



5200160.

Rajiv Gandhi University of Knowledge Technologies

SRIKAKULAM

(Department of CSE)

MID - I (A.Y.2023-24)

Year/Sem:E2-SEM2

Subject:Compiler Design

Subject Code: 20CS2204

Date: 12-03-2024
Time: 45 Minutes
Max. Marks: 15 Marks

Section - A

Answer the any of the following question.

Q) A) Explain about the following

i) Symbol Table

ii) Input Buffering

(1 X 7 = 7 M)

4M

B) Identify lexemes and tokens in the following code and findout the number of tokens in the following code

```
int main() {
    int x=160,y=140,z;
    z=x+2y-x*y/x;
    printf("%d",z);
    printf("Welcome to CSE!");
    return 0;
}
```

3M

(OR)

Q) What are the various phases of the compiler? Explain each phase in detail

7 M

Section - B

Answer the any of the following question.

Q) A) Do left factoring in the following grammar-

(1 X 8 = 8 M)

 $S \rightarrow aAd / aB$ $A \rightarrow a / ab$ $B \rightarrow ccd / ddc$

$$\begin{aligned} S &\rightarrow aS' \\ S' &\rightarrow Ad / B \\ A &\rightarrow aS' \\ B &\rightarrow \epsilon / b \\ B' &\rightarrow \epsilon \end{aligned}$$

2M

Q) What will be the entries in predictive parsing table for given grammar?

4M

 $S \rightarrow iBfSS^1 / d$ $S^1 \rightarrow eS / \epsilon$ $B \rightarrow b$

2M

Q) Consider the following grammar and eliminate left recursion-

 $E \rightarrow E + T / T$ $T \rightarrow T \times F / F$ $F \rightarrow (E) / id$

(OR)

Q) Calculate the FIRST and FOLLOW functions for the given grammar-

4M

 $S \rightarrow ACB / CbB / Ba$ $A \rightarrow da / BC$ $B \rightarrow g / \epsilon$ $C \rightarrow h / \epsilon$

Q) List the rules for computing FIRST and FOLLOW SET and Calculate the FIRST and FOLLOW functions for the given grammar-

4M

 $S \rightarrow (L) / a$ $L \rightarrow SL^1$ $L^1 \rightarrow ,SL^1 / \epsilon$

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SRIKAKULAM

(Department of Computer Science and Engineering)

MID – 1(A.Y.2023-24)

Year/Sem:E2/SEM2

Subject: Web Technologies

Subject Code: 20CS2203

Date: 20-02-2024

Time: 45 Minutes

Max. Marks: 15 Marks

Section – A

Answer the any of the following question. (1 X 7 = 7 M)

1. Explain the following terms with examples (i) Absolute Positioning (ii) Relative Positioning (7 M)

(OR)

2. Write a JavaScript program to create a dropdown menu that shows and hides its options when clicked. (7 M)

Section – B

Answer the any of the following question. (1 X 8 = 8 M)

3. \$var = 'PHP Tutorial'. Put this variable into the title section, h3 tag and as an anchor text within an HTML document.

Sample Output :

.PHPTutorial

PHP, an acronym for Hypertext Preprocessor, is a widely-used open source general-purpose scripting language. It is a cross-platform, HTML embedded server-side scripting language and is especially suited for web development.

Go to the PHP Tutorial.

(OR)

4. Write a PHP script to display string values within a table. (8 M)

Salary of Mr. A is	1000\$
Salary of Mr. B is	1200\$
Salary of Mr. C is	1400\$

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Rajiv Gandhi University of Knowledge Technologies SRIKAKULAM

Department of Computer Science and Engineering

MID - 1 (A.Y.2023-24)

Year/Sem	: E2-SEM2	Date	: 19-02-2024
Subject	: Computer Organization & Architecture	Time	: 45 Minutes
Subject Code	: 20CS2201	Max. Marks: 15 Marks	

Section - A

Answer the any of the following question.

1. Define Computer Architecture? Explain the basic functional blocks of a computer in high level abstraction. (1 X 7 = 7 M)

(OR)

2. Illustrate the functioning of a **4 bit Carry Look-Ahead Adder**, and articulate the derived formulas for both the **Sum** and **Carry Outputs** (7 M)

Section - B

Answer the any of the following question.

(1 X 8 = 8 M)

3. Describe the process of converting the number $(12.125)_{10}$ into IEEE 754 Single Precision format. Write the step-by-step calculations, and provide the final representation. (8 M)

(OR)

4. Write an algorithm for Restoring Division applicable to signed numbers, including a demonstration with a Dividend of -19 and a Divisor of 7. Explain each step and draw a clear flowchart. (8 M)

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Rajiv Gandhi University of Knowledge Technologies
 SRIKAKULAM
 Academic Year 2023 – 24: Semester II
 MID-1
 Department of Computer Science & Engineering
 20CS2202 - Data Science with Python

Year: ENGG-2
 Time: 45 Minutes

Date of Examination: 12-03-2024
 Max Marks: 15

Answer the following questions
 Write any one question from Section - A which carries 8 marks and any one question from Section B which carries 7marks

Section -A

1. (a) Explain about mechanism which could pass variable number of arguments to function in python (4marks)
 (b) Given a positive integer, write a function to find if it is a power of two or not. (4marks)
2. (a) What is lambda function in Python? Why is it used? Explain with an example (4marks)
 (b) Whether passing of arguments comes under call-by value or reference in python? What is the output of the following program ? And explain whether it is call value or reference? (4marks)

```
def appendNumber(arr):
    arr.append(4)
arr = [1, 2, 3]
print(arr)
appendNumber(arr)
print(arr)
```

Section-B

3. (a) Write a program that reads a text file and counts the occurrences of each word, then writes the word counts to a new text file. (5marks)
 (b) Explain the purpose of Python's sort() and sorted() functions for lists. (2marks)
4. (a) Write atleast ten functions using numpy and explain them. (5marks)
 (b) Create a Python program that capitalizes the first letter of each word in a sentence. (2marks)

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(Department of CSE)

MID - 1 (A.Y.2023-24)

Year/Sem:E2-SEM2

Subject: Introduction to operations research

Subject Code:

Date: 11-03-2024

Time: 45 Minutes

Max. Marks: 15 Marks

Section - A

Answer the any of the following question.

(1 X 7 = 7 M)

1. What is decision making? Briefly explain the process of decision making.

(OR)

2. Define operations Research. techniques and application areas of operations research?

Section - B

Answer the any of the following question.

