14324

B.C.A. III Semester Degree Examination, Nov./Dec. - 2018

COMPUTER APPLICATION

Visual Programming

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

Answer any **FIVE** full questions.

I.	1.	Define form.	**(2)**
	2.	Explain form events, methods, properties.	**(6)**
	3.	Explain features of VB.	**(8)**
			(2+6+8=16)
II.	1.	Define VB.	**(2)**
	2.	Explain TDE with a neat diagram.	**(8)**
	3.	Explain advantages of VB.	**(6)**
			(2+8+6=16)
III.	1.	Explain data types in VB.	**(6)**
	2.	Define variables rules for naming a variable.	**(6)**
	3.	Explain Mathematical function.	**(4)**
			(6+6+4=16)
IV.	1.	Explain Branching and Looping statements with syntax and examples.	**(8)**
	2.	Explain Input Box with syntax and examples.	**(8)**
			(8+8=16)

[P.T.O.

V. 1. Write a VB program to design a calculator using control array. **(8)**

2. Define array with syntax and examples. **(4)**

3. Explain 3 ways to create a control array at Design time. **(4)**

(8+4+4=16)

VI. 1. Define MDI (Multiple Document Interface). **(2)**

2. Write a VB program to design MDI form to child and design the menu. **(8)**

3. Explain Menu Editor in VB. **(6)**

(2+8+6=16)

VII. 1. Define file. **(2)**

2. Explain types of files in VB. **(6)**

3. Explain functions in VB. **(8)**

(2+6+8=16)

VIII. 1. Explain the characteristics of RDO (Remote Data Object). **(8)**

2. Explain common Dialog Box with example. **(6)**

3. Define Rich Text Box. **(2)**

(8+6+2=16)

14329

B.C.A. III Semester Degree Examination, Nov./Dec. - 2018

COMPUTER APPLICATION

Data Communication

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

Answer any **FIVE** full questions out of **EIGHT** questions.

1.	a)	What is MAC?	**(2)**
	b)	Write short note on Nyquist signaling rate.	**(6)**
	c)	Explain ISO-OSI reference model.	**(8)**
			(2+6+8=16)
2.	a)	Which are the key factors in communication network evolution?	**(2)**
	b)	Explain Line coding in brief.	**(6)**
	c)	Explain Go-back-N protocol with diagram.	**(8)**
			(2+6+8=16)
3.	a)	What is a modem?	**(2)**
	b)	Write short note on CSMA.	**(6)**
	c)	Explain Cellular Telephone Network.	**(8)**
			(2+6+8=16)
4.	a)	What is a Bridge?	**(2)**
	b)	Write short note on TDM, T1 carrier system.	**(6)**
	c)	Explain 802.3 LAN standards with IEEE 802.3 Mac frame.	**(8)**
			(2+6+8=16)
5.	a)	What is ethernet?	**(2)**
	b)	Explain CDMA in brief.	**(6)**
	c)	Give difference between Datagram and virtual circuit packet switching.	**(8)**
			(2+6+8=16)

[P.T.O.

6.	a)	What is Flooding?	**(2)**
	b)	Write short note on optical fiber cables.	**(6)**
	c)	Explain HDLC frame formal.	**(8)**
			(2+6+8=16)
7.	a)	Draw diagram of coaxial cable.	**(2)**
	b)	Write short note on Deflection Routing.	**(6)**
	c)	Explain Reservation systems in medium access control.	**(8)**
			(2+6+8=16)
8.	a)	What is concentration?	**(2)**
	b)	Write a note on any 2 IP utilities.	**(6)**
	c)	Drawing diagram explain STS-1 SONET frame structure.	**(8)**
			(2+6+8=16)

14322

B.C.A III Semester Degree Examination, Nov./Dec. - 2018

COMPUTER APPLICATION

OOPs Using C++

Paper - 302

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

Answer any **FIVE** full questions.

I. 1. Define object Mention any four features of OOPs. **(4)**

2. Explain procedure oriented programming and object oriented programming method. **(6)**

3. What are manipulators? Explain setw and setprecision. **(6)**

(4+6+6=16)

II. 1. Write a short note on Variable declaration and scope resolution operator. **(4)**

2. Write a short note on destructors. **(4)**

3. What is function overloading? Write a C++ program to implement area of geometrical figures using function overloading. **(8)**

(4+4+8=16)

III. 1. Explain cin and cout. **(2)**

2. Write a short note on inline function. **(6)**

3. Explain default arguments with simple program. **(4)**

4. Write a short note on type conversion. **(4)**

(2+6+4+4=16)

IV. 1. What are constructors? Explain the different types of constructors write a C++ program to illustrate the different types of constructors. **(10)**

[P.T.O.

2. Explain the visibility of the class members for the access members for access specifiers: (6)

   i) Private

   ii) Public

   iii) Protected.

(10+6=16)

V. 1. Explain with example, how a member function can be defined with a class and outside a class. (8)

2. What is operator overloading? Write a C++ program to demonstrate the overloading of unary (-) operator. (8)

(8+8=16)

VI. 1. What is inheritance? Write a C++ program to illustrate multiple inheritance. (8)

2. What is exception handling? Write a C++ program to illustrate exception handling with the help of keywords: try, throws and catch. (8)

(8+8=16)

VII. 1. Write a short note on Virtual function. (4)

2. Explain class template with suitable example. (6)

3. What is friend function? Mention any four characteristics. (6)

(4+6+6=16)

VIII. 1. Explain Detecting End - of- file. (2)

2. Write a short note on Error handling functions. (4)

3. Explain various modes of opening file. (4)

4. Explain stream class hierarchy. (6)

(2+4+4+6=16)

14323

B.C.A. III Semester Degree Examination, Nov./Dec. - 2018
DISCRETE MATHEMATICAL STRUCTURES
Computer Applications

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

Answer any **FIVE** full questions, Each carries equal marks.

1. a) Define set and equal set with example. **(4+6+6=16)**

b) Explain the method of describing a set with example.

c) If a finite set A has n elements, Prove that the power set of A has 2^n elements.

2. a) If U={1, 2, 3, 4, 5, 6, 7, 8, 9} A={1, 2, 4, 6, 8} and B={2, 4, 5, 9} find the following:

i) $\overline{A}$

ii) $\overline{B}$

iii) $\overline{A} \cup \overline{B}$

iv) $\overline{A \cup B}$. **(4+10+2=16)**

b) In a survey of 60 people it was found that 25 read weekly magazines 26 read fortnightly magazines, 26 read monthly magazines, 9 read both weekly and monthly magazines 11 read both weekly and fortnightly magazines, 8 read both fortnightly and monthly magazines and 3 read all three magazines. Find:

i) The number of people who read at least one of the three magazines and

ii) The number of people who read exactly one magazine.

c) Define Mutually Independent event.

