
- A NOT gate is also known as
- Base of Octal number system is

Q.1 B) State True or False

05

- T) 1) Decimal value of hexadecimal E is 14
- F) 2) The product-of-sums (POS) is basically the ORing of ANDed terms
- F) 3) Binary number system has digits 2 and 1.
- T) 4) In Boolean algebra, $\bar{\bar{A}} = A$.
- F) 5) The binary value of 1010 is converted to the product term $\bar{A}B\bar{C}D$.

Q.2 A) Choose correct answers from options (Single)

05

- In Boolean algebra, the OR operation is performed by which properties?
 - Associative properties
 - Commutative properties
 - Distributive properties
 - All of the Mentioned
- According to Boolean law: $A + 1 = ?$
 - 1
 - A
 - 0'
 - A'
- In NAND Gate Output is 0 if any input is
 - 0
 - 1
 - all input 1
 - none
- Half adder circuits requires two
 - Inputs
 - Outputs
 - Digits
 - Both a and b
- Full adder circuits requires two
 - Inputs
 - Outputs
 - Digits
 - Both a and b

Q.2 B) Choose correct any two answers from options.

10

- 1) Below are the combinational gates
a) Not b) AND c) NAND d) NOR
- 2) Below are basic gates
a) OR b) NOT c) EX-NOR d) EX-OR
- 3) Below are sequential gates
a) JKFF b) SRFF c) NAND d) NOR
- 4) Which is used to add two single bit binary number
a) NAND b) NOT c) Half Adder d) Full Adder
- 5) Which is used to subtract two single bit binary number
a) NAND b) NOT c) Half Subtractor d) Full Subtractor

Q.3 Write a short note on following (any Five)

20

- 1) What is Number System? Explain in brief.
- 2) Explain Decimal Number system
- 3) What is binary logic and explain its function or operation
- 4) Explain Basic Gates with truth table and circuit diagram
- 5) Convert Binary to Decimal
a) $(11010.11)_2$ *26.75* b) $(1011101)_2$ *93*
- 6) What is sequential circuit explain with diagram

Section – II

Instructions: 1) Answer any six questions from the following.

2) Each question carries five marks.

30

Q.4 A) Explain J K FF with block diagram, truth table and circuit diagram

B) Explain 4:1 Multiplexer

C) What is Universal Gate? List them.

D) Write Explain SOP (Sum of Product) form

E) Simplify below expression

a) $\overline{(\overline{A+B})} + \overline{(\overline{A+B})}$. *$\overline{B+B} = \overline{B}$*

b) $A'B'C' + A'B'C + A'C'$ *$\overline{A} \cdot (\overline{B+C})$*

F) Explain Minterm and Maxterm

G) Explain 2 variable K-Map.

H) Design 4:1 Mux by using 2:1 Mux.

I) Explain Demultiplexer with block diagram and its example

J) Explain Half Adder.

*****All The Best*****

SHREEKUMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
 SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE.
 Bachelor of Computer Application (BCA)
 Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 25/04/2019	II	Discrete Structures & Graph Theory	11.00 AM TO 1.30 PM	2102	75

Instructions: All questions are compulsory.

Section - I

Q.1 A) Fill in the blanks:

05

- 1) A----- is an ordered collection of objects. *Set*
- 2) A set which contain only one element is called----- *Singleton*
- 3) A Relation R on set A is called----- *Reflexive*. If $a \in A$ is related to a ($a R a$).
- 4) In a graph their is an edge from a node to itself, it is known as ----- *Loop*
- 5) ----- are the different ways in which a collection of items can be arrange. *Permutation.*

Q.1 B) State True or False

05

- 1) Every element in the co domain is the image of at least one element in the domain. *T*
- 2) Finite set is also called equal set. *F*
- 3) Graph is a non-linear data structure. *T*
- 4) Permutation are the different ways in which collection of item can be arrange. *T*
- 5) $\emptyset \in (1,2,3)$. *F*

Q.2 A) Choose correct answers from options (Single Ans.)