(1 X 8 = 8 M)

3. AG & Co makes Tables and Beds. A table requires 2 man-hours for cutting, 1 man-hour for shaping and 3 man-hours for finishing while a bed requires 2 man-hours for cutting, 2 man-hours for shaping and 1 man-hour for finishing. Each day the company has available 140 man-hours for cutting, 120 man-hours for shaping and 150 man-hours for finishing. How many each type of item should the company manufacture each day in order to maximize profit if a table yields a profit of Rs.10 and a bed yields a profit of Rs.8? solve the problem with using graphical method.

(OR)

4. Solve the following LPP with using simplex method.

$$\text{Max } Z = 12x_1 + 16x_2$$

Sub to

$$\begin{aligned}10x_1 + 20x_2 &\leq 120 \\8x_1 + 8x_2 &\leq 80 \\x_1, x_2 &\geq 0\end{aligned}$$

$$16x_1 + 0x_2$$

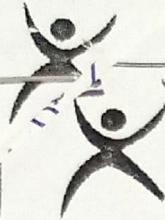
$$= \left(16 \times \frac{1}{2} + 0 \times 4\right) - 12.$$

$$8 + 0 - 12 \quad (16 + 0) - 16$$

$$\frac{16}{1/2} \quad \frac{16}{1} \times \frac{2}{1}$$

$$\frac{8}{2} \quad \frac{16}{1/2}$$

$$5 \quad \frac{16}{1} \times \frac{2}{1}$$



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SRIKAKULAM

(Department of Computer Science and Engineering)
MID – 2(A.Y.2023-24)

Year/Sem:E2-SEM2

Subject: Data Science with python

Subject Code: 20CS2202

Date: 03-04-2024

Time:- 45 Minutes

Max. Marks: 15 Marks

Section – A

Answer the any of the following question. (1 X 7 = 7 M)

- ~~1~~ A) What are the different ways in which a dataframe can be created? (4M)
B) What are the significant features of the pandas Library? (3M)

(OR)

- 2 A) How to Handle groupby in Python?? (4M)
~~B~~ B) How to Know If the Data Has Missing Values? (3M)

Section – B

Answer the any of the following question. (1 X 8 = 8 M)

- ~~3~~ A) What is data binning and why is it important in data analysis? (4M)
B) Explain how can perform equal-width binning in Python about datascience ? (4M)

(OR)

- 4 Write python code for the following employee dataset to handle missing values and perform grouping based on the departments? (8M)

Emp ID	Age	Department	Salary	Years in Company
1	30	HR	5000	5
2	35	SALES	6000	3
3	40	IT		8
4	45	ME	7000	2
5	30	FINANCE	5500	10
6	35	HR	4800	6
7	40		6500	4
8	45	SALES	6200	1

df['pe'].replace('?', np.nan, inplace=True)

df.fillna(1)

df.g

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(Department of Computer Science and Engineering)

MID - 2(A.Y.2023-24)

Year/Sem:E2-SEM2

Subject: Computer Organization and Architecture

Subject Code: 20CS2201

Date: 02-04-2024

Time: 45 Minutes

Max. Marks: 15 Marks

Section - A

Answer the any of the following question.

(1 X 7 = 7 M)

- Q. A) What is main memory and explain about the memory hierarchy with neat sketch? (1M+3M)
B) Explain about the design of hardware control unit? (3M)

(OR)

2. A) Explain about the type of Instruction sets? (4M)

- B) Explain about the execution of complete execution? (3M)

Section - B

Answer the any of the following question.

(1 X 8 = 8 M)

- Q. A) Explain about the differences between SRAM and DRAM ? (4 M)
B) What is the process and designing of the micro programmed controlunit? (4M)

(OR)

4. A) Explain about the types of addressing modes in COA? (4M)

- B) What is the process and designing of the CPU? (4M)

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(Department of Computer Science & Engineering)

MID - 2 (A.Y.2023-24)

Year/Sem:E2-SEM2

Subject: INTRODUCTION TO OPERATIONS RESEARCH (IOR)

Subject Code: 23BM2202

Date: 03-04-2024

Time: 45 Minutes

Max. Marks: 15 Marks

Section - A

Answer the any of the following question.

1. Define the following (1 X 7 = 7 M)
a) Sensitivity analysis
b) Shadow pricing

(OR)

2. Write the dual for the each of the following primal problems

(a) Maximize $z = -5x_1 + 2x_2$
subject to

$$-x_1 + x_2 \leq -2$$

$$2x_1 + 3x_2 \leq 5$$

$$x_1, x_2 \geq 0$$

(b) Minimize $z = 6x_1 + 3x_2$
subject to

$$6x_1 - 3x_2 + x_3 \geq 2$$

$$3x_1 + 4x_2 + x_3 \geq 5$$

$$x_1, x_2, x_3 \geq 0$$

Section - B

Answer the any of the following question.

(1 X 8 = 8 M)

1. What is meant by Linear Programming and its Assumptions?

(OR)

3. Solve the following linear programming problem by using Big M method

Maximize $Z = 3x_1 + x_2$
subject to $2x_1 + x_2 \leq 2$,
 $x_1 + 3x_2 \geq 3$,
 $x_2 \leq 4$,
 $x_1, x_2 \geq 0$.

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(Department of Computer Science and Engineering)
MID - 2 (A.Y.2023-24)

Year/Sem:E2-SEM2
Subject:Web Technologies
Subject Code: 20CS2203

Date: 04-04-2024
Time: 45 Minutes
Max. Marks: 15 Marks

Section - A

(1 X 7 = 7 M)

Answer any one of the following questions.

(OR)

A) Explain the concept of chaining in jQuery and provide an example. (3M)

B) Differentiate Git and GitHub.(3M)

(OR)

Q. How does Google Oauth provide security for Server side web apps

Section - B

(1 X 8 = 8 M)

Answer any one of the following questions.

Q. a) What are some common challenges and best practices for migrating from a relational database to a NoSQL database?(4M)

b) What is a document-oriented database, explain with an example.(4M)

(OR)

Q. How can you use jQuery to create a custom plugin and how does it differ from a regular function?



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(Department of CSE)

MID – 2 (A.Y.2023-24)

Year/Sem:E2-SEM2

Subject:Compiler Design

Subject Code: 20CS2204

Date: 04-04-2024

Time: 45 Minutes

Max. Marks: 15 Marks

Section – A

Answer the any of the following question. (1 X 7 = 7 M)

A) Illustrate Bottom-up parsing Technique with an example? 3M

B) Consider the following grammar 4M

$$S \rightarrow (L) | a$$

$$L \rightarrow L, S | S$$

Parse the input string (a , (a , a)) using a shift-reduce parser.