3. a) Explain Negation and Conjunction. **(6+2+2+6=16)**

b) Construct the truth table for the following compound proposition.

$q \leftrightarrow (\neg p \vee \neg q)$

c) Define Tautology and Contradiction.

d) Prove the following logical equivalence

$p \rightarrow (q \rightarrow r) \Leftrightarrow p \rightarrow (\neg q \vee r)$.

4. a) Prove the following logical equivalences **(6+6+4=16)**

i) $[(p \vee q) \wedge (p \vee \neg q)] \vee q \Leftrightarrow p \vee q$

ii) $(p \rightarrow q) \wedge [\neg q \wedge (r \vee \neg q)] \Leftrightarrow \neg (q \vee p)$.

[P.T.O.

b) State the converse, inverse and contrapositive for the following conditionals.
   i) If a quadrilateral is a parallelogram, then its diagonals bisect each other.
   ii) If a real number x^2 is greater than zero, then x is not equal to zero.
   iii) If a triangle is not isosceles, then it is not equilateral.

c) Test the validity of the following argument. I will become famous or I will not become a musician.

$$\frac{I \text{ will become a musician}}{\therefore I \text{ will become famous}}.$$

5. a) State Well Ordering Principle. **(2+7+7=16)**

b) Prove that, for each $n \in z^+$,

$$1^2+2^2+3^2+.....+n^2=\frac{1}{6}n(n+1)(2n+1).$$

c) Prove by Mathematical Induction that, for any positive integer n, the number $11^{n+2}+12^{2n+1}$ is divisible by 133.

6. a) What is Binary relation or a relation? **(2+4+10=16)**

b) Let a function $f:R \to R$ be defined by $f(x)=x^2+1$. Determine the images of the following subsets of R:
   i) $A_1=\{2, 3\}$
   ii) $A_2=\{-2, 0, 3\}$
   iii) $A_3=(0, 1)$
   iv) $A_4=[-6, 3]$

c) Explain the types of functions.

7. a) State Stirling Numbers of the second kind. **(2+4+8+2=16)**

b) Let A= {1, 2, 3, 4, 5, 6, 7} and B= {w, x, y, z}. Find the number of onto function.

c) State and prove generalized Pigeonhole Principle.

d) Define Invertible function.

8. a) Define Directed graph. **(2+7+7=16)**

b) Let A= {1, 2, 3, 4, 6} and R be a relation on A defined by aRb if and only if a is a multiple of b. Represent the relation R as a matrix and draw its digraph.

c) Let R= {(1, 1), (1, 2), (2, 3), (3, 3), (3, 4)} be a relation on A= {1, 2, 3, 4}. Draw the digraph of R. Obtain R^2 and draw the digraph of R^2.

14321

B.C.A. III Semester Degree Examination, Nov./Dec. - 2018

OPERATING SYSTEM

Paper - BCA-301

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

1. Answer any **FIVE** full questions.
2. Each question carries **equal** marks.

I. 1. Define Operating System.

2. Explain the following:

   a) Batch systems.

   b) Time-sharing systems.

3. Explain system services. **(2+8+6=16)**

II. 1. What is process? Explain PCB in detail.

2. Explain system programs.

3. Discuss co-operating process. **(6+6+4=16)**

III. 1. Consider the following set of process with length of CPU burst time in msec.

Process	Burst time
P1	8
P2	4
P3	2
P4	1
P5	5

[P.T.O.

a) Draw gantt chart using SJF scheduling algorithm and RR scheduling algorithm (quantum = 3hr)

b) Calculate average turnaround time and average waiting time for the process.

2. Explain critical-section problem.

3. Define deadlock. Explain resource allocation graph. **(6+4+6=16)**

IV. 1. Explain classic problem of synchronization.

2. Explain Banker's algorithm. **(8+8=16)**

V. 1. Explain with the neat diagram the steps to handle page fault.

2. Explain different fragmentations.

3. Explain:

a) First fit.

b) Best fit.

c) Worst fit. **(6+4+6=16)**

VI. 1. Define paging.

2. What are files? Explain file operations.

3. Explain LRU page replacement algorithm with an example.

4. Explain any 2 directory structure. **(2+4+6+4=16)**

VII. 1. What is segmentation? Explain with its hardware.

2. Explain indexed allocation method.

3. Explain system threats. **(6+5+5=16)**

VIII. 1. Explain SSTF disk scheduling algorithms.

2. What is an access matrix?

3. Define context switch and dispater.

4. Discuss free space management. **(4+2+4+6=16)**

31371

(NEP)

B.C.A. III Semester Degree Examination, February/March- 2023

COMPUTER APPLICATIONS

Operating System Concepts

Paper : 21BCADSC7

Time : 3 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. Part A : **ALL** questions are compulsory.
2. Part B : Answer **any FIVE** questions.

PART - A **(5×2=10)**

I. 1. Define operating system.

2. Define process and PCB.

3. What are threads and multithreading?

4. What is race condition?

5. Define logical and physical address space.

PART - B **(5×10=50)**

I. 1. Explain about the functions of operating system. **(5)**

2. Explain any two types of operating system. **(5)**

II. 1. Explain briefly about the system calls. **(5)**

2. Explain with a neat diagram about the process states. **(5)**

III. 1. Explain the operations on processes. **(5)**

2. Explain the implementation methods of IPC. **(5)**

IV. 1. Explain different types of threads. **(5)**

2. Explain dining - philosopher's problem. **(5)**

[P.T.O.

V. 1. Explain Peterson's solution. **(5)**

2. Consider the following set of process with the length of CPU burst time in milliseconds. **(5)**

Process	Burst time
P1	6
P2	8
P3	7
P4	3

a) Draw the gantt chart using SJFS algorithm (shortest job first scheduling).

b) Calculate the average waiting time.

VI. 1. What are deadlocks? What are the necessary conditions to occur deadlock? **(5)**

2. Define paging. Explain the basic method for implementing paging. **(5)**

VII. 1. Define demand paging. Explain LRU page replacement algorithm with an example. **(5)**

2. Explain how to detect the deadlocks with single and multiple instances of a resource type. **(5)**

31373

(NEP)

B.C.A. III Semester Degree Examination, February/March- 2023

COMPUTER APPLICATIONS

Python Programming

Time : 3 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. Part : A - **All** questions are compulsory.
2. Part : B - Answer any **five** questions.

