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BCA SEM II

18-19

Question Papers

R.P.

II Semester End Examination, APRIL 2018

Class: FY BCA

Sub: DATA STRUCTURES

Roll No.:

Max marks: 50

Duration: 2 HOURS

Instructions:

1. Figures to right indicate maximum marks
2. Provide sufficient margin space in the answer book for recording marks
3. Enter the appropriate main & sub-question numbers in the answer book

Q 1 .A.) Complete the following statements.

(5X1=5)

1. _____ searching technique requires data to be sorted.
2. A graph is _____ if there is an edge from a node to same node.
3. If graph is directed and a node is connected to only one node, the possible values for indegree of that node are _____.
4. A linear collection of data elements where the linear node is given by means of pointer is called _____.
5. Linear search is based on _____.

Q 1 .B.) Answer the following

(5X1=5)

1. Define hash function with the help of example
2. State one key difference between linear and binary search techniques
3. State one requirement to have good hash function
4. What data structures you will use if you have limited space?
5. What do you mean by spanning tree?



Q 2) Answer the following

1. Convert the given infix expression into postfix expression
 $a-b/(c^d) +(e*f)$
2. Construct a Btree of order 5 for the following set of elements
5, 3, 21, 9, 1, 13, 2, 7, 10, 12, 4, 8

(2)

(3)

3. Solve the following :

(5)

(i) Sort the following data using heap sort n create a minimum heap

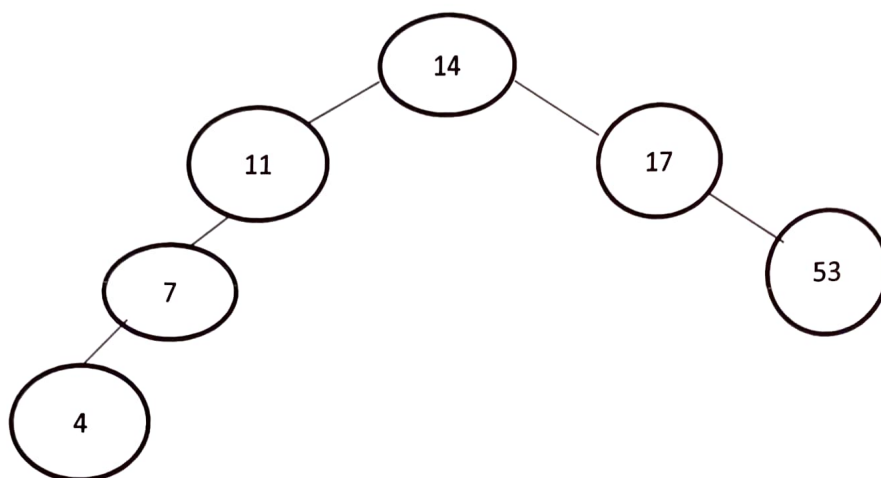
28, 10, 86, 57, 18, 95

(ii) Apply selection sort algorithm to sort the following set of numbers

56, 57, 92, 38, 44, 90, 61, 73

Q 3) Answer the following

1) Perform required rotations on the following unbalanced tree and also write down the balanced factor for all nodes (2)



2) Explain two methods to implement hashing function (3)

3) Describe queue with example (5)

Q 4) Answer the following

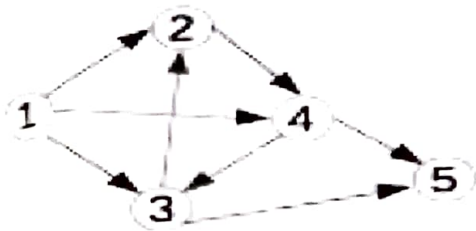
1. Differentiate between linear and nonlinear data structures. (2)

2. List and explain the advantages of linked list. (3)

3. List and explain properties of array. (5)

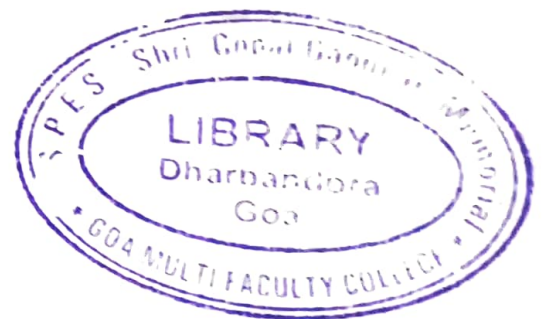
Q 5) Answer the following

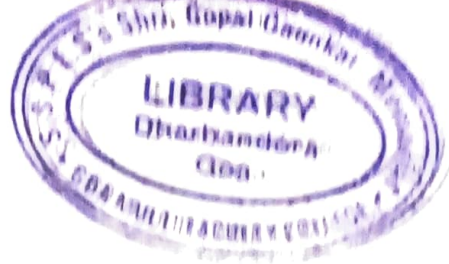
1. Draw adjacency list for the following graph (2)