(OR)

2. Construct the CLR(1) Parsing table for the following grammar 7M

$$\begin{aligned} S &\rightarrow CC \\ C &\rightarrow c C \mid d \end{aligned}$$

Section – B

Answer the any of the following question. (1 X 8 = 8 M)

3. Construct the SLR(1) Parsing table for the following grammar 8M

$$E \rightarrow E + T \mid T$$

$$T \rightarrow TF \mid F$$

$$F \rightarrow F^* \mid a \mid b$$

Also, Parse the input string **a * b + a** using SLR(1) Parsing table

(OR)

4. Construct LALR (1) Parsing table for a given grammar. 8M

$$S \rightarrow A \ a \mid b \ A \ c \mid dc \mid bda$$

$$A \rightarrow d$$

Parse the input string **bdc** using LALR(1) Parsing Table.



Rajiv Gandhi University of Knowledge Technologies SRIKAKULAM

(Department of Computer Science Engineering)

MID – 3 (A.Y.2023-24)

Year/Sem:E2-SEM2

Subject:Web Technologies

Subject Code: 20CS2203

Date: 08-05-2024

Time: 45 Minutes

Max. Marks: 15 Marks

Section – A

Answer any of the following question.

(1 X 7 = 7 M)

~~1.~~ How to align navbar items to the right in Bootstrap 5?

(OR)

~~2.~~ State different Front End web UI?

Section – B

Answer any of the following question.

(1 X 8 = 8 M)

~~3.~~ Discuss the objectives and purpose of responsive web design.

How it is different from static web. Explain it with example. (8 M)

(OR)

~~4.~~ Explain the process of uploading files from local to remote repository.

And how you get updated data of remote repo in local repository? (8 M)

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(Department of Computer Science and Engineering)

MID – 3 (A.Y.2023-24)

Year/Sem : E2-SEM2

Subject : Computer Organization & Architecture

Subject Code: 20CS2201

Date: 06-04-2024

Time: 45 Minutes

Max. Marks: 15 Marks

Section – A

Answer the any of the following question.

(1 X 7 = 7 M)

1. Explain any two cache mapping Techniques with example

(7 M)

(OR)

2. Differentiate between memory mapped I/O and I/O mapped I/O in detail

(7 M)

Section – B

Answer the any of the following question.

(1 X 8 = 8 M)

3. Consider the main memory has three page frames (0,1,2), the processor requires the pages Virtual memory in the following sequences of page numbers 4,7,3,0,1,7,3,8,5,4,5,3,7,4. Calculate the Hits and Misses and show the best algorithm out of FIFO, LRU and LFU

(8 M)

(OR)

4. A. Explain the working model of Direct Memory Access and its significance in Computer System. Illustrate your answer with a block diagram depicting the components involved in DMA operations.

(8 M)

**Rajiv Gandhi University of Knowledge Technologies
SRIKAKULAM**

(Department of Computer Science & Engineering)

MID – 3 (A.Y.2023-24)

Year/Sem:E2-SEM2

Subject: INTRODUCTION TO OPERATIONS RESEARCH (IOR)
Subject Code: 23BM2202

Date: 06-05-2024

Time: 45 Minutes

Max. Marks: 15 Marks

Section – A

Answer the any of the following question.

1. The rate of arrival of customers at a counter follows Poisson distribution with a average time of ten minutes between one customer and the next. The time required for service follows exponential distribution with a mean time of three minutes.
- (a) What is the probability that a customer arriving at the counter will have to wait.
(b) What is the average length of queue.
(c) What is the average length of system.
(d) What is the average waiting time in the system.
- (1 X 7 = 7 M)

(OR)

2. Write a short note on

- a. Queuing theory b. Balking c. Reneging d. Jockeying
- (7 M)

Section – B

Answer the any of the following question.

(1 X 8 = 8 M)

3. Determine an initial basic feasible solution to the following Transportation problem using
- a. North west corner rule method
b. Vogel's approximation method
- (8M)

JOBS Workers \	D1	D2	D3	D4	D5	SUPPLY
W1	2	11	10	3	7	4
W2	1	4	7	2	1	8
W3	3	9	4	8	12	9
DEMAND	3	3	4	5	6	21

(OR)

4. Define cost and its classification?

(8M)

20160

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SRIKAKULAM

(Department of CSE)

MID – 3 (A.Y.2023-24)

Year/Sem:E2-SEM2

Subject:Compiler Design

Subject Code: 20CS2204

Date: 07-05-2024

Time: 45 Minutes

Max. Marks: 15 Marks

Section – A

Answer the any of the following question.

(1 X 7 = 7 M)

A) write the differences between S-attributed Definition and L-attributed Definition 3M

B) Construct SDT to Convert the Infix expression into Postfix expression 4M

(OR)

~~2. A~~ Construct SDT to generate intermediate code for the given arthemetic expression

$$x=a+b*c$$

5M

~~B~~ Consider the following Syntax Directed Translation Scheme (**SDTS**), with non-terminals {S, A} and terminals {a, b}.

S → aA {print 1}

S → a {print 2}

A → Sb {print 3}

Using the above **SDTS**, the output printed by a bottom-up parser, for the input aab is:

2M

Section – B

Answer the any of the following question.

(1 X 8 = 8 M)

~~1.~~ Explain about Code optimization Techniques in detail ?

8M

(OR)

~~4.~~ Explain in detail about peephole optimization ?

8M

5200160

1

Rajiv Gandhi University of Knowledge Technologies
SRIKAKULAM

Academic Year 2023 – 24: Semester II
MID-1

Department of Computer Science & Engineering
20CS2202 - Data Science with Python

Year: ENGG-2
Time: 45 Minutes

Date of Examination: 07-04-2024
Max Marks: 15

Answer the following questions
Write any one question from Section - A which carries 8 marks and any one question from Section B which carries 7marks

Section -A

1. Differentiate the following
 - a) Supervised Learning vs Unsupervised Learning
 - b) L1 Norm vs L2 Norm
 - c) classification vs regression
 - d) Linear Regression vs Non-Linear Regression

2. Define overfitting and underfitting in the context of regression analysis. Discuss the causes of overfitting and underfitting and their implications for model performance.