PART - A

1. Answer the following questions. **(5×2=10)**

a. Write any 4 applications of Python.

b. What will be the output for the following.
for i in [0,1,2,3,4] : print (i).

c. Write the syntax to define a function.

d. Define Tuple in python.

e. Which library/module is used for data visualization?

PART - B

Answer any **five** questions. **(5×10=50)**

2. a. Explain any 5 features of python. **(6)**

b. What is identifier? Write the rules for it. **(4)**

3. a. Write a python program to find largest number among three numbers. **(6)**

b. What are the types of errors through which statements exceptions can be handled in python? **(4)**

4. a. What is a function? Define and call a function. **(5)**

b. List the string methods with descriptions. **(5)**

5. a. Explain how to create lists in python. **(5)**

b. Briefly explain python set operations. **(5)**

6. a. Explain Built - in functions on Tuples. **(6)**

b. Briefly explain file types. **(4)**

7. a. Briefly explain the dictionaries in Python. **(5)**

b. Write a python program to print a number is positive/negative using if-else. **(5)**

8. Write a short note on the following :

i. Numpy

ii. Pandas.

iii. Matplotlib. **(10)**

31371

(NEP)

B.C.A. III Semester Degree Examination, February/March- 2023

COMPUTER APPLICATIONS

Operating System Concepts

Paper : 21BCADSC7

Time : 3 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. Part A : **ALL** questions are compulsory.
2. Part B : Answer **any FIVE** questions.

PART - A **(5×2=10)**

I. 1. Define operating system.
2. Define process and PCB.
3. What are threads and multithreading?
4. What is race condition?
5. Define logical and physical address space.

PART - B **(5×10=50)**

I. 1. Explain about the functions of operating system. **(5)**
2. Explain any two types of operating system. **(5)**

II. 1. Explain briefly about the system calls. **(5)**
2. Explain with a neat diagram about the process states. **(5)**

III. 1. Explain the operations on processes. **(5)**
2. Explain the implementation methods of IPC. **(5)**

IV. 1. Explain different types of threads. **(5)**
2. Explain dining - philosopher's problem. **(5)**

[P.T.O.

V. 1. Explain Peterson's solution. **(5)**

2. Consider the following set of process with the length of CPU burst time in milliseconds. **(5)**

Process	**Burst time**
P1	6
P2	8
P3	7
P4	3

a) Draw the gantt chart using SJFS algorithm (shortest job first scheduling).

b) Calculate the average waiting time.

VI. 1. What are deadlocks? What are the necessary conditions to occur deadlock? **(5)**

2. Define paging. Explain the basic method for implementing paging. **(5)**

VII. 1. Define demand paging. Explain LRU page replacement algorithm with an example. **(5)**

2. Explain how to detect the deadlocks with single and multiple instances of a resource type. **(5)**

31374

(NEP)

B.C.A. III Semester Degree Examination, February/March- 2023

COMPUTER APPLICATIONS

Open Source Tools (Skill Enhancement Course)

Time : 1½ Hours **Maximum Marks : 30**

Instructions to Candidates :

1. ***Part - A : All questions are Compulsory.***
2. ***Part - B : Answer any FIVE questions.***

PART - A

Answer **ALL** questions. **(5×1=5)**

1. What is Open source Tool?
2. Define Patents Copyright.
3. Define GNU.
4. What is ubuntu?
5. Mention the 2 main licenses of open source software.

PART - B

Answer **any FIVE** questions. **(5×5=25)**

1. Difference between Open Source Software and FOSS software.
2. Explain GPL, LGPL.
3. Explain need of Open Source Software.
4. Explain Berkeley software distribution.
5. Explain Apache.
6. Explain Wikipedia.
7. Explain applications of Open Source Software.
8. Explain principles of Open Source Software.

31372

(NEP)

B.C.A. III Semester Degree Examination, February/March- 2023

COMPUTER APPLICATIONS

C# and DOT NET Framework

Time : 3 Hours **Maximum Marks : 60**

PART - A

Answer the following questions. **(5×2=10)**

1. a) Write any five tags of HTML.
b) Define class and object.
c) Write the syntax of 'For Next' loop in VB.NET.
d) How do you add combo - box to your application?
e) Expand ADO.

PART - B

Answer **any FIVE** of the following. **(5×10=50)**

2. a) Write short note on Client side technology. **(5)**
b) Differentiate between Client - Side and Server - side scripts. **(5)**

3. a) Explain various operators in C#. **(5)**
b) Write a note on interface in C#. **(5)**

4. a) Explain the looping statements of VB.NET. **(5)**
b) Develop an application for deploying various built in functions in VB.NET. **(5)**

5. a) Explain group box and picture box in detail. **(5)**
b) Explain the concept of building windows applications. **(5)**

6. a) Explain Datareader and Dataadapter. **(5)**
b) Write short note on web applications with web forms. **(5)**

7. a) Write note on web technology. **(5)**
b) Explain exception handling in C# with the help of programming example. **(5)**

8. a) Write note on Docking and Undocking. **(5)**
b) Explain VB.NET IDE with neat diagram. **(5)**

24323(New)

B.C.A. III Semester Degree Examination, March/April - 2021

SYSTEMS SOFTWARE

(New)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

1) Part A - Answer all **Ten** questions.

2) Part B - Answer any **Five** questions.

PART - A

(10×2=20)

1. What is SIC? Give a brief description.
2. Specify width of address bus of SIC standard version and the maximum memory we can connect to it.
3. Describe the machine instruction format of SIC standard version.
4. Distinguish between machine-op and pseudo-op.
5. Give the full form of CISC and RISC.
6. Write the names of four data structures in an assembler along with their full forms.
7. What is a Bootstrap Loader?
8. What is a macro? State two advantages of macros.
9. What is a compiler? State its three basic functions.
10. Write the intermediate form using quadruples for the source statement SUM:=SUM+VALUE;

PART - B

1. a) Describe the function of all the nine registers in SIC/XE computer. **(6)**
   b) Explain Format 3 machine instruction of SIC/XE. **(6)**

2. a) Explain the working of an assembler with the help of a simple diagram. **(4)**
   b) Write four basic functions of an assembler. **(4)**
   c) Explain any Four assembler directives for SIC. **(4)**

3. a) Give a brief description of three assembler data structures. **(6)**
   b) Describe the format of an object program of SIC specifying the three types of records produced by the assembler. **(6)**

[P.T.O.