2. Write Algorithm for PUSH and POP. (3)

3. Explain the procedure of finding minimum spanning tree from a graph using prim's algorithm (5)





FY BCA SEM, II
2018

II Semester End Examination, APRIL 2018

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Instructions:

1. Figures to right indicate maximum marks
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Q1.A) Complete the following statements.

(5X1=5)

1. _____ searching technique is iterative in nature and uses sequential approach
2. A graph is _____ if one can reach any vertex from any other vertex by following edges in either direction
3. If degree of node is zero, the node is called _____ node.
4. A linear collection of data elements where the linear node is given by means of pointer is called _____.
5. Binary search is based on _____.

Q1.B) Answer the Following

(5X1=5)

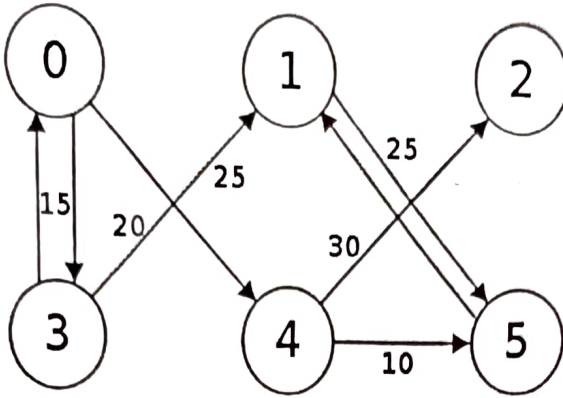
1. Explain term "Time Complexity".
2. List the operations that can be performed on linked list.
3. State one requirement to have good hash function.
4. What data structures you will use if you want to go to first record from the last and vice versa?
5. What do you mean by spanning tree?



Q 2.) Answer the following

1. Draw adjacency matrix for the following graph

(2)



2. Write Algorithm for ENQUEUE and DEQUEUE.

(3)

3. Explain the procedure of finding minimum spanning tree from a graph using kruskal's Algorithm

(5)

Q 3.) Answer the Following

1. Convert the given infix expression into prefix expression

(2)

$$a + ((b + c) * (d + e)) + f / g$$

2. Construct a Btree of order 5 for following input

(3)

10, 50, 30, 60, 90, 25, 40, 95, 45

3. Solve the following

(5)

a) Sort the following data using heap sort n create a minimum heap

12, 33, 58, 5, 75, 42

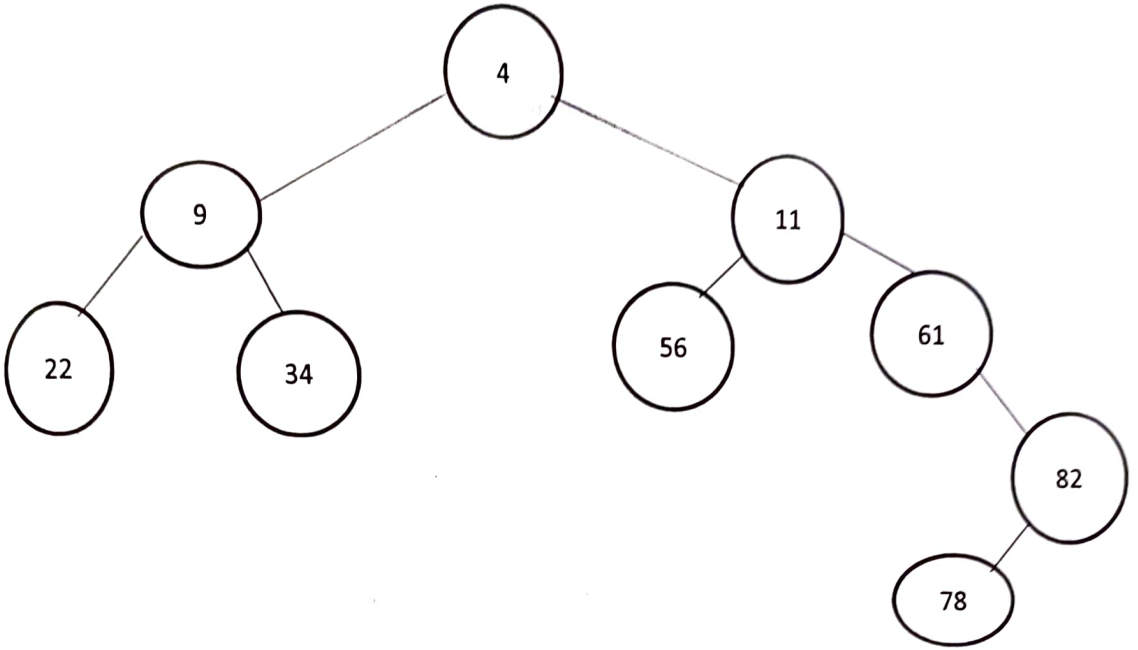
b) Apply selection sort algorithm to sort the following set of numbers