Section-B

3. Discuss the role of advanced visualization techniques such as word clouds, waffle charts, and geospatial mapping in data analysis. Provide examples of scenarios where each technique can be applied effectively.
4. Explain the anatomy of charts. Define Matplotlib and describe its features and capabilities as a data visualization library in Python. Discuss the types of plots and charts that can be created using Matplotlib and its integration with other Python libraries.

R-20 Rajiv Gandhi University of Knowledge Technologies-Andhra Pradesh
E-2 Sem-2 End Semester Examinations, June-24

20BM2202 Introduction to Operation Research
(Computer Science and Engineering)

Max Marks: 60

Time: 3 hours

I.D No.:

Part - B

Answer all the following Questions. Each question carries seven marks $6 \times 7 = 42$ Marks

UNIT-1

- 1 Explain the scope of operations research (OR) in management.

7M

(OR)

- 2 Define operations research (OR) and explain the applications of OR techniques.

7M

UNIT-2

- 3 (a) What are assumptions in Linear programming models
(b) Solve the Linear programming problem graphically.

3M

4M

$$\text{Minimize } Z = 20x_1 + 10x_2,$$

$$\text{Subjected to } x_1 + 2x_2 \leq 40,$$

$$3x_1 + x_2 \geq 30,$$

$$4x_1 + 3x_2 \geq 60,$$

$$x_1, x_2 \geq 0$$

(OR)

7M

- 4 Solve the Linear programming problem using simplex method.

$$\text{Maximize } Z = 3x_1 + 2x_2 + 5x_3,$$

$$\text{Subjected to } x_1 + x_2 + x_3 \leq 9,$$

$$2x_1 + 3x_2 + 5x_3 \leq 30,$$

$$2x_1 - x_2 - x_3 \leq 8,$$

$$x_1, x_2, x_3 \geq 0$$

UNIT-3

7M

- 5 Solve the following Linear programming problem by Big - M method.

$$\text{Maximize } Z = 4x_1 + 5x_2 - 3x_3,$$

$$\text{Subjected to } x_1 + x_2 + x_3 = 10,$$

$$x_1 - x_2 \geq 1,$$

$$2x_1 + 3x_2 + x_3 \leq 40,$$

$$x_1, x_2, x_3 \geq 0$$

(OR)

- 6 Solve the following Linear programming problem by dual method

7M

$$\text{Maximize } Z = 3x_1 + 4x_2,$$

$$\text{Subjected to } x_1 + x_2 \leq 12,$$

$$2x_1 + 3x_2 \leq 30,$$

$$x_1 + 4x_2 \leq 36,$$

$$x_1, x_2 \geq 0$$

- 7 Solve the following transportation problem by North west corner cell method (NWCM) to obtain optimal basic feasible solutions 7M

	A	B	C	D	Supply
1	3	1	7	4	250
2	2	6	5	9	350
3	8	3	3	2	400
Requirement	200	300	350	150	

(OR)

- 8 Consider the problem of assigning five jobs to five persons. The assignments costs are as follows: Determine optimal solution by assignment policy. 7M

	1	2	3	4	5
A	8	4	2	6	1
B	0	9	5	5	4
C	3	8	9	2	6
D	4	3	1	0	3
E	9	5	8	9	5

UNIT-5

- 9 Briefly explain the assumptions and limitations of Queuing models. 7M

(OR)

- 10 A self-service store employs one cashier at its counter. Nine customers arrive on an average every 5 minutes while the cashier can serve 10 customers in 5 minutes. Assuming Poisson distribution for arrival rate and exponential distribution for service time, find 7M

- a) Average number of customers in the system.
- b) Average number of customers in the queue or average queue length.
- c) Average time a customer spends in the system.
- d) Average time a customer waits before being served.

UNIT-6

- 11 Explain the classification of inventories in detail. 7M

(OR)

- 12 A stockiest has to supply 400 units of a product every Monday to his customers. He gets the product at 50 per unit from the manufacturer. The cost of ordering and transportation from the manufacturer is 75 per order. The cost of carrying inventory is 7.5% per year of the cost of the product. Find a) the economic lot size, b) the total optimal cost (including the capital cost), c) the total weekly profit if the item is sold for 55 per unit. 7M

***** THE END *****

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Q.P. Code:2422201/A

R-20 Rajiv Gandhi University of Knowledge Technologies-Andhra Pradesh
E-2 Sem-2 End Semester Examinations, June-24

20BM2202 Introduction to Operation Research
(Computer Science and Engineering)

Time: 3 hours

I.D No.:

Max Marks: 60

Part - A

Answer all the following Questions. Each question carries one mark. $18 \times 1 = 18$ Marks

- 1 Operations research (OR) is a very powerful tool for _____

A Assignment	B Research
C Decision making	D Transportation
- 2 Which of the following is not the phase of OR methodology?

A Constructing a model	B Controlling the environment
C Establishing controls	D Formulating a problem
- 3 While solving an LPP, infeasibility may be removed by

A Adding a variable	B Removing a variable
C Adding a constraint	D Removing a constraint
- 4 Graphical optimal value for Z can be obtained from

A Corner points of the feasible region	B Corner points of the infeasible region
C Midpoint of the feasible region	D Midpoint of the infeasible region
- 5 Non negativity restriction in LPP indicates that

A Non negative value of resources	B A positive coefficient of variables in any constraint
C All decision variables must take on values equal to or greater than zero	D A positive coefficient of variables in objective function
- 6 A tie for leaving variables in simplex method implies

A Optimality	B Cycling
C No solution	D Degeneracy
- 7 The coefficient of artificial variable in the objective function of maximization problem is

A 0	B 1
C $-M$	D $+M$
- 8 Every LPP is associated with another LPP is called _____

A Primal	B Dual
C Linear programming	D Non-linear programming
- 9 For maximization LPP, the simplex method is terminated when all values