4. a) Write the algorithm for an Absolute Loader. **(6)**
   b) Explain the use of Linkage editor with a suitable diagram. **(6)**

5. a) Explain the technique of Dynamic Linking. **(6)**
   b) Explain the working of MS-DOS Linker. **(6)**

6. a) Describe the different data structures in macro processor. **(4)**
   b) Explain Keyword parameters. **(4)**
   c) Explain conditional macro expansion. **(4)**

7. a) Discuss advantages and disadvantages of a one-pass compiler. **(6)**
   b) What is a P-code compiler? Explain how it makes a programming language platform - independent with a suitable diagram. **(6)**

24326

B.C.A. III Semester Degree Examination, March/April - 2021
PERSONALITY DEVELOPMENT AND COMMUNICATION SKILLS
Paper - 3.2

Time : 3 Hours **Maximum Marks : 80**

PART - I

All questions are **compulsory**. **(10×2=20)**

1. What is personality?
2. Define leadership.
3. What is transactional analysis?
4. Define communication.
5. Mention the barriers of communication.
6. Define conflict.
7. What is stress?
8. What is team building.
9. Define performance appraisal.
10. Define motivation.

[P.T.O.

PART - II

Answer any **Five** questions. **(5×12=60)**

11. Discuss the role of leadership in administration.

12. Explain the importance of listening.

13. Explain how to overcome barriers of communication.

14. Explain the ways of minimising management stress.

15. Describe how to build a good team in organization.

16. Explain the methods of performance appraisal.

17. Explain the types of motives.

24324(New)

B.C.A. III Semester Degree Examination, March/April - 2021

OOPS USING C++

(New)

Time : 3 Hours **Maximum Marks : 60**

Instructions to Candidates:

1) Part A - Answer all **Ten** questions.

2) Part B - Answer any **Five** questions.

PART - A

(10×1=10)

1. Define Oop.
2. Define inline function.
3. What is namespace.
4. Give 2 examples of Oop languages.
5. What is this pointer.
6. Give a syntax for pure virtual function.
7. What is friend function.
8. How do you achieve run time polymorphism.
9. What is vector?
10. What is late binding?

PART - B

1. a) Explain Oop concepts. **(5)**

   b) Explain function template with proper syntax. **(5)**

2. a) How do you call base class constructor from derived class by giving proper syntax. **(4)**

   b) Explain basic structure of C++ program. **(6)**

[P.T.O.

3. a) Write a short note on containers. (4)
   b) Write a C++ program to demonstrate array of objects. (6)

4. a) Write a short note on default arguments. (5)
   b) Explain different forms of inheritance. (5)

5. a) Discuss memory management operators by giving an Ex. (5)
   b) Write the five differences between C & C++. (5)

6. a) Define constructor. Explain types of constructors. (5)
   b) Write a short note on static members. (5)

7. a) Write a C++ program to illustrate pointers to object. (5)
   b) Write a short note on exception handling mechanism. (5)

90013(New)

B.A./B.Com./B.Sc./B.C.A./B.B.A./B.F.T./B.H.Sc. III Semester

Degree Examination, March/April - 2021

COMPUTER SCIENCE

Computer Applications

(New)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

Students can answer in English or Kannada.

ವಿದ್ಯಾರ್ಥಿಗಳು ಇಂಗ್ಲಿಷ ಅಥವಾ ಕನ್ನಡದಲ್ಲಿ ಉತ್ತರಿಸಬಹುದು.

PART - A

ಭಾಗ – ಎ

I. Answer any **Ten** of the following. **(10×2=20)**

ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಹತ್ತು** ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

1. What is Computer?
   ಗಣಕಯಂತ್ರ ಎಂದರೇನು?

2. Define Binary number system.
   ಬೈನರಿ ಸಂಖ್ಯೆ ವ್ಯವಸ್ಥೆ ಎಂದರೇನು?

3. Give different types of Secondary Storage devices.
   ವಿವಿಧ ರೀತಿಯ ದ್ವಿತೀಯ ಸಂಗ್ರಹ ಸಾಧನಗಳು ನೀಡಿ.

4. Expand ASCII and EBCDIC.
   ASCII ಮತ್ತು EBCDIC ಪದಗಳನ್ನು ವಿಸ್ತರಿಸಿ.

5. List the different output devices.
   ವಿಭಿನ್ನ ಔಟ್ಪುಟ್ ಸಾಧನಗಳನ್ನು ಪಟ್ಟಿಮಾಡಿ.

6. Mention different types of Software.
   ವಿವಿಧ ರೀತಿಯ ಸಾಫ್ಟ್‌ವೇರ್ ಅನ್ನು ಉಲ್ಲೇಖಿಸಿ.

7. Define Recycle Bin?
   ಮರುಬಳಕೆ ಬಿನ್ ಎಂದರೇನು?

[P.T.O.

8. Define Network. List different types of Networks.
ನೆಟ್‌ವರ್ಕ್ ಎಂದರೇನು? ವಿವಿಧ ರೀತಿಯ ನೆಟ್‌ವರ್ಕ್‌ಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ.

9. Define E-Mail.
E-Mail ಎಂದರೇನು?

10. Define & Expand HTML.
HTML ಎಂದರೇನು ಮತ್ತು HTML ಪದವನ್ನು ವಿಸ್ತರಿಸಿ.

11. Expand FTP.
FTP ಪದವನ್ನು ವಿಸ್ತರಿಸಿ.

12. What is Computer Virus?
ಕಂಪ್ಯೂಟರ್ ವೈರಸ್ ಎಂದರೇನು?

PART - B
ಭಾಗ – ಬಿ

II. Answer any **Six** of the following. **(6×5=30)**
ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಆರು** ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

13. Explain the Characteristics of Computer.
ಗಣಕಯಂತ್ರದ ಗುಣಲಕ್ಷಣಗಳನ್ನು ವಿವರಿಸಿ.

14. Convert Decimal number $32_{(10)}$ into Binary number & Binary number $11111_{(2)}$ into decimal number.
$32_{(10)}$ ದಶಮಾಂಶ ಸಂಖ್ಯೆಯನ್ನು ಬೈನರಿ ಆಗಿ ಪರಿವರ್ತಿಸಿ ಮತ್ತು $11111_{(2)}$ ಬೈನರಿ ಸಂಖ್ಯೆಯನ್ನು ದಶಮಾಂಶ ಸಂಖ್ಯೆಯಲ್ಲಿ ಪರಿವರ್ತಿಸಿ.

