| UNITED UNIVERSITY | FIRST MID SEMESTER | EVEN SEM 2025 | ROLL NO. | 2 | 3 | 2 | 0 | 1 | 0 | 1 | 7 |
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COURSE (BRANCH)- BCA — SEMESTER 4TH

TIME:2HRS — SUBJECT- Design and analysis of algorithms — SUBJECT CODE- CAUCBC403T — MM. 30

| | | SECTION –A (ATTEMPT ALL QUESTIONS) | 5 | CO | BLOOMS TAXONOMY LEVEL |
|---|---|---|---|---|---|
| 1 | A | What is meant by analysis of algorithm? | 1 | CO1 | K2 |
| | B | What is Time Complexity? | 1 | CO1 | K2 |
| | C | Write the names of various design techniques of algorithm. | 1 | CO1 | K1 |
| | D | If $f(n)=2^n$ and $g(n)=n^2$ then which one is larger? Justify your answer. | 1 | CO2 | K5 |
| | E | Write the steps of Recursion Tree Method to solve the Recurrence Relations. | 1 | CO2 | K2 |
| | | SECTION –B (ATTEMPT ANY FIVE QUESTIONS) | 10 | | |
| 2 | A | What is an algorithm? Explain the features of algorithms. | 2 | CO1 | K2 |
| | B | Difference between Posteriori and Priori analysis. | 2 | CO1 | K4 |
| | C | State Master Theorem. | 2 | CO1 | K1 |
| | D | What is the Recurrence Relations? Explain with suitable example. | 2 | CO2 | K2 |
| | E | Find out the time complexity for the given pseudo code.<br>for i= 1 to n<br>{<br>print("Hello World !!!")<br>} | 2 | CO2 | K5 |
| | F | Find out the time complexity for the given pseudo code.<br>for(i=1;i²<=n;i++)<br>{<br>Printf("United University")<br>} | 2 | CO2 | K5 |
| | | SECTION –C (ATTEMPT ANY ONE PART FROM EACH QUESTION) | 15 | | |
| 3 | A | Describe the asymptotic notations in detail with the help of example and draw the graph. | 5 | CO1 | K2 |
| | B | Find out the complexities using the Master theorem for the following recurrence equations.<br>a) $T(n) = 3T(n/2) + n^2$ b) $T(n) = 2T(n/2) + n\log n$ c) $T(n) = 4T(n/2) + n^2$ | 5 | CO1 | K5 |
| 4 | A | Explain the space complexity with suitable example. | 5 | CO1 | K2 |
| | B | Find out the complexity using the back substitution method of given Recurrence Relation. $T(n) = \begin{cases} 1; & n = 1 \\ 2T\left(\frac{n}{2}\right) + n; & n > 1 \end{cases}$ | 5 | CO2 | K5 |
| 5 | A | Discuss Bubble sort. Write down the essential steps involved/pseudocode in Bubble sort method? | 5 | CO2 | K5 |
| | B | Discuss Insertion sort. Analyze the time and space complexity of Insertion sort in best case and worst case. | 5 | CO2 | K5 |

| CO MARKS DISTRIBUTION | CO1- 24 | CO2- 23 | CO3- 0 | CO4-0 | CO5-0 |
|---|---|---|---|---|---|
| BLOOMS TAXONOMY DISTRIBUTION | K1-6 | K2-3 | K3- 5 | K4- 2 | K5- 1 |

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| COURSE (BRANCH) : BCA (IBM) | | | SEMESTER 4TH |
|---|---|---|---|
| TIME:2HRS | SUBJECT-Machine learning | SUBJECT CODE- CAUIBC401T | MM. 30 |

| | | SECTION –A (ATTEMPT ALL QUESTIONS) | 5 | CO | BLOOM'S TAXONOMY LEVEL |
|---|---|---|---|---|---|
| 1 | A | What do you understand by regression? | 1 | CO2 | K3 |
| | B | Define environment in terms of reinforcement learning? | 1 | CO1 | K2 |
| | C | What are independent variables? | 1 | CO2 | K4 |
| | D | What is penalty in regularization?. | 1 | CO2 | K4 |
| | E | What is training and testing data? | 1 | CO1 | K1 |
| | | SECTION –B (ATTEMPT ANY FIVE QUESTIONS) | 10 | | |
| 2 | A | Explain the data preprocessing stage in machine learning. | 2 | CO1 | K2 |
| | B | Describe under fitting of a machine learning model. | 2 | CO1 | K2 |
| | C | What is Lasso regression? | 2 | CO2 | K3 |
| | D | Describe simple linear regression with equation. | 2 | CO2 | K3 |
| | E | What do you understand by bias in linear regression? | 2 | CO1 | K3 |
| | F | What are features and label in machine learning? | 2 | CO2 | K2 |
| | | SECTION – C (ATTEMPT ANY ONE PART FROM THREE QUESTIONS) | 15 | | |
| 3 | A | Explain reinforcement learning and its terminologies. | 5 | CO1 | K1 |
| | B | What are the different metrices for evaluation of regression? | 5 | CO2 | K4 |
| 4 | A | Explain linear regression and its types with example and visual representation. | 5 | CO2 | K3 |
| | B | Write and describe the steps to make a liner regression model in python . | 5 | CO2 | K3 |
| 5 | A | What is the difference between supervised machine learning and unsupervised machine learning? Give examples. | 5 | CO1 | K2 |
| | B | Explain the stages of process of machine learning. | 5 | CO1 | K |

| CO MARKS DISTRIBUTION | CO1-22 | CO2-25 | | | |
|---|---|---|---|---|---|
| BLOOMS TAXONOMY DISTRIBUTION | K1-6 | K2-12 | K3-17 | K4-12 | |

| UNITED UNIVERSITY | FIRST MID TERM | EVEN SEM 2024-25 | ROLL NO. |
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COURSE (BRANCH) – BCA/BCA-IBM | SEMESTER –