00321

- A** $C_j - Z_j \leq 0$ **B** $C_j + Z_j \leq 0$
C $C_j - Z_j \geq 0$ **D** $C_j + Z_j \geq 0$
- 10** When the total allocations in a transportation model of $m \times n$ size do not equal to $m+n-1$ the situation is known as
A Unbalanced situation **B** Tie situation
C Balanced situation **D** Degeneracy
- 11** To find the optimal solution, we apply _____
A MODI Method **B** LPP
C VAM **D** RIM
- 12** In marking assignments, which of the following should be preferred
A Only row having single zero **B** Only column having single zero
C Only row/column having single zero **D** Column having more than one zero
- 13** If the number of arrivals in an interval follows ___ distribution
A Binomial **B** Poisson
C Gamma **D** Exponential
- 14** The characteristics of a queuing model are independent of
A Number of service stations **B** Limit of the length of the queue
C Service Pattern **D** Queue discipline
- 15** In queue designation A/B/S: (d/f), what does B represents:
A Arrival Pattern **B** Service Pattern
C Number of service channels **D** The capacity of the system
- 16** The Economic Order Quantity (EOQ) is calculated as
A $\sqrt{2RCo/Cc}$ **B** $\sqrt{(RCo/Cc)}$
C $\sqrt{(RCo/2Cc)}$ **D** $\sqrt{(Co/Cc)}$
- 17** Which of the following is true for Inventory control?
A Economic order quantity has minimum total cost per order **B** Inventory carrying costs increases with quantity per order
C Ordering cost decreases with lot size **D** All of the above
- 18** In _____ models, everything is defined and the results are certain
A Deterministic Models **B** Probabilistic Models
C Both A and B **D** Stochastic Models

R-20 Rajiv Gandhi University of Knowledge Technologies-Andhra Pradesh
E-2 Sem-2 End Semester Examinations, June-24

20CS2203 Web Technologies
(Computer Science and Engineering)

Time: 3 hours Student I.D No.: 5200160, Max Marks: 60

Part - B

Answer all the following Questions. Each question carries seven marks $6 \times 7 = 42$ Marks

UNIT-1

1 (A) Create the following table

Web Information Solutions

Sr. No.	Details of the Services Provided	Qty	Service Period		Service Performance Details			
			From	To	S.No.	Service ID No:	Gap in Service (in days)	Overall Performance Remarks (Satisfactory/un-satisfactory)
1					1			
					2			
					3			
2					1			
					2			

B) Explain the difference in between let, const & var with an example

(OR)

2 Write a Java Script function to check whether given number is prime or not

UNIT-2

3 Create a form

Application Form

First Name: Last Name:

Date of birth: Age:

Gender: Male Female Email Address:

Positions Available: • Junior Developer • Mid-level Developer • Senior Developer

Programming Languages: Java JavaScript Python

Password: Confirm Password:

(OR)

4 Define DOM. What are the ways of adding JavaScript code in an HTML file? What are the different ways an HTML element can be accessed in a JavaScript code?

3M

7M

7M

UNIT-3

customer_id	customer_name	city	grade	5
3002	Nick Rimando	New York	100	
3005	Graham Zusi	California	200	
3001	Brad Guzan	London		
3004	Fabian Johns	Paris	300	
3007	Brad Davis	New York	200	
3009	Geoff Cameron	Berlin	100	
3008	Julian Green	London	300	
3003	Jozy Altidore	Moncow	200	

salesman			
salesman_id	name	city	commission
5001	James Doog	New York	0.15
5002	Mail Knite	Paris	0.13
5005	Pit Alex	London	0.11
5006	Mc Lyon	Paris	0.14
5003	Lauson Hen		0.12
5007	Paul Adam	Rome	0.13

ord_no	purch_amt	ord_date	customer_id	salesman_id
70001	150.50	2012-10-05	3005	5002
70009	270.65	2012-09-10	3001	5005
70002	65.26	2012-10-05	3002	5001
70004	110.50	2012-08-17	3009	5003
70007	948.50	2012-09-10	3005	5002
70005	2400.60	2012-07-27	3007	5001
70008	5760.00	2012-09-10	3002	5001
70010	1281.43	2012-10-10	3004	5006
70003	2480.40	2012-10-10	3009	5003
70012	250.45	2012-06-27	3008	5002
70011	75.29	2012-08-17	3003	5007
70013	3045.60	2012-04-25	3002	5001

- A. Find the highest purchase amount on a date '2012-08-17' for each salesman with their ID. 1M
- B. Display all the orders that had amounts that were greater than at least one of the orders from September 10th 2012. 2M
- C. Display names and city of salesman, who belongs to the city of Paris 1M
- D. Find the number of salesman currently listing for all of their customers. 1M
- E. Display the order number, order date and the purchase amount for order(s) which will be delivered by the salesman with ID 5001. 2M

00135

(OR)

- 6 A. Find the highest purchase amount with their customer ID and order date, for only those customers who have the highest purchase amount in a day is more than 2000. 2M
- B. display only those customers whose grade are, in fact, higher than every customer in New York. 1M
- C. Display all the orders which values are greater than the average order value for 10th October 2012. 2M
- D. Display names and city of salesman, who belongs to the city of Paris. 1M
- E. Retrieve salesman id of all salesmen from orders table without any repeats. 1M

UNIT-4

- 7 Explain about the basic steps that were followed while accessing Google API 7M

(OR)

- 8 Differentiate NoSQL & SQL databases? List out different NoSQL databases based on the categorization 7M

UNIT-5

- 9 Explain CAP theorem .List out two differences in between SQL and NoSQL. 7M

(OR)

- 10 What is JQUERY? Explain following JQUERY selector methods 7M
- a) fadeIn()
 - b) fadeOut()
 - c) fadeToggle()
 - d) fadeTo()
 - e) hide()

UNIT-6

- 11 a) What is GIT? why GIT? 2M
b) Explain some basic GIT commands with examples? 5M

(OR)

- 12 Explain any five bootstrap Js Components and write a sample program on each component? 7M

***** THE END *****

20CS2203 Web Technologies
(Computer Science and Engineering)

Time: 3 hours**Student I.D No.: 5200160,**
Part - A**Max Marks: 60****Answer all the following Questions. Each question carries one mark. $18 \times 1 = 18$ Marks**

- 1 Which of the following can read and render HTML web pages

A Web browser	B server
C Head tak	D empty
- 2 Among the following operators identify the one which is used to allocate memory to array variables in JavaScript.

A new	B Malloc()
C New malloc()	D Calloc()
- 3 Which of the following attribute is used for merging two or more adjacent columns?

A Colspan	B Row span
C Cellpadding	D cellspacing
- 4 On which model is www based upon

A Local server	B Client server
C 3tier	D none
- 5 Which of the following is not a valid SQL type?

A FLOAT	B NUMERIC
C DECIMAL	D CHARACTER
- 6 Which of the following is not a DDL command?

A TRUNCATE	B ALTER
C CREATE	D UPDATE
- 7 Which of the following is not a valid aggregate function?

A COUNT	B COMPUTE
C SUM	D MAX
- 8 Which operator is used to compare a value to a specified list of values?

A ANY	B BETWEEN
C ALL	D IN
- 9 jQuery is a -

A JavaScript method	B JavaScript library
C JSON library	D PHP method
- 10 Which of the following sign is used as a shortcut for jQuery?

A the % sign	B the & sign
C the \$ sign	D the @ sign
- 11 The correct syntax for selecting the first paragraph element with id p1 is -

A \$("p.p1:first")	B \$("p1#p:first")
C \$("p#p1:first")	D None of the above

- 12** Which of the following class in Bootstrap is used to provide a responsive fixed width container?
A .container-fixed **B** container-fluid
C .container **D** All of the above
- 13** The Bootstrap grid system is based on how many columns?
A 4 **B** 12
C 6 **D** 8
- 14** Which plugin is used to cycle through elements, like a slideshow?
A Carousel Plugin **B** Tooltip Plugin
C Modal Plugin **D** None of the mentioned
- 15** Which of the following methods is used to access HTML elements using Javascript?
A getElementById() **B** getElementByClassName()
C Both a and b **D** none
- 16** Which of the following methods can be used to display data in some form using Javascript?

A document.write() **B** console.log()
C window.alert() **D** All of the above
- 17** What will be the output of the following code snippet?

```
<script type="text/javascript">
a = 5 + "9";
document.write(a);
</script>
```


A 59 **B** Compiler error
C Runtime error **D** 9
- 18** What will be the output of the following code snippet?

```
<script type="text/javascript" language="javascript">

var a = "Scaler";
var result = a.substring(2, 4);
document.write(result);

</script>
```


A al **B** ale
C cal **D** caler

R-20 Rajiv Gandhi University of Knowledge Technologies-Andhra Pradesh
E-2 Sem-2 End Semester Examinations, June-24

20CS2204 - Compiler Design
(Computer Science Engineering)

Time: 3 hours **Student I.D No.:** **Max Marks: 60**

Part - B

Answer all the following Questions. Each question carries seven marks 6X7= 42 Marks

UNIT-1

1. What is compiler? What are the various phases of the compiler? Explain each phase in detail. 7M

(OR)

- a. Explain lexical errors in lexical analyzer phase? 3M
b. Draw the transition diagram for relational operators, keywords and signed natural numbers? 4M

UNIT-2

3. Construct the parsing table for the following grammar and verify whether it is LL (1) or not? 4M

a. $S \rightarrow 1AB/\epsilon$

$A \rightarrow 1AC/0C$

$B \rightarrow 0S$

$C \rightarrow 1$

b. $E \rightarrow aA/(E)$ 3M

$A \rightarrow +E/*E/\epsilon$

(OR)

4. Check whether the following grammar is LR(0) or not? 7M

$S \rightarrow (L)S$

$S \rightarrow x$

$L \rightarrow S$

$L \rightarrow L,S$

UNIT-3

5. Check whether the following grammar is LR(1) and LALR(1) ? 7M

$S \rightarrow AA$

$A \rightarrow aA/b$

(OR)

6. Check whether the following grammar is LALR(1) or not ?

7M

$$S \rightarrow Aa/bAc/dc/bda$$

$$A \rightarrow d$$

UNIT-4

7. a. What is intermediate code? Which are the advantages of it?

3M

b. How to Implement THREE ADDRESS CODE?

4M

(OR)

8. Consider the following expressions and construct a DAG for it-

2M

a. $(a + b) \times (a + b + c)$

2M

b. $((a + a) + (a + a)) + ((a + a) + (a + a))$

c. (1) $a = b \times c$

3M

(2) $d = b$

(3) $e = d \times c$

(4) $b = e$

(5) $f = b + c$

(6) $g = f + d$

UNIT-5

7M

9. Explain runtime storage management?

(OR)

10. a. Explain semantic directed definition with example?

3M

b. Write the differences between S-attributed and L-attributed definitions?

4M

UNIT-6

7M

11. Explain about the following

i) leader ii) Symbol Table iii) lexemes

iv) static single assignment v) Tokens vi) basic block vii) flow graph

(OR)

12. Discuss the design issues of Code Generator.

7M

20CS2204 - Compiler Design
 (Computer Science Engineering)

Time: 3 hours

Student I.D No.: 5200160,

Max Marks: 60

Part - A

Answer all the following Questions. Each question carries one mark. $18 \times 1 = 18$ Marks

- 1 What is the action of parsing the source program into proper syntactic classes known as?

A Interpretation analysis	B General syntax analysis
C Syntax analysis	D Lexical analysis
- 2 What does a bottom-up parser generate?

A Rightmost derivation in reverse	B Rightmost derivation
C Leftmost derivation in reverse	D Leftmost derivation
- 3 Identify the data structure which has minimum access time in case of symbol table implementation?

A Self-organizing list	B Hash table
C Search tree	D Linear
- 4 Identify the most powerful parser?

A LALR	B SLR
C Canonical LR	D Operator-precedence
- 5 Through which type of grammar can synthesized attributes can be simulated?

A Ambiguous grammar	B LR grammar
C LL grammar	D none
- 6 Identify the technique used to replace run-time computations with compile-time computations

A Code hoisting	B Pee hole optimization
C Invariant computation	D Constant folding
- 7 Identify the correct definition of lexical analysis?

A Breaking sequence of characters into packets.	B Breaking sequence of characters into groups
C Breaking sequence of characters into tokens.	D Breaking sequence of characters into lines.
- 8 Which grammar gives multiple parse trees for the same string?

- A** Unambiguous **B** Regular
C Ambiguous **D** All of the above

9 Which of the following parser is a top-down parser?
A LALR parser **B** LR parser
C Operator precedence parser **D** Recursive descent parser

10 Which graph describes the basic block and successor relationship?
A Control graph **B** DAG
C Flow graph **D** Hamilton graph

11 The most general phase of structured grammar is?
A Context-sensitive grammar **B** Context-free grammar
C Regular grammar **D** All of these

12 Which compiler runs on one machine and generates code for multiple machines?
A Multipass compiler **B** Cross compiler
C Optimizing compiler **D** Onepass compiler

13 Which phenomenon happens when the non-terminal on the left side is repeated as the first symbol on the right side?
A Left-most derivation **B** Left recursion
C Left factoring **D** Left parsing

14 The execution time of the code depends on?
A the usage of machine idioms **B** the way the registers are used
C the orders in which the computations are performed **D** All of the mentioned

15 Consider the following grammar:

S -> FR

$$R \rightarrow^* S \mid \varepsilon$$

$F \rightarrow id$

In the predictive parser table, M , of the grammar the entries $M [S, id]$ and $M [R, \$]$ respectively.

- 16 Which of the following option is not a function of the shift-reduce parser?

 - A {S " FR} and {R " ε}
 - B {S " FR} and {}
 - C {S " FR} and {R " * S}
 - D {F " id} and {R " ε}

17 The method which merges the bodies of two loops is

 - A Constant folding
 - B Loop jamming
 - C Loop unrolling
 - D None of these

18 Which data structure in a compiler is used for managing information about variables and their attributes?

 - A Abstract Syntax Tree
 - B Symbol Table
 - C Semantic Stack
 - D Parse Table

20CS2201 Computer Organization & Architecture
(Computer Science and Engineering)Time: 3 hours Student I.D No.: S200160, Max Marks: 60
Part - BAnswer all the following Questions. Each question carries seven marks $6 \times 7 = 42$ Marks

UNIT-1

- 1 (a) Explain functionality of a computer with a block diagram. 4M
 (b) What is MSB and LSB? Explain them with examples. 3M
 (OR)
 2 (a) Represent r's compliment and (r-1)'s compliment with examples. 4M
 (b) Explain i/o subsystems in details. 3M

UNIT-2

- 3 Multiplicand B=0111, multiplier A= 0011. Explain the hardware implementation and flowchart for Booth's multiplication operation on multiplicand B=0111, multiplier A= 0011
 (OR)

- 4 Describe instruction execution cycle. 4M
 Discuss about RTL. 3M

UNIT-3

- 5 Explain the 8086 architecture in detail with a neat sketch. 7M
 (OR)

- 6 Write the control sequence for execution of the instruction "Add contents of memory location addressed in memory direct mode to register R1" i.e $R1 \leftarrow R1 + [NUM]$. 7M

UNIT-4

- 7 What is virtual memory? Explain page fault handling technique with a neat sketch. 7M
 (OR)

- 8 What is belady's anomaly? Identify which algorithm has the anomaly among all the replacement algorithms. 7M

Reference string: 7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1 and frame size is 3.

UNIT-5

- 9 Explain DMA. 3M
 Explain design issues of RISC. 4M

(OR)

- 10 Explain RAID levels. 7M

UNIT-6

- 11 What is pipelining? Explain the pipeline performance calculation. 7M
 (OR)

- 12 What is branching? Explain how to deal with branching. 7M

***** THE END *****

00146

R-20 Rajiv Gandhi University of Knowledge Technologies-Andhra Pradesh
E-2 Sem-2 End Semester Examinations, June-24

20CS2201 Computer Organization & Architecture
(Computer Science and Engineering)

Time: 3 hours Student I.D No.: S200160 Max Marks: 60

Part - A

Answer all the following Questions. Each question carries one mark. $18 \times 1 = 18$ Marks

- 1 Which component of the computer generates the control signals?
A Control unit B Arithmetic logic unit
C Central processing unit D Registers

2 For faster accessing what kind of memory is used?
A Cache memory B Register
C Main memory D Magnetic disk

3 Four-bit binary code for binary number is _____.
A 1110 B 1100
C 1111 D 1101

4 In the following indexed addressing mode instruction, MOV 5(R1), LOC the effective address is _____.
A EA = R1 B EA = 5+R1
C EA = [R1] D EA = 5 + [R1]

5 What is the size of instruction queue in 8086 microprocessors?
A 6 bytes B 5 bytes
C 4 bytes D 3 bytes

6 RISC instructions use _____ addressing mode.
A Index addressing mode B Simple register
C Register indirect D Immediate

7 In multiple bus organization i.e. two bus structure to transfer data from one to the other bus _____ is used.
A Memory bus B Address bus
C Bus tie D PC

8 MFC is used to _____.
A Issue a read signal B Assign a device to perform the read operation
C Signal to the device that the memory read operation is complete D Signal the processor the memory operation is complete

- 9 What is a control word (CW)?
A Individual bits to represent control signal
B Group of bits represent control signal
C Neither individual nor Group of bits
D Both individual and group of bits
- 10 _____ is a way to find the efficiency of CPU.
A Input
B Throughput
C Output
D I/O
- 11 What is starvation?
A Process gets blocked for definite time
B Process executes for indefinite time
C Process gets blocked for indefinite time
D Process does not get blocked
- 12 A computer uses RAM chips of 1024x1 capacity. How many chips are needed to provide memory capacity of 64K bytes.
A 8
B 16
C 128
D 512
- 13 The classification of BUSes into synchronous and asynchronous is based on _____.
A The timing of data transfers
B The type of data transfers
C The devices connected to them
D None of the mentioned
- 14 RAID level ___ spreads parity and data among all N+1 disks rather than storing data in N disks and parity in 1.
A 6
B 5
C 4
D 3
- 15 How many types of modes of I/O data transfer?
A 1
B 2
C 3
D 4
- 16 The periods of time when the instruction is idle is called as _____.
A Stalls
B Bubbles
C Hazards
D Both Stalls and Bubbles
- 17 SMPs, clusters, and NUMA systems fits into _____ category.
A Multiple Instruction, Multiple Data (MMID) system
B Multiple Instruction, Single Data (MISD) system
C Single Instruction, Multiple Data (SMID) system
D Single Instruction, Single Data (SMID) system
- 18 What does the term 'k' refer to
A No of clock cycles
B No of buffers
C No of stages
D No of instructions

**R-20 Rajiv Gandhi University of Knowledge Technologies-Andhra Pradesh
E-2 Sem-2 End Semester Examinations, June-24**

**20CS2202 Data Science with Python
(Computer Science and Engineering)**

Time: 3 hours

Student I.D No.: S200160 ,

Max Marks: 60

Part - B

Answer all the following Questions. Each question carries seven marks $6 \times 7 = 42$ Marks

UNIT-1

1 Discuss why python is a first choice for data scientists? **7M**

(OR)

2 List and explain all the data structures in python. **7M**

UNIT-2

3 Consider an html file. **7M**

```
<html>
<td>
<a href="http://www.linktosomewhere.net" title="title here">Click Link</a>
<br />Data Science with python<br />CSE Students<br />ALL THE BEST</td>
</html>
```

Write a python program to scrape the above file, extract values associated with tags and properties.