05

1) If $A = (1,3,9)$ then which of the following power set of the A ?

- i) $\{ \{1,3\}, \{3,9\}, \{3,1\}, \{9,3\}, \{1,9\} \}$
- ii) $\{ \{ \}, \{1\}, \{3\}, \{9\}, \{1,3\}, \{1,9\}, \{3,9\}, \{1,3,9\} \}$
- iii) $\{ \{ \emptyset \}, \{1,4\}, \{1,9\}, \{3,7\}, \{A\} \}$
- iv) $B = \{ \{1,3\}, \{3,9\} \}$

2) A----- is an ordered collection of objects.

- a) Relation b) Function c) Set d) Proposition.

3) In how many ways can the letter of the word 'LEADER' be arrange?

- a) 72 b) 144 c) 360 d) None of these.

4) Power set of empty set has exactly----- Subset.

- a) One b) Two c) Zero d) Three.

5) A digraph in which each pair of vertices have either on edge or no edges is known as-----.

- a) Directed graph b) Undirected graph
 c) Asymmetric diagram d) simple graph

Q.2 B) Choose correct any two answers from options.

10

- 1) Pictorial representation of Sets represented by closed figures are called-----
 a) Set b) Venn diagram c) Function d) Set diagrams!
- 2) A relation is an equivalence relation if it is Reflexive----- & -----
 a) Transitive b) symmetric c) antisymmetric d) none of these
- 3) Which of the following is the well defined set.
 a) All the colors in the rainbow. b) All the honest members in the family.
 c) All the prime no's less than 100. d) None of these.
- 4) The set of all x values is called ----- and the set of all y values is called-----
a) Set b) Domain c) Relation d) Range.
- 5) Set can be classified as -----
 a) Finite b) Graph c) Infinite d) Range

Q.3 Write a short note on following (any Five)

20

- 1) Inverse of Function
- 2) Directed & Undirected Graph.
- 3) Types of Sets.
- 4) Explain GCD & LCM with example.
- 5) Roster & Set Builder form.
- 6) Complement of graph.
- 7) Reflexive relation & Antisymmetric relation

Section – II

Instructions: 1) Answer any six questions from the following.

2) Each question carries five marks.

30

- Q. 4 A) Let $f(x) = x + 2$ & $g(x) = 2x + 1$ find $(f \circ g)(x)$ & $(g \circ f)(x)$.
- B) Consider $S = \{1, 2, 3, 4, 5\}$
 $R = \{ (1, 1), (2, 2), (3, 3), (4, 4), (5, 5),$
 $(1, 2), (2, 1), (2, 3), (3, 2), (1, 3), (3, 1) \}$
Find $[1], [2], [3], [4], [5]$.
- C) How many different words can be formed with the letters of the word 'SUPER' such that the vowels always come together?
- D) Shows $1 + 2 + \dots + n = n(n+1) / 2$ by using principle of Mathematical induction
- E) Explain complement of graph & sub graph with example.
- F) Consider the set $A = \{a, b, c, d\}$ compute $P(A)$ the Power set of A.
- G) Solve the recurrence relation $f_n = 5f_{n-1} - 6f_{n-2}$ where $f_0 = 1$ & $f_1 = 4$.
- H) In how many ways can a committee of 1 Men & 3 Women be formed from a group of 3 Men & 4 Women?
- I) Define following terms with suitable example.
- i) Subset
 - ii) Equal set
 - iii) Singleton set / Unit set
 - iv) Universal set
 - v) Infinite set.

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE

Bachelor of Computer Application (BCA)
Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 26/04/2019	II	Introduction to Programming and Problem Solving using C	11.00 AM TO 1.30 PM	2103	75

Instructions: All questions are compulsory.