15. Explain different types of Memories in brief.
ವಿವಿಧ ರೀತಿಯ ಮೆಮೊರಿಸ್‌ಗಳನ್ನು ವಿವರಿಸಿ.

16. Explain in brief any two input devices.
ಯಾವುದೇ ಎರಡು ಇನ್ಪುಟ್ ಸಾಧನಗಳನ್ನು ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿ.

17. Explain Find & Replace text.
Find & Replace text ವಿವರಿಸಿ.

18. Explain LAN & MAN in brief.
LAN ಮತ್ತು MAN ಅನ್ನು ವಿವರಿಸಿ.

19. Define Internet. Explain in brief.
ಅಂತರ್ಜಾಲ ಎಂದರೇನು? ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿ.

20. Explain different types of viruses.
ವಿವಿಧ ರೀತಿಯ ವೈರಸ್ಸ್‌ಗಳನ್ನು ವಿವರಿಸಿ.

PART - C
ಭಾಗ – ಸಿ

III. Answer any **Three** of the following. **(3×10=30)**
ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಮೂರು** ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

21. Explain Computer Generations in detail.
ಗಣಕಯಂತ್ರದ ಪೀಳಿಗೆಗಳನ್ನು ವಿವರವಾಗಿ ವಿವರಿಸಿ.

22. Explain in detail the Application Software & System Software.
ಅನ್ವಯ ತಂತ್ರಾಂಶ ಮತ್ತು ಸಿಸ್ಟಮ್ ತಂತ್ರಾಂಶವನ್ನು ವಿವರವಾಗಿ ವಿವರಿಸಿ.

23. Explain in detail the star & Ring topology with neat diagram.
ಸ್ಟಾರ ಮತ್ತು ರಿಂಗ್ ಟೋಪೋಲಜಿಯನ್ನು ರೇಖಾಚಿತ್ರಗಳೊಂದಿಗೆ ವಿವರವಾಗಿ ವಿವರಿಸಿ.

24. Explain different Transmission Channels (Media's) in network.
ವಿವಿಧ ರೀತಿಯ Transmission Channels (Media's)ಗಳನ್ನು ವಿವರಿಸಿ.

25. What are different Web Browsers? Explain in detail.
ವಿವಿಧ ರೀತಿಯ ವೆಬ್ ಬ್ರಾಸರ್‌ಗಳು ಯಾವವು? ವಿವರವಾಗಿ ವಿವರಿಸಿ.

24325(New)

B.C.A. III Semester Degree Examination, March/April - 2021

COMPUTER APPLICATION

Unix & Shell Programming

Paper: 18BCA 3.5

(New)

Time : 3 Hours **Maximum Marks : 60**

PART - A

I. Answer **All** the questions: **(10×1=10)**

1. Write the syntax of chmod command.
2. _____ command is called as versatile command.
3. What is the significance of 'tty' command in UNIX.
4. Mention any 2 directory oriented commands.
5. Mention 3 standard files.
6. Define process.
7. What is the significance of exit status of a command?
8. Define pipe and pipeline.
9. Which command is used for repeating the last command in vi-editor?
10. Mention any 2 shell special parameters of command line arguments.

PART - B

II. Answer any **5** of the following. **(5×10=50)**

1. a) Explain with neat diagram of Kernel-Shell relationship.
   b) Explain date, who, passwd command with its syntax, options and examples.

2. a) Explain in detail ls,-l option with an example.
   b) Explain the commands chown, cmp and wc with an examples.

3. a) Explain ps command with its options.
   b) Explain the commands sort and grep with syntax, options and examples.

[P.T.O.

4. a) Explain communication in UNIX (any 5).
   b) Define Vi-editor. Explain the operators used in input mode with examples.

5. a) Write a shell script to perform basic arithmetic operators using case statement.
   b) Explain escaping and quoting with an examples.

6. a) Write a short note on expr with computation of numeric and string handling.
   b) Explain the job control of different process.

7. a) Explain with shell script of break and continue statements.
   b) Explain the commands grep, uniq and cp with an examples.

0121075

24323(New)

BCA III Semester Degree Examination, Oct/Nov. - 2019

COMPUTER APPLICATION

System Software

(New)

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

1) Part-I consists of **10** compulsory questions of **2** marks each.

2) Part-II consists of **7** questions out of which **5** questions have to be answered.

PART-I

1. What is assembler? **(10×2=20)**

2. Mention Addressing mode of SIC/XE.

3. Define loader & Inker?

4. What is mean Processor?

5. Mention types of loaders.

6. Define compiler.

7. What is P-code compiler?

8. What is Interpreters?

9. Define Lexical Analysis.

10. Define Grammar.

PART-II

Answer any **FIVE** full questions:

I. 1) Explain SIC machine architecture. Give one example. **(6)**

2) Explain BASIC assembler function. **(6)**

(6+6=12M)

II. 1) Write Algorithm for pass 1 of Assembler **(6)**

2) Explain machine Independent Assembler features. **(6)**

(6+6=12M)

[P.T.O.

III.	1)	Explain Design of Absolute loader.	**(6)**
	2)	Explain Linkage Editor.	**(6)**
			(6+6=12M)
IV.	1)	Explain Macro processor Algorithm & Data Structures.	**(6)**
	2)	Explain keyword Macro parameter.	**(6)**
			(6+6=12M)
V.	1)	Explain Basic compiler function.	**(6)**
	2)	Explain Lexical Analysis.	**(6)**
			(6+6=12M)
VI.	1)	Explain compiler design option.	**(6)**
	2)	Explain Yacc Compiler-Compiler.	**(6)**
			(6+6=12M)
VII.	1)	Explain Machine Dependent compiler feature.	**(6)**
	2)	Explain Ms-Dos linker.	**(6)**
			(6+6=12M)

0041392

90013(New)

B.A./B.Com./B.Sc./B.C.A./B.B.A./B.F.T./B.H.Sc. III Semester

Degree Examination, Oct./Nov. - 2019

COMPUTER APPLICATIONS

Computer Applications

(New)

Time : 3 Hours | Maximum Marks : 80

Instructions to Candidates:

Students can answer in English or Kannada.

ವಿದ್ಯಾರ್ಥಿಗಳು ಇಂಗ್ಲಿಷ್ ಅಥವಾ ಕನ್ನಡದಲ್ಲಿ ಉತ್ತರಿಸಬಹುದು.