48, 91, 37, 85, 12, 23, 44, 36

Q 4) Answer the following

1. Perform required rotations on the following unbalanced tree and also write down the balanced factor for all nodes

(2)



2. List down and explain any two collision resolution strategies in hashing

(3)

3. Describe stack with example

(5)

Q 5) Answer the following

1. Differentiate between linear and nonlinear data structures.

(2)

2. List and explain the advantages of linked list.

(3)

3. List and explain properties of array.

(5)

Roll No:

Total No. of Questions: 05

Total number of pages: 03

B.C.A Semester End Examination
Cost Accounting BCA 103
Semester II

Duration: 2 Hrs.

Maximum Marks: 50

Instructions 1) All questions are compulsory

2) Figures to the right indicate maximum marks allotted.

3) Provide sufficient margin space in the answer-book for recording marks.

4) Enter the appropriate main & sub-question numbers in the answer-book.

5) Show important working notes as fair work.

6) From Q.No.2 to Q.No5 answer A or X questions

Q1A) Answer the following.

(2*5=10 marks)

1) What is Break even Analysis.

2) Define variable cost.

3) What is Idle time?

4) Define prime cost.

5) Explain process costing.

Q.2.A From the following particulars of M/s Euphoria Ltd , prepare a cost sheet. (10 Marks)

Gas, oil, fuel	40,000
Motive power	37,000
Depreciation on office furniture	28,000
Depreciation on factory building	85,000
Direct Material	4,65,000
Factory lightning	7,000
Warehouse charges	56,000
Productive Wages	2,74,000
Office stationery	25,000
Distribution expenses	75,000
Selling overheads	56,000
Office salaries	1,78,000
water (factory)	30,000
Carriage inward	8,000
Administration expenses	48,000
Factory manager salary	45,000
Office manager	56000

Dividend paid	2,75,000
Salesmen's salary	34,000
Packing charges	16000

Calculate profit if Sales are Rs 18,00,000.

OR

Q.2.X Explain the classification of cost with a suitable chart. (10 marks)

Q.3.A.i. Explain the importance of material management. (5 marks)

ii) Explain in brief the various inventory levels. (5 marks)

OR

Q.3.X. The following details are obtained from Hustle's Pvt. Ltd. You are required to draw out the closing balances in the stores ledger account under FIFO method of inventory valuation.

Dates (February 2018)	Particulars	Value
1	Opening stock 300 kg	10/ kg
6	Received from supplier 400 kg	8 /kg
9	Issued to production department 240 kg	
10	Issued to production department 160 kg	
12	Received from supplier 500 kg	8.5
15	Issued to production department 400 kg	
17	Received from supplier 250 kg	9
20	Received from supplier 600 kg	9.5
25	Issued to production department 350 kg	
26	Issued to production department 260 kg	
28	Issued to production department 340 kg	

Q.4.A Make a comparative analysis of Time Rate system of wage payment with Differential Piece rate method of wage payment. (10 marks)

OR

Q.4.X Explain the various causes of labour turnover and suggest suitable remedies for the same. (10 marks)

Q.5.A) Builder world undertook a contract to construct a bridge. Contract work commenced on 1st January 2017 and the contract price was ` 50,00,000/- Cash received on account of contract as on 31/12/2017 was ` 1,80,000/- (80% of work certified). Work completed but not certified estimated at ` 1,00,000/-. Plant worth Rs 10,000 and material worth Rs5000 was lost. As on

31/12/2017 material at site was estimated at ` 30,000/-. Plant and machinery at site to be depreciated at 5%. Wages outstanding as on 31/12/2015 was ` 15,000/-.