Section - I

Q.1 A) Fill in the blanks:

05

- 1) A file can be a text file or ... Binary depending upon its contents
- 2) The Process of allocating memory during program execution is called ... dynamic
- 3) A ... structure is a group of data elements that may have different data types.
- 4) A ... pointer is a variable that can hold the memory address of another variable
- 5) Each string is terminated with a character ... Null

Q.1 B) State True or False

05

- 1) Arrays allow random access.
- 2) Expression *ptr++ and ++*ptr are same
- 3) Structure and Union are same
- 4) In memory allocation functions pointers are not used
- 5) All files must be explicitly closed

Q.2 A) Choose correct answers from options (Single)

05

- 1) "&" is called as _____ in pointer concept.
a) Conditional Operator b) Logical Operator
 b) Address Operator d) None of these
- 2) In C, if you pass an array as an argument to a function, what actually gets passed?
a) Value of elements in array b) First element of the array
 c) Base address of the array d) Address of the last element of array
- 3) Presence of code like "s.t.b = 10" indicates _____
a) Syntax Error b) Structure
c) double data type d) An ordinary variable name
- 4) A line drawn in the background color is
a) Visible b) Invisible
c) Visible or Invisible d) None of these

Q.2 B) Choose correct any two answers from options.

10

- 1) Using and function, we can draw triangle
 a) line() b) rectangle() c) polygon() d) init()

- 2) A is a group of data elements that may have different data types are collected together in and
- a) pointer b) structure c) array d) Union
- 3) These are function related to the FILE Concept
- a) clrscr() b) printf() c) fopen() d) fclose()
- 4) Which functions are used to allocate memory
- a) free() b) int c) calloc() d) malloc()
- 5) which are following Syntax of code same
- a) arr[i] b) i[arr] c) arr[arr] d) i[i]

Q.3 Write a short note on following (any Five)

20

- 1) What is Array? Explain with example
- 2) What is Pointer? Explain with example
- 3) Give difference between Structure and Union
- 4) Write a C Program of using Realloc() function
- 5) Explain fopen() function. and describe different types of mode used in function
- 6) Write important applications of computer graphics

Section – II

- Instructions: 1) Answer any six questions from the following.**
2) Each question carries five marks.

30

- Q.4 A) Explain multidimensional array and write a program to accept two dimensional array as matrix and print it on screen.
- B) Explain array and string and write a c program to take your name as a input and write it on screen
- C) Write a C program to write addition of two matrixs.
- D) Write a C program to show working of calloc() and free() function.
- E) Explain Raster method with diagram.
- F) What is file? Explain different operation of file.
- G) Explain gets() and puts() function.
- H) Explain different devices used in Computer Graphics as Input and Output devices. .(Each two devices)
- I) Explain graphics function with example as line() and rectangle()
- J) What is Structure ? Explain it with example.

*****All The Best*****

Day and Date	Part	Subject Name	Time	Code	Marks
Wednesday 27/04/2019	II	Environment Science & RTI	11.00 AM TO 1.30 PM	2104	75

Instructions: All questions are compulsory.

Section – I

Q.1 (A) Select correct answer from given alternatives.

(10)

- 1) Acid rain is formed due to contribution from the following pair of gases.
 - A) Methane & Ozone
 - B) Oxygen and Nitrous oxide
 - C) Methane and Sulphur dioxides
 - D) Carbon dioxide and Sulphur dioxide
- 2) The concentration of which gas is highest in our environment.
 - A) O₂
 - B) H
 - C) N
 - D) CO₂
- 3) Which of the following are the example of municipal and Industrial discharged pipe.
 - A) Non point source of polluting
 - B) Agricultural runoff
 - C) Point source of pollution
 - D) Irrigation
- 4) Which of the following is not as consequence of global warming.
 - A) Rising sea level
 - B) Increased agricultural productivity worldwide
 - C) Worsening health effect
 - D) Increased storm frequency and intensity
- 5) Which of following is a logical sequence.
 - A) Producer – Decomposer – Consumer
 - B) Decomposed – Consumer – Producer
 - C) Producer – Consumer – Decomposer
 - D) Decomposer – Consumer – Producer
- 6) Green computing or Green IT is the study and practice of
 - I) Designing,
 - II) Manufacturing,
 - III) Disposing of computer associated subsystem using
 - A) Only I
 - B) I and II
 - C) All of the above
 - D) None of these
- 7) Which method use the dispose e waste
 - A) Land filing
 - B) Compositing
 - C) Recycler
 - D) Incineration
- 8) The law RTI is passed by parliament in which year.
 - A) 2001
 - B) 2005
 - C) 2013
 - D) 2016
- 9) Which of the following is the smallest soil particle.
 - A) Clay
 - B) Fine sand
 - C) Gravel
 - D) Silt
- 10) The three R's of waste management hierarchy is / are
 - A) Reduce, reuse and recycle
 - B) Reduce, redox and reoxidation