PART-A

ಭಾಗ–ಎ

I. Answer any **Ten** of the following. (10×2=20)

ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಹತ್ತು** ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

1) What is computer?
ಗಣಕಯಂತ್ರ ಎಂದರೇನು?

2) Expand RAM & ROM.
RAM ಮತ್ತು ROM ಪದಗಳನ್ನು ವಿಸ್ತರಿಸಿ.

3) Convert $(35)_{(10)}$ into Binary Number.
$(35)_{(10)}$ ಇದನ್ನು ಬೈನರಿ ನಂಬರಿಗೆ ಬದಲಾಯಿಸಿ.

4) Expand BCD, ASCII.
BCD, ಮತ್ತು ASCII ಪದಗಳನ್ನು ವಿಸ್ತರಿಸಿ.

5) List the different Input devices.
ವಿಭಿನ್ನ ಇನ್ಪುಟ್ ಸಾಧನಗಳನ್ನು ಪಟ್ಟಿಮಾಡಿ.

6) Define Software? Mention different types of Software.
ಸಾಫ್ಟ್‌ವೇರ್ ಎಂದರೇನು? ವಿವಿಧ ರೀತಿಯ ಸಾಫ್ಟ್‌ವೇರ್ ಅನ್ನು ಉಲ್ಲೇಖಿಸಿ.

7) Define Network? List different types of Networks.
ನೆಟ್‌ವರ್ಕ ಎಂದರೇನು? ವಿವಿಧ ರೀತಿಯ ನೆಟ್‌ವರ್ಕಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ.

[P.T.O.

8) Define Topology?
ಟೋಪೋಲಜಿ ಎಂದರೇನು?

9) Expand HTML.
HTML ಪದವನ್ನು ವಿಸ್ತರಿಸಿ.

10) Define Internet?
ಅಂತರ್ಜಾಲ ಎಂದರೇನು?

11) List different types of Search engines.
ವಿವಿಧ ರೀತಿಯ ಸರ್ಚ ಇಂಜಿನ್ಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ.

12) Expand WWW.
WWW ಅನ್ನು ವಿಸ್ತರಿಸಿ.

PART-B
ಭಾಗ–ಬಿ

II. Answer to any **Six** of the following. **(6×5=30)**
ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಆರು** ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.

1) Explain the characteristics of computer.
ಗಣಕಯಂತ್ರದ ಗುಣಲಕ್ಷಣಗಳನ್ನು ವಿವರಿಸಿ.

2) Convert Decimal number $25_{(10)}$ into Binary number and Binary number $111111_{(2)}$ into Decimal number.
$25_{(10)}$ ದಶಮಾಂಶ ಸಂಖ್ಯೆಯನ್ನು ಬೈನರಿ ಆಗಿ ಪರಿವರ್ತಿಸಿ ಮತ್ತು $111111_{(2)}$ ಬೈನರಿ ಸಂಖ್ಯೆಯನ್ನು ದಶಮಾಂಶ ಸಂಖ್ಯೆಯಲ್ಲಿ ಪರಿವರ್ತಿಸಿ.

3) Give the difference between RAM and ROM.
RAM ಮತ್ತು ROM ನಡುವಿನ ವ್ಯತ್ಯಾಸವನ್ನು ನೀಡಿ.

4) Explain in brief any two input devices.
ಯಾವುದೇ ಎರಡು ಇನ್ಪುಟ್ ಸಾಧನಗಳನ್ನು ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿ.

5) Explain opening and saving a file in Ms-Word.
Ms-Word ನಲ್ಲಿ ಫೈಲ್ ತೆರೆಯುವ ಮತ್ತು ಉಳಿಸುವಿಕೆಯನ್ನು ವಿವರಿಸಿ.

6) Explain LAN and WAN in brief.
LAN ಮತ್ತು WAN ಅನ್ನು ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿ.

7) Define E-Mail and explain in brief.
E-Mail ಎಂದರೇನು? ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿ.

8) List different web Browsers? Explain any one.
ವಿಭಿನ್ನ ವೆಬ್ ಬ್ರಾಸರ್‌ಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ. ಯಾವುದನ್ನಾದರೂ ಒಂದನ್ನು ವಿವರಿಸಿ.

PART-C
ಭಾಗ–ಸಿ

III. Answer any **Three** of the following. **(3×10=30)**
ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಮೂರು** ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

1) Explain computer Generations in detail.
ಗಣಕಯಂತ್ರದ ಪೀಳಿಗೆಗಳನ್ನು ವಿವರವಾಗಿ ವಿವರಿಸಿ.

2) Explain different type of software's in detail.
ವಿಭಿನ್ನ ರೀತಿಯ ಸಾಫ್ಟ್‌ವೇರ್‌ಗಳನ್ನು ವಿವರವಾಗಿ ವಿವರಿಸಿ.

3) Explain different Network Topologies with a neat diagram.
ಅಚ್ಚುಕಟ್ಟಾಗಿ ರೇಖಾಚಿತ್ರಗಳೊಂದಿಗೆ ವಿಭಿನ್ನ ನೆಟ್‌ವರ್ಕ ಟೋಪೋಲಜೀಸ್‌ಅನ್ನು ವಿವರಿಸಿ.

4) Give Advantages and Disadvantages of E-Mail.
E-Mail ನ ಅನುಕೂಲಗಳು ಮತ್ತು ಅನಾನುಕೂಲಗಳನ್ನು ನೀಡಿ.

5) What is Internet ? Explain History and working of Internet.
ಅಂತರ್ಜಾಲ ಎಂದರೇನು? ಅಂತರ್ಜಾಲದ ಇತಿಹಾಸ ಮತ್ತು ಕಾರ್ಯವನ್ನು ವಿವರಿಸಿ.

24322(New)

B.C.A. III Semester Degree Examination, Oct./Nov. - 2019

DATA COMMUNICATION AND COMPUTER NETWORKING

(NEW)

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

Part - A compulsory (20 marks) Part - B Answer any 5 Questions out of 7 Questions (60 marks)

Part - A

1. Which are the 5 components of data communication? (2)
2. What is a Network? (2)
3. What is a Composite signal? (2)
4. What is bit rate and bit length? (2)
5. What is PSK? (2)
6. Which are the 3 ways by which analog to analog conversion is accomplished? (2)
7. What is datagram? (2)
8. What is ADSL? (2)
9. What is Block coding? (2)
10. What is cyclic codes? (2)

Part - B

1. a) Write short note on co-axial cables. (4)
   b) Explain different layers of TCP/IP suite in brief. (8)
2. a) Write short note on FDM (6)
   b) Write about Telephone Network. (6)
3. a) Explain virtual circuit packet Network. (6)
   b) Write short note on polynomial codes. (6)
4. a) Explain Direct sequence spread spectrum. (6)
   b) Explain different causes of transmission impairments. (6)

[P.T.O.

