21COADS501 Reg No : .....

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.C.A FIFTH SEMESTER DEGREE EXAMINATION OCTOBER 2025

COMPUTER APPLICATIONS

Cloud Computing

Duration:2 Hours **Max Marks:60**

PART A

Answer any FIVE questions: **(5×2= 10)**

1) What is Parallel computing?
2) List the features of VMware vSphere.
3) What are dockers?
4) List the disadvantages of Public Cloud.
5) What is SQL azure?
6) What is Type 2 hypervisor?

PART B

Answer any FIVE questions : **(5×6= 30)**

7) Explain the characteristics of cloud computing.
8) Explain application virtualization.
9) Explain the fabric services supported in aneka container.
10) Explain the Google Application Lifecycle.
11) Explain cloud reference model.
12) Describe an application of cloud technologies for social networking.

PART C

Answer any TWO questions : **(2×10= 20)**

13) Explain the advantages and disadvantages of virtualization.
14) Describe how cloud computing technology can be applied to support remote ECG monitoring.
15) Compare the different service models.

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CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.C.A FIFTH SEMESTER DEGREE EXAMINATION OCTOBER 2025

COMPUTER APPLICATIONS

Design and Analysis of Algorithms

Duration:2 Hours **Max Marks:60**

PART A

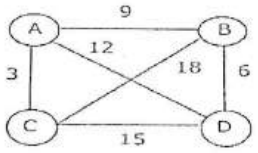
Answer any FIVE questions: **(5×2= 10)**

1) What is algorithm design technique?
2) Write the steps to perform selection sort.
3) What are the important problem types of algorithm design technique?
4) Explain Decision Tree.
5) What are the basic asymptotic efficiency classes?
6) What is sorting?

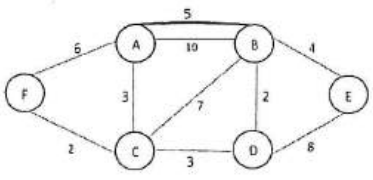
PART B

Answer any FIVE questions : **(5×6= 30)**

7) Explain the Fundamentals of the analysis of algorithm efficiency.
8) How can Exhaustive Search be applied to the Travelling Salesman problem given below

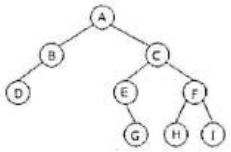


9) What is binary search? Apply binary search for the elements: 3, 14, 27, 31, 39, 42, 55, 70, 74, 81, 85, 93, 98 to search K=70, and write the number of cases.
10) Apply Kruskal's Algorithm for the graph given below to find the minimum spanning tree.



11) List out the steps in Mathematical Analysis of Recursive Algorithms with an example.

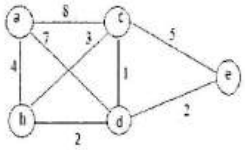
12) Apply Pre-order, In-order, Post-order for the tree given below.



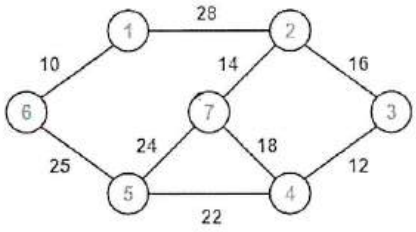
PART C

Answer any TWO questions : **(2×10= 20)**

13) Find the shortest path from vertex 'a' to the remaining vertices for the Graph given below using Dijkstra's Algorithm.



14) Demonstrate the Prim's algorithm to find the Minimum Spanning Tree by using the graph given below.



15) i) Write an algorithm to implement sequential search.

ii) A list of unsorted elements are given. Find the element 14 and 9, return its index if it exists or indicate that it's not present using sequential search from the list given below.

42,15, 7,23, 14, 10, 32, 8

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21COAC502 Reg No : .....

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.C.A FIFTH SEMESTER DEGREE EXAMINATION OCTOBER 2025

COMPUTER APPLICATIONS

Statistical Computing and R Programming

Duration:2 Hours **Max Marks:60**

Answer any THREE of the following : **(3×2= 06)**

1. Write about vectors in R.
2. Write about sub and gsub function.
3. What is the purpose of the break statement in loops?
4. What is the difference between Chi square test and One Way ANOVA?
5. Explain the cocept of a Probability with an example.

Answer any FOUR of the following in not more than a page each : **(4×6= 24)**

6. Explain numeric data types in R with suitable examples.
7. What are functions in R? Differentiate between built-in and user-defined functions with examples.
8. Explain type I and type II error with an example
9. Calculate the median for the following data:

Age(years)	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No.of persons	2	5	9	12	14	15	16

10. What is Box plot? Explain importance of Boxplot with example.
11. Calculate Karl Pearson's coefficient of correlation for the following data and comment on the result.

x	7	4	6	9	3	8
y	8	5	4	8	3	6

Answer any THREE of the following in not more than two page each : **(3×10= 30)**

12. Which are the functions used to add points, lines, text, arrows and legend to the plot? Explain each function with an example.

