

**B.C.A. Part I semester II  
Paper-IV 2023-2024  
System Analysis and Design  
Assignment List**

- 1)What is system? What are the elements of System.
  - 2)Explain SCLC.
  - 3)Explain Data Collection in details.
  - 4)Explain structured English and DFD.
  - 5)What is output design? Explain its design principle.
  - 6)Explain testing? Why it is important?
  - 7)Explain Cold Turkey and parallel
  - 8)List major responsibilities of software project manager.
  - 9)Explain risk management.
- Explain Gantt Charts and Pert charts.



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BCA Sem-I  
Operating Systems  
2023-2024  
Assignment List

1. Write a note on Operating System and explain its structure.
2. What is Process? Explain its Life Cycle.
3. What is CPU Scheduling? Explain FCFS, SJF, RR, Priority Scheduling.
4. Explain Deadlock and Starvation
5. Explain Resource Allocation Graph and Conditions for Dead Lock
6. Explain Dead Lock Prevention, Dead Lock Detection, Recovery from Deadlock.
7. Explain Paging and Segmentation.
8. Explain Dynamic Linking and Dynamic Loading.



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**BCA (Semester - II)**  
**Paper-VI: E-Commerce**  
**Session 2023-2024**  
**Assignment List**

1. Explain in details E Commerce trade cycle.
2. What is E commerce? Give scope of E commerce.
3. Explain 1. Supply value chain and 2. Porter's value chain model
4. What is the concept of business strategy? Explain business capability.
5. What are the stages involved in credit trade cycle? Discuss various issues in E marketing.
6. Explain the following 1. Pen and things and 2. future and E markets.
7. What do you mean by E visibility?
8. Write short notes on : 1. E shop and 2. online payments.



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**Practical List**  
**BCA-II (Semester-III) 2023-2024**  
**Subject: DE I**

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1) Explain the method of converting a decimal number into its binary equivalent

with suitable example.

2) Do as directed :

(i)  $(12)_8 \Leftrightarrow (?)_2$

(ii)  $(12)_{10} \Leftrightarrow (?)_2$  (iii)  $(134F)_{16} = (?)_2$  (iv)  $(3467)_8 = (?)_{10}$

Excess-3 Code : 41 + 38

3) Perform the following subtraction using 1's complement method :

(i)  $(10101)_2 - (10010)_2$  (ii)  $(10110)_2 - (1111)_2$

4) How are positive and negative numbers separated in binary ? Explain with

example.

5) Explain AND, OR and NOT gate with their truth table.

6) Why is NOR gate called as universal building block ?

7) Give the logic symbol, truth table and logical expression for 2 input

Ex-

NOR gate.

8) Prove that  $(A+B)(A+B - )=A$

9) State and prove De-Morgan's theorem.

10) What is k-map ? What are advantages and disadvantages of k-map.



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**Department Of Computer Science**  
**BCA Part-II (Semester-IV) 2023-2024**  
**Subject: Software Engineering I**

1. What is software Engineering? Explain evolving role of software.
2. Explain Capability Maturity Model Integration (CMMI) in brief.
3. Explain any one evolutionary process model in detail.
4. Explain waterfall model with its diagram.
5. What is feasibility study and its type.
6. Explain requirement validations for engineering process.
7. Explain design goals.
8. Explain object-oriented design concept using UML.



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## Assignment List

BCA II (Sem IV) 2023-2024

Subject: - Theory of Computation

- 1 Explain Deterministic finite automata and non-Deterministic finite automata with example
- 2 What is Regular Expression? Explain with example.
- 3 Explain Moore machine and Mealy machine with example.
- 4 If L is accepted by an NFA with  $\epsilon$ -transitions, then L is accepted by an NFA without  $\epsilon$ -transitions.
- 5 State and prove the pumping lemma for Regular Expression.
- 6 Show that  $L = \{0^i 1^i / i \geq 1\}$  is not regular.
- 7 What do you mean by Context Free Grammar? Explain.
- 8 Explain Useless Symbol with the help of example.
- 9 Explain Derivation tree, Leftmost Derivation and Rightmost Derivation with example.
- 10 Explain Chomsky Normal form and Greibach normal form with example.
- 11 State and prove the pumping lemma for CFL's.
- 12 Show that, Context-free languages are closed under union, concatenation and Kleene closure.
- 13 Show that  $L = \{a^i b^j c^i / i \geq 1\}$  is not context free language.
- 14 Design a PDA for the language  $L = \{WW^R / W \text{ is in } (0+1)^*\}$ .
- 15 Construct PDA equivalent to the following grammar:  
 $S \rightarrow aAA$        $A \rightarrow aS/bS/a$



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Congress Nagar, Nagpur.  
Assignment List 2023-2024  
Sub:-Software Testing

1. What is software testing? Why is it important in SDLC?
2. Explain processing and monitoring of defects with defect repository.
3. What are the objectives of software testing?
4. Explain the tester's role in software testing.
5. What is difference between the black box and white box testing?
6. What are different levels of testing? Explain in brief.
7. Define domain testing. What is the role of test analyst in testing?
8. Give the guidelines for developing a test plan.
9. Write a note on test process and reporting.
10. Explain alpha testing and Beta testing.



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**Practical List**  
**BCA-II (Semester-IV) 2023-2024**  
**Subject: DE II**

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- 1) Draw logic diagram for 4:1 multiplexer using gates and explain its truth table.
- 2) What is decoder? Explain the construction and working of 2:4 decoder with logic gates.
- 3) What is Flip-Flop? Explain the construction and working of Clocked RS-FF using NAND gates.
- 4) What is modulus of counter? Explain decade counter in brief.
- 5) Construct D-Flip-Flop using NOR gates only and explain its operation.
- 6) What is Addressing Mode? Explain any two addressing mode of 8086 with suitable examples.
- 7) What is flag? Explain Flag register of 8086 microprocessor in detail.
- 8) What is assembler directives? Explain any two assembler directives in detail.
- 9) Write an ALP to find factorial of given 8-bit number.
- 10) What is Encoder? Explain.



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BCA Part-III (Semester-VI) 2023-2024  
Subject: Data Communication Network-II  
Assignment list**

1. Explain OSI Model in detail.
2. Explain TCP/IP protocol architecture.
3. Write a short note on bridges and routers.
4. What is TCP ? Explain TCP service.
5. Define the ISO transport standard.
6. Write a note on UDP.
7. Explain session services in detail.
8. Explain working of DNS.
9. What is HTTP? Explain the general structure of HTTP.
10. Explain ISDN protocol with suitable diagram.
11. Explain B-ISDN architecture.
12. Explain digital Network.



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