PauskuraBanamali College(Autonomous)

B.ca. 4th Semester Internal Examination -2024

Sub: Bca Paper: CC8

Paper Name: System Programming

F.M.: 10 Time : 1/2 Hours

Answer any fivequestions: 5×2=10

1. a) What is Register?
   b) Write down the difference between compiler and interpreter.
   c) Write down the difference between system software and application software ?
   d) What do you mean by SP and PC using diagram?
   e) Write down the function of Assembler using diagram?
   f) Write down the function of loader and linker using diagram?
   g) What do you mean by addressing mode using diagram?
   h) What is MOT?

PANSKURA BANAMALI COLLEGE
(AUTONOMOUS)

1st Internal Assessment 2024

Class: BCA Semester: 4TH Paper: C9(T)

Sub : JAVA

Time – 30 Min. F.M. 10

1. Answer any five of the following questions 5x2=10

a) What is array with example?
b) What is dynamic method dispatch?
c) Why Java use both complier and interpreter?
d) What's the difference between constructors and other methods?
e) What is garbage collection? What is the process that is responsible for doing that in java?
f) Write down the two paradigm OOP's?
g) How to resolve Instance variable hiding problem?
h) Why we do Inheritance in java?
i) Addition two number using Abstract class?

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PANSKURA BANAMALI COLLEGE (AUTONOMOUS)

1st Internal Assessment, 2024

4th Semester

Paper :- BCAGE4T

Full Marks: 10 **Time: 30 Minutes.**

Answer any five questions: $5 \times 2 = 10$

1. Draw a graph with 4 vertices of degrees 1, 1, 2, 3 if possible. If not, why?
2. How many vertices do the graph have which has 21 edges, 3 vertices of degree 4 and remaining vertices are of degree 3?
3. Define path and walk.
4. Draw the undirected graph G corresponding to the adjacency matrix

$$A = \begin{bmatrix} 1 & 2 & 0 & 0 \\ 2 & 0 & 1 & 1 \\ 0 & 1 & 2 & 2 \\ 0 & 1 & 2 & 0 \end{bmatrix}.$$

5. Examine if K_5 is planar graph or not.
6. Examine if the complete bipartite graph $K_{3,2}$ is Eulerian or not.
7. Find the number of perfect matchings in K_6.
8. Define tree. Show that null graph is a tree.

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PANSKURA BANAMALI COLLEGE
(AUTONOMOUS)
Internal Assessment - 2024
Class- BCA 4th Semester Paper –CC10 T
Sub- NETWORK

F.M.- 10 **Time – 30 minutes**

Answer any five (5 X 2)

a) Write the difference between point to point and multipoint connection?
b) Classify the Transmission Mediums in Computer Networks?
c) What are the function of Transport Layer?
d) What are the function of DataLink Layer ?
e) Write short note about TCP/IP ?
f) What are the advantages of Router?
g) What is Polar and Bipolar Encoding?
h) What are the disadvantages of Packet and Message switching?
i) What are the Types of Errors?
j) What is Flow control and Sliding Window?

C-19060/UG/S-IV/BCACC8T/24

B.Sc. 4th Semester Examination 2024

Subject - BCA

Paper Code : BCACC8T

Paper Name : System Programming

Full Marks : 40 *Time* : 2 Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group- A

Answer any *five* questions : **5×2=10**

1) What is 'Boot-strap' loader?
2) Distinguish between logical address space and physical address space.
3) Differentiate between macro and subroutine.
4) What is 'Boot-strap' loader?
5) What is the difference between object file and executable file?
6) What are the use of DS and IP?
7) Define Base register and index register.
8) Define lazy Binding.

Group- B

9) Write down the algorithm of one pass macro processor.

10) Give the minimized DFA for the following expression (a/b)* abb

11) Write down the basic function of two pass assembler.

12) What is binary translation? Why do you use it?

13) How could a recursive macro processor be implemented in assembly language?

14) Write down the difference between bootstrap loader and relocating loader.

Group - C

Answer any one question : **1×10=10**

1) Explain various functions of loader.compare linking loader and linkage editor.