13. Explain stand alone statements with an example and give one example for switch function in R.

14. Explain t-test and One sample proportion test with an example.

15. How will you find Quartile Deviation for a grouped data? Find Quartile Deviation for the following data.

Class Interval	0-2	2-4	4-6	6-8	8-10	10-12
Frequency	20	35	42	25	60	10

16. Write a note on a) Uniform distribution and b) Exponential distribution.

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CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.C.A FIFTH SEMESTER DEGREE EXAMINATION OCTOBER 2025

COMPUTER APPLICATIONS

Statistical Computing and R Programming

Duration:2 Hours **Max Marks:60**

Answer any THREE of the following : **(3×2= 06)**

1. What is a list in R?
2. What is Coercion and give one example
3. List two disadvantages of data visulaization in R.
4. Explain One sample t-test and independent t-test.
5. List any four characteristics of Normal distribution.

Answer any FOUR of the following in not more than a page each : **(4×6= 24)**

6. Explain operations on matrices with an example.
7. Differentiate between `for`, `while`, and `repeat` loops in R with examples.
8. Define correlation. Explain the difference between **positive correlation** and **negative correlation** with examples.
9. Write about Binomial Distribution
10. Briefly explain the scatter plot and histograms with examples? What are its importance?
11. Write a short note on a) Simple regression, b) Correlation matrix and c) Scatter diagram.

Answer any THREE of the following in not more than two page each : **(3×10= 30)**

12. Explain the following functions with example a) floor() b) sqrt() c) round() d) is.numeric() e) abs()
13. Explain functions for accessing the keyboard and monitor, reading and writing files.
14. Expain One way ANOVA and Chi-suare test with an example.

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15. Calculate the Mean Deviation from Mode for the following data.

Class Interval	0-2	2-4	4-6	6-8	8-10	10-12
Frequency	220	345	452	280	63	10

16. What is prbobability distribution? Explain.

a) Marginal probability b) Joint probability and c)Conditional probability distributions with an example.

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21COAC503 Reg No : .....

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.C.A FIFTH SEMESTER DEGREE EXAMINATION OCTOBER 2025

COMPUTER APPLICATIONS

Software Engineering

Duration:2 Hours **Max Marks:60**

PART A

Answer any FIVE questions: **(5×2= 10)**

1) What is domain requirement?
2) What is generalisation?
3) What is interaction model?
4) What is change tolerance?
5) What is model driven architecture?
6) What is configuration management?

PART B

Answer any FIVE questions : **(5×6= 30)**

7) Explain Software Engineering Code of Ethics and Professional Practice.
8) What is system modeling? Explain.
9) Write the sequence diagram describing data collection.
10) What is requirements management? Explain.
11) What are the stages of testing?
12) What is client-server pattern? Explain.

PART C

Answer any TWO questions : **(2×10= 20)**

13) What are system requirements? Explain.
14) a) What is the use of architectural models? Explain.
    b) Explain architecture and system charecteristics.
15) What are the types of user testing? What are the stages in acceptance testing process?

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23SKL301 Reg. No.....

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
THIRD SEMESTER B.A./B.Sc./B.Com./B.B.A DEGREE EXAMINATION
OCTOBER 2025
Cyber Security

Time: 30 Mins. **Max. Marks: 30**

1. What is Cyber Security?
   1. Cyber Security provides security against malware
   2. Cyber Security provides security against cyber-terrorists
   3. Cyber Security protects a system from cyber attacks
   4. All of the mentioned

2. What does cyber security protect?
   1. Cyber security protects criminals
   2. Cyber security protects internet-connected systems
   3. Cyber security protects hackers
   4. None of the mentioned

3. Which of the following is not an advantage of cyber security?
   1. Makes the system slower
   2. Minimizes computer freezing and crashes
   3. Gives privacy to users
   4. Protects system against viruses

4. By gaining access to the Trojaned system the attacker can stage different types of attack using that _____ program running in the background.
   1. Trojan
   2. Virus
   3. Antivirus
   4. Anti-malware

5. Phishers often develop _____ websites for tricking users & filling their personal data.
   1. legitimate
   2. illegitimate
   3. genuine
   4. official

6. Some security issues might exist owing to misconfigured _____ which can direct to disclosure of information regarding the domain.
   1. DNS names
   2. HTTP setup
   3. ISP setup
   4. FTP-unsecured

7. _____ are tiny files which get downloaded to your system when you visit a website.
   1. Cookies
   2. Caches
   3. Bots
   4. Crawlers