5. a) Explain Block coding scheme (6)

   b) Explain phase modulation. (6)

6. a) Explain Binary phase shift keying. (8)

   b) The power at home has a frequency of 60Hz. What is the period of sine wave. (2)

   c) If the frequency of red light is 4×10^4. Calculate its wave length. (2)

7. a) Explain pulse code Modulation. (8)

   b) Explain how different type of data is represented. (4)

24325(New)

B.C.A III Semester Degree Examination, Oct./Nov. - 2019

UNIX AND SHELL PROGRAMMING

PAPER - 18 BCA 3.5

(New)

Time : 3 Hours Maximum Marks : 60

Instructions to Candidates:

PART - I consists of **10** compulsory questions of **1** mark Each. **PART - II** Any **5** questions. Each carries **10** marks.

PART - I

Answer **all** the questions. **(10×1=10)**

1. What is zz command of *vi* editor.
2. Which command is used to do both calculations & to write small numerical programs.
3. A file name that is preceeded with dot characters are _____ files.
4. What is the significance of 'Uname' command in Unix.
5. Which command is used to make shell interactive.
6. Compare '$*' and '$@' commands of command line arguments.
7. Write the syntax & all the options of 'wc' command with an example.
8. Brief about 'nohup' command.
9. _____ command is used to assign priority for a process.
10. What are Daemons process.

PART - II

Answer **any 5** of the following. Each carries **equal** marks. **(5×10=50)**

1. a) Explain the features of Unix. **(5)**

   b) Explain '*ls*' command with -x, -a, -d, -*l* options with example. **(5)**

[P.T.O.

2. a) Explain terminal and trash files. **(4)**

   b) Explain 'chmod' command that should include both relative and absolute permission assignment. **(6)**

3. a) Explain 'case' statement with proper syntax. **(5)**

   b) Explain the activities performed by the shell in its interpritive cycle. **(5)**

4. a) Explain 'while' loop with an example. **(4)**

   b) Explain 'cp', 'mv', 'rm' commands with proper options, syntax & examples. **(6)**

5. a) Write a syntax of 'for' loop command & write a shell script to display odd numbers between 1 to 10. **(5)**

   b) Explain Shell's system variables. **(5)**

6. a) Explain any 5 basic UNIX commands. **(5)**

   b) Define process & its types. **(5)**

7. a) Explain 'pipe' & 'pipeline' connecting commands. **(4)**

   b) Write a short note on positional parameters (command line arguments). **(6)**

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90013(New)

B.A./B.Com./B.Sc./B.C.A./B.B.A./B.F.T./B.H.Sc. III Semester

Degree Examination, Oct./Nov. - 2019

COMPUTER APPLICATIONS

Computer Applications

(New)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

Students can answer in English or Kannada.

ವಿದ್ಯಾರ್ಥಿಗಳು ಇಂಗ್ಲಿಷ್ ಅಥವಾ ಕನ್ನಡದಲ್ಲಿ ಉತ್ತರಿಸಬಹುದು.

PART-A

ಭಾಗ–ಎ

I. Answer any **Ten** of the following. **(10×2=20)**

ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಹತ್ತು** ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

1) What is computer?
ಗಣಕಯಂತ್ರ ಎಂದರೇನು?

2) Expand RAM & ROM.
RAM ಮತ್ತು ROM ಪದಗಳನ್ನು ವಿಸ್ತರಿಸಿ.

3) Convert $(35)_{(10)}$ into Binary Number.
$(35)_{(10)}$ ಇದನ್ನು ಬೈನರಿ ನಂಬರಿಗೆ ಬದಲಾಯಿಸಿ.

4) Expand BCD, ASCII.
BCD, ಮತ್ತು ASCII ಪದಗಳನ್ನು ವಿಸ್ತರಿಸಿ.

5) List the different Input devices.
ವಿಭಿನ್ನ ಇನ್ಪುಟ್ ಸಾಧನಗಳನ್ನು ಪಟ್ಟಿಮಾಡಿ.

6) Define Software? Mention different types of Software.
ಸಾಫ್ಟ್‌ವೇರ್ ಎಂದರೇನು? ವಿವಿಧ ರೀತಿಯ ಸಾಫ್ಟ್‌ವೇರ್ ಅನ್ನು ಉಲ್ಲೇಖಿಸಿ.

7) Define Network? List different types of Networks.
ನೆಟ್‌ವರ್ಕ ಎಂದರೇನು? ವಿವಿಧ ರೀತಿಯ ನೆಟ್‌ವರ್ಕಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ.

[P.T.O.

8) Define Topology?
ಟೋಪೋಲಜಿ ಎಂದರೇನು?

9) Expand HTML.
HTML ಪದವನ್ನು ವಿಸ್ತರಿಸಿ.

10) Define Internet?
ಅಂತರ್ಜಾಲ ಎಂದರೇನು?

11) List different types of Search engines.
ವಿವಿಧ ರೀತಿಯ ಸರ್ಚ ಇಂಜಿನ್ಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ.

12) Expand WWW.
WWW ಅನ್ನು ವಿಸ್ತರಿಸಿ.

PART-B
ಭಾಗ–ಬಿ

II. Answer to any **Six** of the following. **(6×5=30)**
ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಆರು** ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.

1) Explain the characteristics of computer.
ಗಣಕಯಂತ್ರದ ಗುಣಲಕ್ಷಣಗಳನ್ನು ವಿವರಿಸಿ.

2) Convert Decimal number $25_{(10)}$ into Binary number and Binary number $111111_{(2)}$ into Decimal number.
$25_{(10)}$ ದಶಮಾಂಶ ಸಂಖ್ಯೆಯನ್ನು ಬೈನರಿ ಆಗಿ ಪರಿವರ್ತಿಸಿ ಮತ್ತು $111111_{(2)}$ ಬೈನರಿ ಸಂಖ್ಯೆಯನ್ನು ದಶಮಾಂಶ ಸಂಖ್ಯೆಯಲ್ಲಿ ಪರಿವರ್ತಿಸಿ.