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE

Bachelor of Computer Application (BCA)
Part - II SEM-II, Examination: April.-2019.

Day and Date	Part	Subject Name	Time	Code	Marks
Wednesday 27/04/2019	II	Environment Science & RTI	11.00 AM TO 1.30 PM	2104	75

Instructions: All questions are compulsory.

Section – I

Q.1 (A) Select correct answer from given alternatives. (10)

- 1) Acid rain is formed due to contribution from the following pair of gases.
A) Methane & Ozone
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- 2) The concentration of which gas is highest in our environment.
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A) Non point source of polluting
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C) Producer – Consumer – Decomposer
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- 6) Green computing or Green IT is the study and practice of
I) Designing,
II) Manufacturing,
III) Disposing of computer associated subsystem using
A) Only I B) I and II C) All of the above D) None of these
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A) Reduce, reuse and recycle B) Reduce, redox and reoxidation

C) reuse, reimburse and regain D) None of the above
appeal to the heart it draws upon the audiences feelings is called as -----

B) Match of the following.

(05)

Group A

- A) Biomagnificating
- B) Thermal Polluting
- C) Oil spills
- D) Biological oxygen demand
- E) Dissolved oxygen

Group B

- 1) BOD
- 2) Leakage from oil tank
- 3) DO
- 4) DDT
- 5) Hot industrial effluent

C) Select correct answer from given True and False.

(05)

- 1) Alkaline and Saline soil also known as saline alluvial soils.
- 2) Nuclear power is the cleanest source of energy.
- 3) Tropical grassland with scattered trees are also known as savannas.
- 4) Destructive power of tsunami result mainly from its momentum and long wavelength.
- 5) The atmosphere pressure is measured by manometer.

Q.2 Answer any two of the following.

(20)

- 1) Discuss the concept of green - IT? Approaches of green - IT such as virtualization and power management.
- 2) Define Soil Pollution? Discuss sources, effect and control measure of soil pollution?
- 3) What are natural resources? Give the types of natural resources. Discuss forest as a resources.

Q.3 Answer any four of the following.

(20)

- 1) What adverse effect can e-waste? How can the solid waste be managed.
- 2) Discuss the State Information Commission and their duties.
- 3) What are food chain and food web? Give example and discuss their significance.
- 4) Define Radioactive Pollution? Enumerate source of exposure to radiation?
- 5) Give disaster management of earthquake.

Q.4 Write Short notes any five.

(15)

- 1) Telecommunication
- 2) Benefit of Green IT
- 3) Soil erosion
- 4) Ecological pyramid
- 5) Landslides.
- 6) Human rights

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SHAHID VIRPATNI LAXMI MAHAVIDYALAY, TITAVE
 Bachelor of Computer Application (BCA)
 Part - I SEM-II, Examination: Apr.-2018.

Day and Date	Part	Subject Name	Time	Code	Marks
Friday 25/04/2019	II	Discrete Structures & Graph Theory	11.00 AM TO 1.30 PM	2102	75

Instructions: All questions are compulsory.

Section - I

Q.1 A) Fill in the blanks:

05

- 1) A----- is an ordered collection of objects.
- 2) A set which contain only one element is called-----.
- 3) A Relation R on set A is called-----If a \in A is related to a (a R a).
- 4) In a graph their is an edge from a node to itself, it is known as -----
- 5) ----- are the different ways in which a collection of items can be arrange.

