



**Directorate of Open and Distance Learning  
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**NOTIFICATION**

**for  
BCA 3<sup>rd</sup> 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 3<sup>rd</sup> 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.
- \* Keep a margin of about 5 cm on the left side of the paper.
- \* You have to submit the assignments directly in the Study Centre wherein you have enrolled yourself.
- \* The assignments for a course (paper) should be tagged / stapled together to make a booklet, i.e. a separate booklet for each course (paper).
- \* Keep a duplicate or photo copy of the assignment with you (compulsory).
- \* The last date of submitting the Assignment is 11<sup>th</sup> April, 2022 (excluding Sundays)
- \* The cover page of your booklet should contain the following Label :

<b>Home Assignment</b>
Name of Study Centre _____
Roll No. _____
Name _____
<b>Programme : BCA</b>
<b>Class : 3<sup>rd</sup> Semester</b>
<b>Course (Paper) : _____</b>
<b>Session :</b>
<b>D.U. Registration No. : (If received) _____ of _____</b>
<b>Date of Submission : _____</b>

Sd/-  
( **Prof. D.K. Chakraborty** )  
Director in-charge  
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  $x + \frac{x^3}{3!} + \frac{x^5}{5!} + \frac{x^7}{7!} + \dots \infty$  ( $x > 0$ )
6. Find the Laplace Transform for  $\frac{(\cos 2t - \cos 3t)}{t}$
7. Find the 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. Distinguish between DFA and NDFA.
2. Construct a D.FA for language  $L = \{a^n \mid n \geq 1\}$
3. Explain Closure Properties
4. Differentiate between Context free and Context Sensitive grammar.
5. Using Pumping Lemma show that  $L = \{a^p \mid p \text{ is prime}\}$  is not regular.
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. Explain the color generation techniques in a CRT.
2. What do you understand by computer graphics ? What is the difference between raster and random scan?
3. Explain Cohen-Sutherland line clipping algorithm.
4. Explain midpoint circle drawing algorithm.
5. What are translation, Scaling and Rotation ?
6. What are the basic rules for animation ?
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 asymptotic notation used in represent the time complexities.
2. Explain Binary search
3. Discuss Greedy method.
4. Explain Kruskal's algorithm to obtain minimum spanning tree with the help of any example.
5. Explain Travelling-Salesman problem.
6. Inorder and Preorder Traversal
7. Write the properties of a binary tree.
8. Explain NP –Completeness.



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**NOTIFICATION**

**for**

**BCA 5<sup>th</sup> 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 5<sup>th</sup> 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.
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Name of Study Centre _____
Roll No. _____
Name _____
<b>Programme : BCA</b>
<b>Class : 5<sup>th</sup> Semester</b>
<b>Course (Paper) :</b> _____
<b>Session :</b>
<b>D.U. Registration No. : (If received) _____ of _____</b>
<b>Date of Submission : _____</b>

Sd/-  
( **Prof. D.K. Chakraborty** )  
Director in-charge  
DODL, D.U

**ASSIGNMENT**  
**Computer Networks**  
**BCA -501**

**Total marks : 30**  
**(Answer any six)**

**5X6=30**

1. Discuss the different topologies.
2. What is CSMA/CD? How does it work
3. What is Multiplexing and Demultiplexing of a network ? Explain.
4. Discuss pure ALOHA.
5. Discuss MAC protocol.
6. Explain IP Version 4 Protocol.
7. What is ATM ? Explain.
8. Explain Transmission Error.

**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. Show mathematically that dual of dual is the primal problem.
3. Solve the following LPP by graphical method.  
Minimize  $Z=20x_1 + 10x_2$   
Subject to  $x_1+2x_2 \leq 40$   
 $3x_1 + x_2 \geq 30$   
 $4x_1+3x_2 \geq 60$   
 $x_1, x_2 \geq 0$
4. Explain with an example North – West Corner Method.
5. Discuss steps of MODI method .
6. Write a short note on Degeneracy in Transportation problem.

**ASSIGNMENT**  
**Software Engineering**  
**BCA -503**

**Answer any three**

**Total marks : 30**

**10X3=30**

1. Discuss the spiral model with a suitable example.
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.
5. Discuss the various important coding standards.