2) What do you mean by text Editor?
What are it's features and discuss any to text editors in details. 3+7

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Total Pages-2

C-19060/UG/S-IV/BCACC9T/24

B.Sc 4th Semester Examination 2024

Subject - BCA

Paper Code : BCA-CC9T

Paper Name : OOPS with Java

Full Marks : 40 *Time* : 2 Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group- A

Answer any *five* questions : **5×2=10**

1) Differentiate between '>>' and '>>>' operator?
2) What are Java separators? Give an example.
3) What are string functions in Java?
4) What is synchronization? why do we need it?
5) What is package?
6) Java is platform independent. Justify.
7) What are the rule for abstract class?
8) Differentiate between vector and array.

Group -B

Answer any four questions : 4×5=20

9) Explain the life cycle of the thread
10) Why an abstract method cannot be defined as static?- Justify with example.

(Turn Over)

11) What is the difference between overriding and overloading a method ?

12) Write about java virtual machine.

13) How can we create a package explain in detail?

14) Write a java program to reverse a number e.g. 928
Output : 829

Group -C

Answer any one question : **1×10=10**

15) What are the key feature of java? Explain the concept of bytecode.

16) a) How do wer create a Java applet ? Discuss its life cycle showing passing parameters to Applets.

rem = N/10;
rev = rev + rem. rem
* 10;
rem = N % 10;
rev
Res

928/10
= 92;
rev = 0 + 92 × 10
920;
rem = 8;

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while (number != 0) {
int digit = number % 10;
ReverseNu = ReverseNu * 10 + digit;
Number /= 10;
Print (ReverseNumber);

C-19060/UG/S-IV/BCACC10T/24

B.Sc. 4th Semester Examination 2024

Subject - BCA

Paper Code : BCACC10T

Paper Name : Data communication & network

Full Marks : 40 *Time* : 2 hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group- A

Answer any *five* questions : **5×2=10**

1) Distinguish between switch and bridge used in computer networks.
2) Define baud Rate.
3) Write a short note on ARPANET.
4) What is piggybacking?
5) What is mean by'1000Base-T?
6) What is hamming distance? Give suitable example.
7) Define half-duplex and full-duplex communication.
8) Write the role of DNS server.

Group- B

Answer any four question : **4×5=20**

9) Explain services of Transport layer and network layer of TCP/IP model.

10) Write a short notes on TDM and WDM.

11) Explain circuit switching and packet switching.

12) A bit stream 10011101 is transmitted using the standard CRC method. The generator polynomial is x^3+1. Show the actual bit string transmitted.

13) Explain the use of UTP, STP, Co-axial and fibre optic cable in networking.

14) Explain how email is transferred on internet in detail.

Group- C

Answer any one question : **1×10=10**

15) The bandwidth of a channel is 2 MHz and its signal to noiseratio is 63. Calculate the appropriate bit rate and signal level.

16) Explain the concept of sliding window ARQ. Write short note on transmission impairments.

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C-19060/UG/S-IV/BCASE2T/24

B.Sc. 4th Semester Examination 2024

Subject. - BCA

Paper Code : BCASE2T

Paper Name : Computer Graphics & Multimedia

Full Marks : 25 *Time* : 01 hrs.

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group- A

Answer any *five* questions : 5×2=10

1) What is pixel?
2) What is multimedia?
3) What ir RGB?
4) What is shearing?
5) Compare between animation and video?
6) Define clipping
7) What is Rasterizations?
8) What is Bezizr curve?

Group- B

Answer any three questions : 3×5=15

9) Compare between analog and digital audio.
10) What is transformation? Explain the basic 2-D transformation with example.

(Turn Over)

11) Write whort note on :

i) Application software for multimedia.

ii) Type of graphics

12) Explain Raster & Random scan display system

13) For 10×10 frame buffer, interpret the Bresenham algorithm to find which pixels are turned on for the line segment (1,2) and (7,6).

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B.Sc. 4th Semester Examination 2024

Subject - BCA

Paper Code : BCAGE4T

Paper Name : Graph theory

Full Marks : 60 *Time* : 3 Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group- A

Answer any *ten* questions : **10×2=20**

1) Define Bipartite graph and complete Bipartite graph.

2) Give an example of a graph which is

i) Eulerian but not Hamiltonian

ii) Hamiltonian but not Eulerian

3) Describe cut set and cut vertex in a connected graph.

4) A tree has two vertices of degree 2, one vertex of degree 3 and three vertices of degree4. How many vertices are there of degree1?

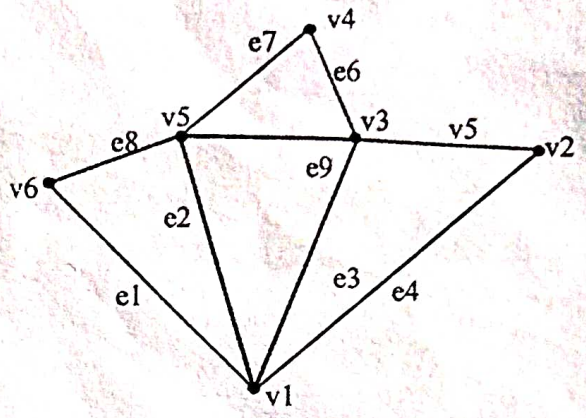
5) Define Hamiltonian graph. Give an example of this which is not an Eulerian graph.

6) Define chromatic number of a graph. Find the chromatic number of a cycle of odd length.

7) Examine K_2 is planar graph or not.

8) Prove that the no of vertices of odd degree in a graph is always even.

9) For the following graph, find the shortest path between fromv1 to v4.

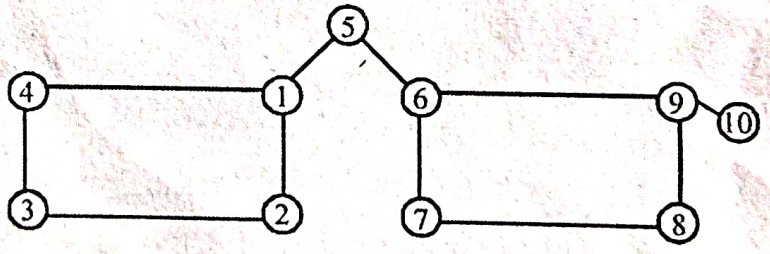


10) Give two properties of circuit matrix.

11) Prove that every tree has either one or two centers.

12) G is a non-directed graph with 12 edges. If G has 6 vertices each of degree 3 and the rest have degree less than 3. Find the minimum number of vertices G can have.

13) Print a Walk, trail, path and cycle on the graph below.



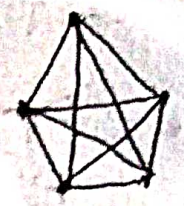
14) Prove that the no of vertices of odd degree in a graph is always even.

15) Define subgraph with example.

Group- B

Answer any four questions : **4×5=20**

16) Define Hamiltonian circuits and paths with examples. Find



out the number of edgedisjoint Hamiltonian circuits possible in a complete graph with five vertices.

17) State Travelling-Salesman Problem and how TSP solution is related with Hamiltonian Circuits?

18) Show that a simple graph with n vertices and k components can have at most $\frac{(n-k)(n-k+1)}{2}$ edges.

19) 19 students in a nursery school play a game each day, where they hold hands to form a circle. For how many days can they do this, with no students holding hands with the same playmates more than once? Substantiate your answer with graph theoretic concepts.

20) Prove that a graph T will be a tree iff there exists one and only one path between any two vertices of T.

21) State and prove handshaking theorem. Define indegree and outdegree of a digraph.

Group - C

Answer any two questions : 2×10=20

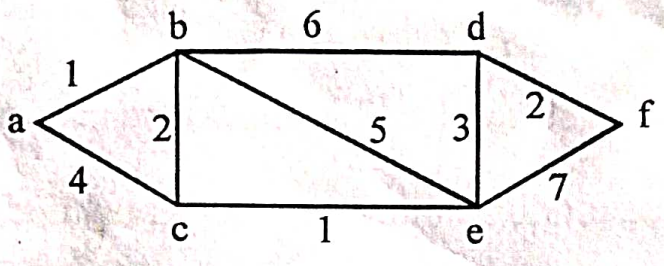
22) Draw the graph represented by the following adjacency matrix.

$$X(G)=\begin{bmatrix} 0 & 1 & 0 & 1 & 0 \\ 1 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 & 1 \\ 1 & 1 & 1 & 0 & 1 \\ 0 & 1 & 1 & 1 & 0 \end{bmatrix}$$

Differentiate between BFS and DFS.

Define planar graph and circuit matrix.

23) i) Apply DIjsktra's algorithm to the graph given below and find the shortest path from *a* to *f*. 7



ii) Prove that every tree with two or more vertices is 2-chromatic. 3

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PANSKURA BANAMALI COLLEGE
(AUTONOMOUS)

2nd Internal Assessment 2024

Class: BCA Semester: 4TH Paper: C9(T)

Sub: JAVA

Time – 60 Min. F.M. 20

1. *Answer any five of the following questions* 5x2=10

a) What is difference between interface and class?
b) Why Java use both complier and interpreter?
c) What's the difference between constructors and other methods?
d) Why java is called truly OOP's languages?
e) Write a short not of JDK?
f) Difference between Applet and Application Program.
g) Why we use Interface instead of Class?
h) What is method overriding?

2. *Answer any two of the following questions* 2x5=10

a) What is package? Explain with example.[1+4]
b) What do you mean by exception? Explain an arithmetic Exception.[1+4]
c) Why multiple inheritance is not support in JAVA? give an proper example.[5]
d) What is applet ? Demonstrate the applet life cycle.[1+4]

Applet life cycle
+thread life cycle

Argument
CSA Assay

Panskura Banamali College (Autonomous)

BCA.(H) 4th Semester Internal Examination -2024

Sub: BCA Paper: CC8T

Paper Name: System Programming

F.M.: 20 Time :1 Hours

1. Answer any four questions [Out of five questions]:

a. What do you mean by MACRO with ALA? (5)

b. What do you mean by MNT and MDTwith example? (5)

c. Briefly describe about MACRO pass1 assembler? (5)

d. Write down the working principle of MACRO pass2 assembler? (5)

e. Why we used MACRO in system programming? What is conditional MACRO? (2+3)

PANSKURA BANAMALI COLLEGE (AUTONOMOUS)

2nd Internal Assessment , 2024
4th Semester
Paper :- BCAGE4T

Full Marks: 20 **Time: 1 hr.**

1) Answer any two questions: **2×5 = 10**

a) State and prove handshaking theorem. Define indegree and outdegree of a digraph. 3+2

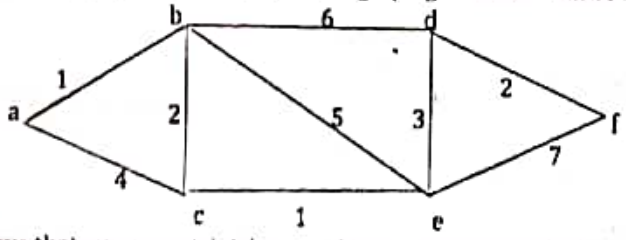
b) Prove that a graph T will be a tree iff there exists one and only one path between any two vertices of T. 5

c) Define a binary tree. Find the number of pendant vertices in a binary tree with n vertices. 1+4

d) Define cut set and cut vertex in a connected graph. Prove that the edge connectivity is less than or equal to $\left[\frac{2e}{n}\right]$, where $\left[\frac{2e}{n}\right]$ represents the integral part of $\frac{2e}{n}$. 2+3

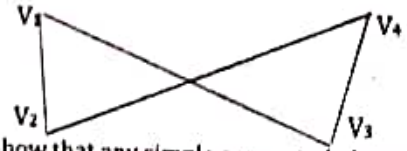
2) Answer any one questions: **1×10 = 10**

a) i) Apply Dijsktra's algorithm to the graph given below and find the shortest path from a to f.



ii) Prove that every nontrivial tree at least two vertices of degree 1. 7+3

b) i) Consider the graph shown in figure. Find the number of walks of length 3 from v_2 to v_4 and also check the connectedness of the graph.



ii) Show that any simple connected planar graph satisfies the inequality $e \leq 3n - 6$ where n and e are the number of vertices and edges of the graph respectively. 5+1

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