Q.1 B) State True or False

05

- 1) Every element in the co domain is the image of at least one element in the domain.
- 2) Finite set is also called equal set.
- 3) Graph is a non-linear data structure.
- 4) Permutation are the different ways in which collection of item can be arrange.
- 5) $\emptyset \in (1,2,3)$.

Q.2 A) Choose correct answers from options (Single Ans.)

05

- 1) If $A = (1,3,9)$ then which of the following power set of the A ?
 - i) $\{ \{1,3\}, \{3,9\}, \{3,1\}, \{9,3\}, \{1,9\} \}$
 - ii) $\{ \{ \}, \{1\}, \{3\}, \{9\}, \{1,3\}, \{1,9\}, \{3,9\}, \{1,3,9\} \}$
 - iii) $\{ \{ \emptyset \}, \{1,4\}, \{1,9\}, \{3,7\}, \{A\} \}$
 - iv) $B = \{ \{1,3\}, \{3,9\} \}$
- 2) A----- is an ordered collection of objects.
 - a) Relation b) Function c) Set d) Proposition.
- 3) In how many ways can the letter of the word 'LEADER' be arrange?
 - a) 72 b) 144 c) 360 d) None of these.
- 4) Power set of empty set has exactly----- Subset.
 - a) One b) Two c) Zero d) Three.
- 5) A digraph in which each pair of vertices have either on edge or no edges is known as-----
 - a) Directed graph b) Undirected graph
 - c) Asymmetric diagraph d) simple graph

Q.2 B) Choose correct any two answers from options.

- 1) Pictorial representation of Sets represented by closed figures are called-----
a) Set b) Venn diagram c) Function d) Set diagrams.
- 2) A relation is an equivalence relation if it is Reflexive----- & -----

a) Transitive b) symmetric c) antisymmetric d) none of these
- 3) Which are the following is the well defined set.
a) All the colors in the rainbow. b) All the honest members in the family.
c) All the prime no's less than 100. d) None of these.
- 4) The set of all x values is called ----- and the set of all y values is called-----
a) Set b) Domain c) Relation d) Range.
- 5) Set can be classified as -----
a) Finite b) Graph c) Infinite d) Range

Q.3 Write a short note on following (any Five)

- 1) Inverse of Function
- 2) Directed & Undirected Graph.
- 3) Types of Sets.
- 4) Explain GCD & LCM with example.
- 5) Roster & Set Builder form.
- 6) Complement of graph.
- 7) Reflexive relation & Antisymmetric relation

Section – II

Instructions: 1) Answer any six questions from the following.

2) Each question carries five marks.

30

- Q. 4 A) Let $f(x) = x + 2$ & $g(x) = 2x + 1$ find $(f \circ g)(x)$ & $(g \circ f)(x)$.
- B) Consider $S = \{1, 2, 3, 4, 5\}$
 $R = \{(1, 1), (2, 2), (3, 3), (4, 4), (5, 5),$
 $(1, 2), (2, 1), (2, 3), (3, 2), (1, 3), (3, 1)\}$
 Find $[1], [2], [3], [4], [5]$.
- C) How many different word can be formed with the letter of the word 'SUPER' such that the vowels always come together?
- D) Shows $1+2+ \dots +n = n(n+1)/2$ by using principal of Mathematical induction
- E) Explain complement of graph & sub graph with example.
- F) Consider the set $A = \{a, b, 3, d\}$ compute $P(A)$ the Power set of A.
- G) Solve the recurrence relation $f_n = 5f_{n-1} - 6f_{n-2}$ where $f_0 = 1$ & $f_1 = 4$.
- H) In how many ways can a committee of 1 Men & 3 Women can be formed from a group of 3 Men & 4 Women?
- I) Define following terms with suitable example.
- i) Subset
 - ii) Equal set
 - iii) Singleton set / Unit set
 - iv) Universal set