TIME : 2HRS | SUBJECT– Web Design – Advance | SUBJECT CODE – CAUCBCA061 | MM

| | | SECTION – A (ATTEMPT ALL QUESTIONS) | S | CO | |
|---|---|---|---|---|---|
| 1 | A | What does a semantic element mean in HTML? | 1 | CO1 | K |
| | B | What is the use of Bootstrap? | 1 | CO2 | K |
| | C | Give an example of the <mark> tag in HTML. | 1 | CO1 | K |
| | D | What does a responsive webpa.. mean? | 1 | CO2 | K |
| | E | What is the <aside> tag in HTML? | 1 | CO1 | K |
| | | SECTION – B (ATTEMPT ANY FIVE QUESTIONS) | 10 | | |
| 2 | A | What is the purpose of the <figure> and <figcaption> tags in HTML? | 2 | CO1 | K |
| | B | What is text in css. Give some example also? | 2 | CO2 | K |
| | C | What are the uses of the <details> and <summary> tags in HTML? | 2 | CO1 | K |
| | D | Write Bootstrap code to create a button with a primary color. | 2 | CO2 | K |
| | E | Write CSS code to make an image circular. | 2 | CO2 | K |
| | F | Why is the <meta charset="UTF-8"> tag important in HTML? | 2 | CO1 | K |
| | | SECTION – C (ATTEMPT ANY ONE PART FROM EACH QUESTION) | 15 | | |
| 3 | A | What are the major differences between HTML and HTML5? | 5 | CO1 | K |
| | B | What is the purpose of the <datalist> tag? Give an example. | 5 | CO1 | K |
| 4 | A | What are the features and advantages of Bootstrap 5? | 5 | CO2 | K |
| | B | What is color in css. explain in detail? | 5 | CO2 | K |
| 5 | A | What is the <form> element in HTML? Explain its input controls with an example. | 5 | CO1 | K |
| | B | How can you create a dropdown menu using Bootstrap? Provide the code. | 5 | CO2 | K |

| CO MARKS DISTRIBUTION | CO1– 24 | CO2– 23 | CO3– | CO4– | CO5– |
|---|---|---|---|---|---|
| BLOOMS TAXONOMY DISTRIBUTION | K1– 05 | K2– 09 | K3– 02 | K4– 01 | K5– |

| UNITED UNIVERSITY | FIRST MID SEMESTER | EVEN SEM 2024-25 | ROLL NO. |
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| COURSE (BRANCH)- BCA / BCA-IBM | | | SEMESTER - I |
| TIME:2HRS | SUBJECT- OPERATING SYSTEM | SUBJECT CODE- CAUCBC402T | MM. 30 |

| | | SECTION –A (ATTEMPT ALL QUESTIONS) | 5 | CO | BLOOM'S TAXONOMY LEVEL |
|---|---|---|---|---|---|
| 1 | A | What is an Operating System? | 1 | CO1 | K1 |
| | B | Define multiprogramming. | 1 | CO1 | K1 |
| | C | Define system call. | 1 | CO1 | K1 |
| | D | Explain system program in brief. | 1 | CO2 | K2 |
| | E | Explain process in brief. | 1 | CO2 | K2 |
| | | **SECTION –B (ATTEMPT ANY FIVE QUESTIONS)** | **10** | | |
| 2 | A | Discuss Virtual Machine. | 2 | CO1 | K1 |
| | B | Write short notes on time sharing system. | 2 | CO1 | K2 |
| | C | Explain kernel in brief. | 2 | CO1 | K2 |
| | D | Explain parallel system in brief. | 2 | CO1 | K2 |
| | E | Discuss any two criteria for comparing CPU-scheduling algorithms. | 2 | CO2 | K2 |
| | F | Briefly explain different kinds of schedulers. | 2 | CO2 | K2 |
| | | **SECTION –C (ATTEMPT ANY ONE PART FROM EACH QUESTION)** | **15** | | |
| 3 | A | Explain real time operating system in detail. | 5 | CO1 | K2 |
| | B | Describe process state diagram. | 5 | CO2 | K3 |
| 4 | A | Explain components of operating system in detail. | 5 | CO1 | K2 |
| | B | Suppose that the following processes arrive for execution at the times indicated. Each process will run for the amount of time listed. | 5 | CO2 | K3 |

| Process | Arrival Time | Burst Time |
|---|---|---|
| P1 | 0.0 | 8 |
| P2 | 4.0 | 4 |
| P3 | 1.0 | 1 |
| P4 | 2.0 | 4 |

Using FCFS scheduling algorithm calculate –

i. Average Turnaround Time

ii. Average Waiting Time

| | | | | | |
|---|---|---|---|---|---|
| 5 | A | List and explain any five services of operating system's service. | 5 | CO1 | K2 |
| | B | Explain Inter-Process Communication (IPC). | 5 | CO2 | K2 |

| | | | | | |
|---|---|---|---|---|---|
| CO MARKS DISTRIBUTION | CO1-26 | CO2-21 | CO3-00 | CO4-00 | CO5-00 |
| BLOOMS TAXONOMY DISTRIBUTION | K1-04 | K2-38 | K3-05 | K4-00 | K5-00 |