

Indira Gandhi Institute of Technology, Sarang
2nd Internal Examination (6th Semester B.Tech)

Subject: CD

Time: 1 hr

Full Marks: 15

(Answer any 15 marks)

1. A grammar 'G' which produces more than one parse tree for some productions is known as an Ambiguous Grammar. Right/Wrong [1]

2. In parsing leaf nodes are generally leveled by _____. terminal / non-terminal / Circle [2]

3. List out the data structures used in a symbol table. [2]

4. Construct a DAG for the following: [3]
 $X = (a+b)^*a+y$

or

Find the useful grammar from the following and draw the parse tree

$$S \rightarrow bsx / Xyxx$$

$$Z \rightarrow Dy / z$$

5. What is bottom up parsing ? Explain.
or

Convert the following to postfix notation

$$(R + a) - (n / j) + ((l * T) ^ a)$$

[3]

6. Consider the following Grammar. Perform a LR parsing and Draw the equivalent NFA

$$S \rightarrow B - D / D$$

$$D \rightarrow D + F / F$$

$$F \rightarrow id$$

or

Consider the following grammar. Perform a SLR parsing and draw the goto and action table. [7]

$$S \rightarrow AA$$

$$A \rightarrow aA / b$$

7. Explain the three address code representation of Intermediate code Generation.

or

Consider the expression $S = (b+c) - ((m+n) - k)$. Calculate the three address code of the expression and Draw the code Generation Table using a three Register Operation. [7]

All the Best

Ratnaji - IT a n x

B. Tech 6th Semester 2nd Internal Examination - 2021-22, IGIT
Subject Name: Operating System, Full Marks: 15, Time: 1 Hour
Answer ALL questions. Figure in the right side of question indicates mark.

1. Explain the TLB implementation of the page table. Consider a paging hardware with a TLB. Assume that the entire page table and all the pages are in the physical memory. It takes 10 milliseconds to search the TLB and 80 milliseconds to access the physical memory. If the TLB hit ratio is 0.6, what is the effective memory access time (in milliseconds)? [3]
2. Consider the following virtual page reference string on a demand paged virtual memory system that has main memory size of 3-page frames which are initially empty.

1, 2, 3, 2, 4, 1, 3, 2, 4, 1.

Calculate the number of page faults for FIFO, Optimal, and LRU page replacement algorithms. [6]

3. Consider a disc containing 200 cylinders (in the range 0-199). The current head position is at cylinder 53 and the previous request was for cylinder 162. The queue of next cylinder requests is:

98, 183, 37, 122, 14, 124, 65, 67 (236)

Calculate the number of head movements for SSTF, SCAN, and C-SCAN algorithms. [6]

$$\begin{array}{r} 198 \\ -173 \\ \hline 25 \end{array}$$

$$\begin{array}{r} 199 \\ -162 \\ \hline 37 \end{array}$$

$$199$$

$$37$$

$$\begin{array}{r} 199 \\ -37 \\ \hline 162 \\ +236 \\ \hline 398 \end{array}$$

Department of Computer Science Engineering & Applications
IGIT, Sarang

Stream: B.Tech (6th Sem)

Exam: 2nd Internal

Duration: 1 Hr F.M: 30

Date: 11/05/2022

(Answer All Questions)

Time: 07:00AM – 08:00AM

Subject: Data Science

1. What is systematic sampling? [2]
2. What is machine learning? [2]
3. Why R is used in Data visualization? [2]
4. Differentiate Univariate, bivariate and multivariate analysis. [2]
5. Explain cross validation. [2]
6. What is the difference between an error and residual error? [2]
7. What is correlation and covariance in statistics? [3]
8. What is Data Science? Differentiate Supervised and Unsupervised learning. [5]
9. Differentiate between Normalisation and Standardization. [5]
10. What is confusion matrix? [5]

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

Dept. of Computer Science Engineering and Applications,
Indira Gandhi Institute of Technology, Sarang
Internal Examination-I, 6th Sem BTech(CSE), 2022
Sub: Machine Learning, Time: 1hr., FM: 15
(Answer Any Three Questions)

Q1. (a) Explain the steps involved in designing a learning system?

(b) Define version space. How it is different from hypothesis space? What is the role of inductive bias?

(c) What are the different matrices used for evaluation of a learning model?

Q2. What is the supervised learning? How it is different from unsupervised learning? In which situation learning is required and which applications are suitable for Supervised learning?

Q3. (a) What is inductive learning?

(b) What are the different machine learning techniques?

(c) What is the difference between linearly and non-linearly separable problems explain with suitable example?

Q4. What is concept learning? Define Hypotheses Space? Explain the hypothesis space for a 4 binary feature space with suitable example?