Following are their ledger balances as per the trial balance as on 31/12/2017.

PARTICULARS	AMOUNT
Plant & machinery at cost	3,50,000
Material sent to site	1,20,000
Fuel and power	25,000
Site expenses	45,000
Office expenses	20,000
Wages	65,000

Prepare Contract account.

OR

Q.5.X. The product of a manufacturing concern passes through two processes A & B and then to finished stock. It is ascertained that in each process normally 5% of the total weight is lost and 10% is scrapped which from process A and B realizes at ` 80 per tonne & ` 200 per tonne respectively. The following are the figures relating to both the processes :- (10 Marks)

Particulars	Process A	Process B
Material	26,000	30,000
Wages	8,000	10,000
Manufacturing Expenses	7,000	5,250
Output	830 units	700 units

prepare process cost accounts. Showing cost per tonne of each process. There was no stock or work in progress in any process.

***** ALL THE BEST*****

SHREE SATERI PISSANI EDUCATION SOCIETY'S
GOA MULTI-FACULTY COLLEGE
DHARBANDORA, GOA
II Semester Examination, APRIL 2018

Class: F.Y BCA

Sub: Environmental Studies

Max marks: 25mks

Duration: 1 hr. 30 min

- Instructions: 1) All questions are compulsory
2) Figures to the right indicate maximum marks
3) Start each new question on a fresh page.

Q.1 A) Explain any five of the following in brief

(5x1=5)

- Sources of water pollution
- Flood
- Post disaster management of cyclones
- Climate change
- Precautions to be taken against HIV/AIDS
- Role of IT in Environmental studies

Q.2 A) Explain environment protection act

10mks

OR

B) Elucidate on Solid waste management

10mks

Q.3 A) Climate change and global warming

10mks

OR

B) Population explosion

10mks

Roll No:

Total no. of Questions: 5

Total no. of pages: 2

B.C.A. Semester End Examination, April 2018

Operating Systems (BCA202)

Semester: II

Duration: 2 Hrs.

Maximum Marks: 50

Instructions:

- 1) All questions are compulsory.
- 2) Figures to the right indicate maximum marks.
- 3) Start each new question on a fresh page.

Q.1.A Define the following terms:

- i. Time Sharing Systems
- ii. Semaphores
- iii. File
- iv. Record
- v. Database

(5*1)

Q.1.B Answer the following questions in one or two lines:

- i. Give a point of difference between a process and program.
- ii. Give a point of difference between segment and frame.
- iii. Give a point of difference between block oriented device and stream oriented device.
- iv. List any two features available in web operating system.
- v. Name any four types of web operating system.

(5*1)

Q.2. Answer the following:

- A. List and explain any two OS services. (2)
- B. Write a short note on evolution of operating systems. (3)
- C. What is RAID and its benefits? Also explain any two levels of RAID. (5)

Q.3. Answer the following:

- A. Briefly explain Peterson's solution in process synchronisation. (2)
- B. State and explain the conditions that may give rise to deadlocks. (3)
- C. Write short notes on the following process scheduling algorithms: (5)
 - (i) First Come First Serve Scheduling
 - (ii) Round Robin Scheduling

Q.4. Answer the following:

(2)

A. Explain any two placement algorithms in memory management.

(3)

B. Explain logical to physical address translation in paging.

(5)

C. Explain the concept of thrashing, causes of thrashing and how to overcome it.

Q.5. Answer the following:

(2)

A. Explain any two classes of intruders.

(3)

B. Given the plain text "three management trainees have been appointed today".

Find the encrypted text using CAESER Cipher.

(5)

C. Explain any five advantages of using distributed operating system.

Roll No:

Total No: of Questions: 5

Total No: of pages: 3

BCA Semester End Examination April 2018

Discrete Mathematics

Semester No : II

Duration: 2 Hrs.

Maximum Marks: 50

Instructions: 1) All Questions are Compulsory.

2) Figures to right indicate marks.