3) Give the difference between RAM and ROM.
RAM ಮತ್ತು ROM ನಡುವಿನ ವ್ಯತ್ಯಾಸವನ್ನು ನೀಡಿ.

4) Explain in brief any two input devices.
ಯಾವುದೇ ಎರಡು ಇನ್ಪುಟ್ ಸಾಧನಗಳನ್ನು ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿ.

5) Explain opening and saving a file in Ms-Word.
Ms-Word ನಲ್ಲಿ ಫೈಲ್ ತೆರೆಯುವ ಮತ್ತು ಉಳಿಸುವಿಕೆಯನ್ನು ವಿವರಿಸಿ.

6) Explain LAN and WAN in brief.
LAN ಮತ್ತು WAN ಅನ್ನು ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿ.

7) Define E-Mail and explain in brief.
E-Mail ಎಂದರೇನು? ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿ.

8) List different web Browsers? Explain any one.
ವಿಭಿನ್ನ ವೆಬ್ ಬ್ರಾಸರ್‌ಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ. ಯಾವುದನ್ನಾದರೂ ಒಂದನ್ನು ವಿವರಿಸಿ.

PART-C
ಭಾಗ–ಸಿ

III. Answer any **Three** of the following. **(3×10=30)**
ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಮೂರು** ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

1) Explain computer Generations in detail.
ಗಣಕಯಂತ್ರದ ಪೀಳಿಗೆಗಳನ್ನು ವಿವರವಾಗಿ ವಿವರಿಸಿ.

2) Explain different type of software's in detail.
ವಿಭಿನ್ನ ರೀತಿಯ ಸಾಫ್ಟ್‌ವೇರ್‌ಗಳನ್ನು ವಿವರವಾಗಿ ವಿವರಿಸಿ.

3) Explain different Network Topologies with a neat diagram.
ಅಚ್ಚುಕಟ್ಟಾಗಿ ರೇಖಾಚಿತ್ರಗಳೊಂದಿಗೆ ವಿಭಿನ್ನ ನೆಟ್‌ವರ್ಕ ಟೋಪೋಲಜೀಸ್‌ಅನ್ನು ವಿವರಿಸಿ.

4) Give Advantages and Disadvantages of E-Mail.
E-Mail ನ ಅನುಕೂಲಗಳು ಮತ್ತು ಅನಾನುಕೂಲಗಳನ್ನು ನೀಡಿ.

5) What is Internet ? Explain History and working of Internet.
ಅಂತರ್ಜಾಲ ಎಂದರೇನು? ಅಂತರ್ಜಾಲದ ಇತಿಹಾಸ ಮತ್ತು ಕಾರ್ಯವನ್ನು ವಿವರಿಸಿ.

24321(New)

B.C.A. III Semester Degree Examination, March/April - 2021

COMPUTER APPLICATIONS

Discrete Mathematical Structures

(New)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

Scientific Calculator not allowed.

PART - A

Answer the following questions. Each carries **2** marks. **(10×2=20)**

1. Define conjunction and Disjunction.
2. What is Duality law? Write down the duals of the following proposition $(p \wedge \neg q) \vee (r \wedge T_o)$.
3. Define universal set with example.
4. Draw the venn diagrams for the following.
   i) $A \subset B$
   ii) $A \cap B$.
5. Define Matrix Representation of Relations.
6. Let A = {*a, b, d*} and R be a relation on A given by R={(*a,b*),(*a, d*),(*b, d*)(*d, a*),(*d,d*)} construct the digraph of R.
7. What is the difference between Directed Graph (or digraph) and Non-Directed Graph.
8. Define Graph and Multigraph.
9. State Multinomial theorem.
10. Solve the recurrence relation $a_n = 7a_{n-1}$ where $n \geq 1$ given that $a_2 = 98$.

PART - B

Answer any **Five** full questions carries **12** marks. **(5×12=60)**

1. a) Prove that for any propositions. p,q,r the compound proposition $[(p \rightarrow r) \wedge (q \wedge r)] \rightarrow [(p \vee r) \rightarrow r]$ is a tautology.

   b) Explain conditional and Biconditional connectives.

[P.T.O.

2. a) State and Prove Generalization of the Pigeonhole Principle.

b) Let A={1,2,3,4} B={2,5} C={3,4,7} Write down the following.

i) $A \times B$
ii) $B \times A$
iii) $A \cup (B \times C)$
iv) $(A \cup B) \times C$
v) $(A \times C) \cup (B \times C)$

3. a) Let $A=\{1,2,3\}$ *and* $R=\{(x,y) \mid x<y\}$ find M_R and

Let A={a, b, c, d, e} and

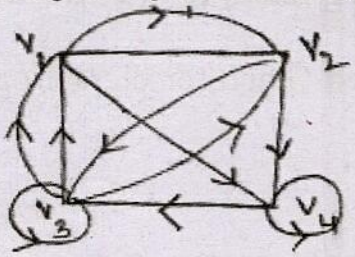
$R=\{(a,d),(d,a)(c,b),(b,c),(c,f),(e,c),(b,e),(e,b),(e,e)\}$ be a symmetric relation on A. Draw the graph of R.

b) Let A={*a,b,c,d*} and R be a relation on A, that has matrix

$$M_R = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 1 & 1 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}$$

Construct the digraph of R and list the indegrees and outdegrees of all vertices.

4. a) Find the Adjacency matrix A(G) of the following.



b) Define Tree and show that a tree with n vertices has exactly (n-1) edges.

5. a) Define Mathematical Induction and prove by mathematical induction that for all positive intigers $n \geq 1$

$$1+2+3+---+n=\frac{1}{2}n\,(n+1).$$

b) Define Permutations and combinations and also find how many committees of 5 with a given chairperson can be selected from 12 persons.

6. a) A survey of 500 television viewers of a sports channel produced the following information:

285 Watch cricket, 195 watch hockey, 115 watch football, 45 watch cricket and football, 70 watch cricket and hockey, 50 watch hockey and football, and 50 do not watch any of the three kinds of the games.

i) How many viewers in the survey watch all three kinds of games?

ii) How many viewers watch exactly one of the sports?

b) Test the validity of the following argument. If I study, I will not fail in the examination if I do not watch TV in the evening, I will study, I failed in the examination.

$\therefore$ I must have watched TV in the evenings.

7. a) Define equavalence Relation and cardinality of a set with example.

b) Explain subgraph, cyclograph and Bipartite Graph.