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8. Compromising a user's session for exploiting the user's data and do malicious activities or misuse user's credentials is called _____
   1. Session Hijacking
   2. Session Fixation
   3. Cookie stuffing
   4. Session Spying

9. An attempt to harm, damage or cause threat to a system or network is broadly termed as _____
   1. Cyber-crime
   2. Cyber Attack
   3. System hijacking
   4. Digital crime

10. _____ are also used to hide user's physical location.
   1. Firewall
   2. Antivirus
   3. Incognito mode
   4. VPN

11. What is a social network?
   1. A type of computer network
   2. A platform for connecting with friends and family online
   3. A method for data storage
   4. A programming language

12. Which tool is commonly used for social media monitoring?
   1. Microsoft Excel
   2. Google Analytics
   3. Hootsuite
   4. AutoCAD

13. A challenge of using social networks is
   1. Increased productivity
   2. Privacy concerns
   3. Enhanced communication
   4. Network security

14. To improve social media security, users should
   1. Click on all links received
   2. Use weak passwords
   3. Enable two-factor authentication
   4. Share their login details

15. Posting inappropriate content on social media can lead to
   1. Increased followers
   2. Legal consequences
   3. More likes
   4. Higher ad revenue

16. To maintain a positive online presence users should:
    1. Engage in cyber bullying
    2. Share unverified information
    3. Be respectful and considerate
    4. Ignore privacy settings

17. Which element is commonly analyzed in social media case studies?
    1. Cooking recipes
    2. Audience engagement metrics
    3. Agricultural techniques

18. Which of the following is NOT an example of cybercrime against individuals?
    1. Phishing
    2. Theft of Identity
    3. Denial of Service
    4. Malware Attacks

19. Which of the following is an example of cyber terrorism?
    1. Hacking into an individual's email account
    2. Cyber espionage by governments to spy on rival nations
    3. Stealing credit card information
    4. Phishing emails

20. Which of the following is a preventive measure against ransom ware attacks?
    1. Avoid social media
    2. Keep systems and software updated
    3. Use weak passwords
    4. Share information freely

21. Which of the following is an example of cybercrime against property?
    1. Cyber stalking
    2. Malware
    3. Identity theft
    4. Phishing

22. Which of the following organizations is responsible for cybercrime prevention against women and children in India?
    1. CERT-IN
    2. CPWC
    3. CCPWC
    4. CBI

23. What is spyware used for?
    1. Encrypting files
    2. Monitoring online activities and stealing information
    3. Spamming users with unwanted emails
    4. Blocking access to websites

24. Which of the following is a consequence of a data breach?
    1. Increased system efficiency
    2. Reputational damage
    3. Enhanced cyber security
    4. Unauthorized system upgrades

25. Which of the following is NOT a category of cybercrime?
    1. Against individuals
    2. Against properties
    3. Against devices
    4. Against society

26. What is the Information Technology Act, 2000 primarily focused on?
    1. Regulating social media
    2. Providing legal recognition to electronic commerce
    3. Monitoring financial transactions
    4. Preventing online harassment

27. In cyber law, what does the term 'cyber defamation' refer to?
    1. Posting false or defamatory information online
    2. Hacking into a website and deleting content
    3. Hijacking a website for political propaganda
    4. Phishing to gain user credentials

28. Under the Information Technology Act, 2000 of India, what is the punishment for identity theft under Section 66C?
    1. Up to 2 years imprisonment and a fine
    2. Up to 5 years imprisonment and a fine
    3. Up to 3 years imprisonment and a fine
    4. Up to 10 years imprisonment and a fine

29. Which legal term refers to the protection of original works, such as software programs, from being copied or distributed without permission?
    1. Trademark law
    2. Patent law
    3. Copyright law
    4. Data protection law

30. In cyber law, what does the term "data breach" refer to?
    1. Manipulation of data to deceive users
    2. Unauthorized access and disclosure of sensitive information
    3. Loss of data due to system malfunction
    4. Corruption of data by malware

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23SKL501 Reg. No.....

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
FIFTH SEMESTER B.A./B.Sc./B.Com./B.B.A./B.C.A. DEGREE EXAMINATION
OCTOBER 2025

EMPLOYABILILITY SKILLS

Duration: 2 Hours **Max. Marks: 60**

1. Complete the series 4,6,9,13,....
   1. 17
   2. 18
   3. 19
   4. 20
2. Complete 64, 32, 16, 8, ?
   1. 0
   2. 1
   3. 2
   4. 4
3. A series that is, made of alphabetic letters is called _____series
   1. Number
   2. Alphabetic
   3. Mixed
   4. Alpha-numeric
4. A series which is created by the combination of two or more than two series is called _____ series.
   1. Number
   2. Alphabetic
   3. Mixed
   4. