Directorate of Open and Distance Learning
Dibrugarh University
Dibrugarh 786004

Ph. 0373-2370207(O) Email : dde dibrugarhuniversity@yahoo.in

NOTIFICATION

for

BCA 2nd Semester Learners regarding submission of Home Assignments

This is for information to all Study Centers and Learners under DODL, DU that the student of BCA 2nd Semester shall have to submit one Home Assignment in each course (paper). Each assignment carries 30 marks. The questions for the Home Assignments are enclosed herewith. At the time of submitting the assignments, please note the following:

* Write your assignment in A4 size paper neatly, with your own hand- writing on one side of the paper. You may also submit a computer printed copy of your assignments with your signature at the end.
* Stick to the word limit mentioned in the questions.
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* Keep a duplicate or photo copy of the assignment with you (compulsory).
* The last date of submitting the Assignment is 10th March, 2019 (excluding Sundays)
* The cover page of your booklet should contain the following Label :

Home Assignment
Name of Study Centre_____
Roll No._____
Name _____
Programme : BCA
Class : 2nd Semester
Course (Paper) : _____
Session : 2018 -2019
D.U. Registration No. : (If received) _____**of** ___
Date of Submission : _____

Sincerely Yours

Sd/-
(Dr. Deba Pallab Rajkhowa)
Director
DODL, D.U

HOME ASSIGNMENT of BCA 2nd Semester, 2019

ASSIGNMENT
Mathematics -II
BCA -201

Total marks : 30

1. Evaluate

$\lim_{x \to 0} \frac{1-\cos x}{3x^2}$ 5

2. Evaluate

$\int (2-x) \sin x \, dx$ 5

3.Evaluate

(a) $\int \sqrt{2x^2-3} \, dx$ 5

4. Evaluate

$\int \frac{(3x+2)}{(x-1)(2x+3)} dx$ 5

5. Prove that

$\int_0^{\pi} \frac{x}{1+\sin^2 x} dx = \frac{\pi^2}{2\sqrt{2}}$ or

Find the perimeter of the circle $x^2+y^2 = a^2$ 5

6. Find the area enclosed by the curve $y^2 = x$ and the straight line $x = 4$ 5

ASSIGNMENT
Discrete mathematics
BCA -202

Total marks : 30

Answer Any three

1. Find all the eigen values and basis for each eigenspace of linear operator T: $R^3 \rightarrow R^3$ defined by T(x,y,z)=(3x+y+4z, 2y+6z, 5z) 10
2. Show the set $\{x^3 - x + 1, x^3 + 2x + 1, x + 1\}$ is linealy independent in the vector space of all polynomials over the field of reals. 10
3. Explain Dijkstra's algorithm with an example. 10
4. Define tree .Discuss all all its properties. 10

ASSIGNMENT
Data Structure using C and C++
BCA -203

Total marks : 30

Answer any three

1. Explain the following 10
   i) Stack
   ii) Queue
2. a. What is a circular queue ? How is it different from queue. 10

   b. Compare and contrast between a binary and a binary search tree
3. What is a linked list ? Write a program in C++ to concatenate two singly linked list . 10
4. Write a program to sort the N elements of an array in ascending order using 10
   a. Bubble sort technique.
   b. Merge sort

ASSIGNMENT
Accounting and Financial Management
BCA -204

Total marks : 30

Write short notes on any SIX (6) of the following

6 X 5 = 30 marks

1) Convention of CONSERVATISM.
2) CASH discount and TRADE discount.
3) Usefulness of STOCK TURNOVER ratio.
4) PERSONAL accounts.
5) Cash book.
6) Decisions taken under Financial Management.
7) Features of TRIAL BALANCE.
8) LIMITATIONS of Ratio Analysis.
9) Balance Sheet.
10) ADVISORY functions of Financial Management.

ASSIGNMENT
Computer Architecture and Organization
BCA -205

Total marks : 30

Answer any three

1. What are the main parts of Von Neumann Architecture ? Explain with diagram. 10

2. Explain the organization of a microprogrammed control unit and describe its operations. 10

3. a . What are the different types of RAM and ROM ? Explain 5+5
   b. What is the difference between Primary and Secondary memory ?

4. What is virtual memory ? Explain the different Page Replacement Policies ? 10

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NOTIFICATION

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Home Assignment
Name of Study Centre_____
Roll No._____
Name _____
Programme : BCA
Class : 3rd Semester
Course (Paper) : _____
Session : 2018 -2019
D.U. Registration No. : (If received) _____**of** ___
Date of Submission : _____

Sincerely Yours

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(Dr. Deba Pallab Rajkhowa)
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DODL, D.U

ASSIGNMENT
Mathematics-III
BCA -301

Total marks : 30

Answer any six question. 5X6=30

1. State and prove Cauchy's Integral Formula.
2. Determine the analytic function where the real part is $e^{-x}(x \sin y - y \cos y)$
3. Evaluate $\int_c \frac{e^z}{z(z+1)} dz$ where C is the circle $|z| = \frac{1}{4}$
4. Discuss the convergence of the sequence $\{u_n\}$, where $u_n = \frac{(-1)^n}{n}$
5. Test the convergence of the series $x + \frac{x^3}{3!} + \frac{x^5}{5!} + \frac{x^7}{7!} + \cdots \infty \quad (x > 0)$
6. Find the Laplace Transform for $\frac{(\cos 2t - \cos 3t)}{t}$
7. Find the Laplace inverse Laplace transform of $\frac{s}{(s^2+1)((s^2+4)}$
8. Apply the Convolution theorem to solve $L^{-1}\left\{\frac{1}{s(s^2+4)}\right\}$

ASSIGNMENT
Theory of Computing
BCA -302

Total marks : 30

Answer any six. 5X6 = 30

1. Define Arden's Theorem.
2. Distinguish between DFA and NDFA.
3. Construct a D.FA for language

   $L=\{a^n \mid n \geq 1\}$

4. Explain Push-Down Automaton.
5. Differentiate between Context free and Context Sensitive grammar.
6. Explain Chomsky's hierarchy.
7. Explain Mealy and Moore machine

ASSIGNMENT
INTERNET AND WEB PROGRAMMING TECHNOLOGIES
BCA -303

Total marks : 30

Answer any six. 5X6 = 30

1. What is Internet ? What are the basic features of world wide web ?
2. Write short note on following:
   a. Bus Topology
   b. Tree Topology
3. Discuss some popular web browser.
4. What is client /server network ?
5. What is HTML? How are HTML tags written?
6. What is ASP? How does it work?
7. What are ASP applications?
8. What is javascript? How would you write a program in Javascript ?

ASSIGNMENT
COMPUTER GRAPHICS
BCA -304

Total marks : 30

Answer any six. 5X6 = 30

1. What do you understand by computer graphics ? What is the difference between raster and random scan?
2. Explain Bresenham's straight line algorithm.
3. Explain midpoint circle drawing algorithm.
4. What are translation, Scaling and Rotation ?
5. What are the basic rules for animation ?

6. Explain the term virtual reality.
7. Discuss some concepts of virtual reality.

ASSIGNMENT

Design and analysis of algorithms

BCA -305

Total marks : 30

Answer any six. 5X6 = 30

1. Explain the various notation used in analysis of algorithm in brief.
2. Explain Binary search
3. Discuss one algorithm for pattern matching.
4. Explain Kruskal's algorithm to obtain minimum spanning tree with the help of any example.
5. Explain Travelling-Salesman problem.
6. Differentiate between graph and a tree.
7. Write the properties of a binary tree.
8. Explain Numerical approximation algorithm.

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NOTIFICATION

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Home Assignment
Name of Study Centre_____
Roll No._____
Name _____
Programme : BCA
Class : 4th Semester
Course (Paper) : _____
Session : 2018 -2019
D.U. Registration No. : (If received) _____**of** ___
Date of Submission : _____

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HOME ASSIGNMENT of BCA 4thSemester, 2019

ASSIGNMENT
Numerical Analysis and Scientific Computing
BCA -401

Explain any three .

10X3=30

1.Regula-falsi Method

2. Lagrange's Interpolation

3.Newton Raphson Method

4.Euler's method

5.Range – Kutta Method

ASSIGNMENT
Database management System
BCA-402

Explain any three .

10X3=30

1.Explain three-schema architecture for database system

3. Explain the Network Data Model.

4.What is hashing? Explain external hashing.

5.Explain Lost Update problem and the Temporary Update Problem

6. Define functional dependency. Explain the various normal forms.

ASSIGNMENT
Operating System
BCA- 403

Explain any three .

10X3=30

1. What is an operating system? Explain the different types of operating system.

2.What is a semaphore? Explain busy waiting semaphores.

3.Define deadlock? Explain the necessary conditions for deadlock to occur

4.Describe the necessary conditions for Deadlock prevention?

5.Define the following:
(i) FIFO Page replacement algorithm.
(ii) LRU Page replacement algorithm.

ASSIGNMENT
Programming Paradigms
BCA- 404

Explain any three

10X3=30

1.Discuss about the evolution of software Architecture

2.Explain the Organization of a conventional computer.

3.Explain the structure of a compiler.

4.Describe the elementary data type that are built into the hardware of your local computer.

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NOTIFICATION

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Name of Study Centre_____
Roll No._____
Name _____
Programme : BCA
Class : 5th Semester
Course (Paper) : _____
Session : 2018 -2019
D.U. Registration No. : (If received) _____**of** ___
Date of Submission : _____

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ASSIGNMENT
Computer Networks
BCA -501

Total marks : 30 **5X6=30**
(Answer any six)

1. Compare OSI and TCP/IP Reference Model
2. Explain one-bit Sliding Window Protocol
3. Discuss the different topologies.
4. Discuss pure ALOHA.
5. Discuss MAC protocol.
6. Explain IP Version 4 Protocol.
7. What is ATM ? Explain.
8. Explain IP Version 4 Protocol.

ASSIGNMENT
Operation Research
BCA -502

Answer any three.
Total marks : 30 **10X3=30**

1. What is linear programming ? Discuss various application of linear programming.

2. Solve the following LPP by graphical method.
   Minimize $Z=20x1 + 10x2$
   Subject to $x1+2x2 \leq 40$
   $3x1 +x2 \geq 30$
   $4x1+3x2 \geq 60$
   $x1,x2 \geq 0$

3. Explain North – West Corner Method.
4. Discuss steps of MODI method .
5. Briefly explain Transportation model.

ASSIGNMENT
Software Engineering
BCA -503

Answer any three
Total marks : 30 **10X3=30**

1. Discuss the waterfall model
2. Explain the basic COCOMO Model.
3. Write short notes on

a. Software maintenance
b. Black-box testing and white-box testing.

4. Describe different phases of Software Development Life Cycle with diagram.

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NOTIFICATION

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Roll No._____
Name _____
Programme : BCA
Class : 6th Semester
Course (Paper) : _____
Session : 2018 -2019
D.U. Registration No. : (If received) _____**of** ___
Date of Submission : _____

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HOME ASSIGNMENT of BCA 6thSemester, 2019

ASSIGNMENT
Ethics in IT
BCA -601

Total marks : 30

Answer any three.

1. Discuss the nature and objectives of ethics.
2. Describe different types of ethics.
3. Explain some of the ethical issues of IT
4. Explain
    a. Computer viruses
    b. Internet crime and Computer abuse.

ASSIGNMENT
System Software
BCA -602

Total marks : 30

Answer any three.

1. Explain the different phases of a Compiler.
2. Explain the architecture of 8086
3. Describe Pass I of the assembler
4. What is loader? List types of loader. Explain each loader in brief.
5. Differentiate between static linking and dynamic linking
6. Explain intermediate code generation phase.