3) Start each new question on a fresh page.

4) Non programmable calculators are allowed.

Q.1A) Answer the following: (5x1=5)

i. The symbol for Double implies is _____

ii. The symbol for NOR gate is _____

iii. If $A = \{ a \}$ and $B = \{ 1, 3 \}$ then $A \times B =$ _____

iv. L^+ is given by the formula _____

v. Distributive law for Boolean algebra is given by _____

B) Answer the following: (5x1=5)

i. The binomial theorem $(a + b)^n$ is given by _____

ii. If $X = \{ 1, 2, 3, 4 \}$ and $A = \{ 2, 3, 4 \}$ then $A^c =$ _____

iii. $a^m \times a^n =$ _____

iv. Condition for odd function is _____

v. $|0| =$ _____

(10)

Q.2. Answer the following:

A) i. Prove that $1 + 3 + 3^2 + \dots + 3^{n-1} = \frac{3^n - 1}{2}$

ii. $X \equiv \{1, 2, 3, 4, \dots, 15\}$ is the universal set, $A \equiv \{1, 3, 5, 8, 9, 10, 12, 15\}$,

$B \equiv \{2, 3, 4, 6, 8, 9, 10, 11, 13\}$, Verify that a) $(A \cup B)' = A' \cap B'$ and b) $A - B = A \cap B'$

OR

(10)

B) i. Prove that $4 + 9 + 14 + \dots + (5n - 1) = \frac{n}{2} (3 + 5n)$

ii. a) Solve the equation for x, if $2x^2 - 7x + 6 = 0$

b) If $X = \{A, B, C, D, E, G, H, I, L, M, N, O, R, S, T, Y, Z\}$ $B = \{T, H, E, O, R, Y\}$

and $C = \{T, H, E, O, R, E, M, S\}$ then Verify $B - C = (B' \cup C)'$

(10)

Q.3. Answer the following:

A) i. If $f(x) = 1 + x - x^2$, find x, if $f(x + 1) = f(x + 2)$

ii. Convert $(101010)_2$ to decimal form and Convert $(2435)_{10}$ to binary form

OR

(10)

B) i. If $f(x) = 3x - 1$ and $g(x) = x^2 + 1$, find $f[g(x)]$ and $g[f(x)]$

ii. Convert $(10292)_{10}$ to hexadecimal form and convert $(4A3F)_{16}$ to decimal form.

Q.4. Answer the following:

(10)

A) i. Draw the symbol and truth table for NOT gate.

ii. a) How many different different numbers one can form using all the digits of the number 553225?

b) Find n, If $3 (np_4) = np_5$

OR

B) i. Write the truth table for OR gate and draw the symbol. (10)

ii. A club has 5 girls and 7 boys. If 4 persons out of these are to be selected.

Find the total number of choices if i) There is no restriction on gender,

And ii) 3 boys and 1 girl is to be selected

Q.5. Answer the following: (10)

A) i. Construct the truth table for i) $(p \vee q) \wedge \sim p$ ii) $(p \wedge q) \rightarrow (q \vee \sim p)$

ii. If $L_1 = \{ z, xy, z^2 \}$ and $L_2 = \{ y^2, xyz \}$ then find $L_1 L_2$ and L_2^2

OR

B) i. a) Define Cartesian product (10)

b) If $L = \{ y^2 \}$, $L^2 = \{ y^4 \}$, $L^3 = \{ y^6 \}$ then find L^* and L^+

ii. Prove that $(p \rightarrow q) \vee r \equiv [(p \vee r) \rightarrow (q \vee r)]$

Roll No:

Total No: of Questions :3

Total No: of pages: 1

BCA Semester End Examination April 2019

ENVIRONMENTAL STUDIES (BCA 207)

Semester:II

Duration: 1.30 Hrs.

Maximum Marks: 25

- Instructions: : 1) All questions are compulsory
2) Figures to the right indicate maximum marks
3) Start each new question on a fresh page.

Q.1 A) Explain any five of the following in brief

(5x1=5)

- Light pollution
- Loss of polar biodiversity
- Oil spills
- Global warming
- Reclaiming wetland
- Causes of Noise pollution
- Landslides



Q.2. A) Nuclear accidents

(10)

OR

B) HIV/AIDS

(10)

Q.3. A) Environment and Tourism Industry

(10)

OR

B) Solid waste management

(10)