(OR)

4 Write a python program to generate fibonacci series **7 M**

UNIT-3

5 What is the Data Wrangling process? Define exploratory data analysis? Why is EDA required in data analysis? **7M**

(OR)

6 What do you mean by missing values? Explain the different ways to handle the missing value with examples. **7M**

UNIT-4

7 A dataset is given below. Using python code **4M**

Over	1	2	3	4	5	6	7	8	9
Runs	18	11	10	17	19	9	8	5	6

Over	11	12	13	14	15	16	17	18	19	20
Runs	8	11	16	12	17	14	14	18	16	20

- a) Using Python, construct the scatter plot and polynomial regression using 9th order.
(1M+3M=4M)

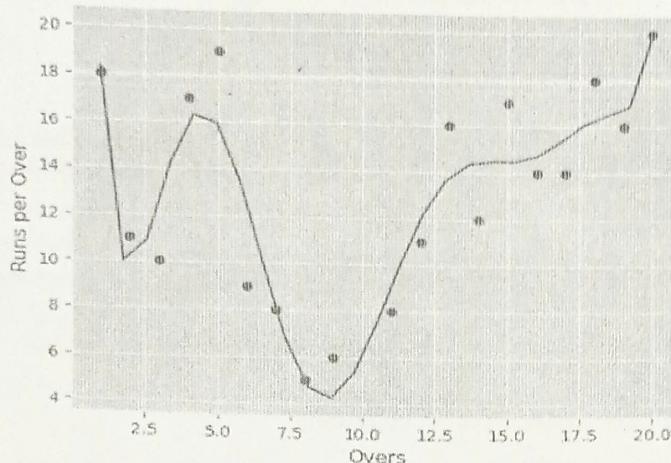


Fig: Polynomial Regression using order 9.

- b) To evaluate the model, find the R^2 – value and predict the runs in the 10th over using python (2M+1M=3M) 3M

(OR)

- 8 Define Ridge regression. What is the need of ridge regression? Implement ridge regression using python. 7M

UNIT-5

- 9 What do you understand about Data visualization? Using the Matplotlib library to construct the basic visualization plots/charts. 7M

(OR)

- 10 Write a Python program to create a pie chart with a title of the popularity of programming Languages. Sample data:
Programming languages: Java, Python, PHP, JavaScript, C#, C++
Popularity: 22, 17, 8, 8, 7, 6 7M

UNIT-6

- 11 Differentiate supervised and unsupervised learning. 7M

(OR)

- 12 Illustrate classification with examples in machine learning. *M

***** THE END *****

20CS2202 Data Science with Python
(Computer Science and Engineering)

Time: 3 hours

Student I.D No.: S200160

Max Marks: 60

Part - A

Answer all the following Questions. Each question carries one mark. $18 \times 1 = 18$ Marks

- 1 Is Python code compiled or interpreted?
 A Python code is both compiled and interpreted
 B Python code is only compiled
 C Python code is neither compiled nor interpreted
 D Python code is only interpreted
- 2 What will be the output of below code?
 def help():
 try:
 return 1
 finally:
 return 2
 m=help()
 print(m)
 A 1
 B error, there is more than one return statement in a single try-finally block
 C 3
 D 2
- 3 You are given the text file abc.txt whose contents are:
 Hello everyone
 Today is DSP exam
 All the best students
 What will be the output of the following code?
 myfile=open("abc.txt",'r')
 str=myfile.readline(7)
 str=myfile.readline()
 str=myfile.readline(10)
 print(str)
 myfile.close()
 A Hello ever
 B Hello e
 C Today is a
 D Today i
- 4 Which of the following statements is correct to add NaN values in series?
 A s=pd.Series([10,np.NaN,11])
 B s=pd.Series([10,None,11])
 C Both A & B
 D None of the above
- 5 What is the datatype of series S in given below
 S=pd.Series([10,23.67,"hello"])
 A int64
 B object
 C float64
 D object64
- 6 All pandas data structures are ___ mutable but not always ___ mutable.
 A value, size
 B semantic, size
 C size, value
 D) none of the mentioned
- 7 Which of the following methods should you use to replace a missing value of an attribute with continuous values?

- A Use the difference between the minimum and maximum values of the other data in the column
 C Use the mean square error of the other data in the column
- 8.** What protocol can be used to retrieve web pages using python
 A urllib
 C HTTP
 D GET
- 9.** The values of coefficient of regression lies between
 A [-1, 1]
 C [0, 1]
- 10.** Which of the following helps you decide on bin values when pre-processing data?
 A Visualize the distribution using a histogram
 C Use the interquartile range
- 11.** Which of the following is related to pie chart?
 A Comparison in different categories of data
 C Data trend over period of time
- 12.** Which machine learning algorithm is suitable for solving regression problems?
 A Apriori algorithm
 C K-Nearest Neighbors (KNN)
- 13.** Which machine learning algorithm is inspired by the functioning of the human brain's neural networks?
 A Artificial Neural Networks
 C Decision Trees
- 14.** Which machine learning approach is based on the assumption that similar data points are more likely to have the same labels?
 A Anomaly detection
 C Regression
- 15.** An area plot, also known as an area chart or graph, displays the _____ of multiple variables.
 A Proportion and perimeter
 C Proportion and area
- 16.** A histogram is a way of representing the frequency distribution of a _____.
 A Numeric dataset
 C Demographic dataset
- 17.** The "Regression" technique in Machine Learning is a group of algorithms that are used for:
 A Finding items/events that often co-occur; for example grocery items that are usually bought together by a customer
 C Predicting a continuous value; for example predicting the price of a house based on its characteristics
- 18.** Which of the following is **not true** about Machine Learning?
 A Machine learning gives computers the ability to make decisions by writing down rules and methods and being explicitly programmed.
 C Machine Learning models iteratively learn from data, and allow computers to find hidden insights.
- B Use an educated guess
 D Use the average of the other values in the column
- B Real number
 D None
- B Divide the average by the standard deviation
 D Convert objects to ints
- B Contribution of individual values to total value
 D Relationship between two sets of numeric data
- B K-Means clustering
 D Random Forest
- B Support Vector Machines (SVM)
 D K-Means clustering
- B Classification
 D Clustering
- B Magnitude and proportion
 D Magnitude and area
- B Alphabetical dataset
 D Statistical dataset
- B Prediction of class/category of a case; for example, a cell is benign or malignant, or a customer will churn or not.
 D Both A & B
- B Machine Learning models help us in tasks such as object recognition, summarization, and recommendation.
 D Machine Learning was inspired by the learning process of human beings.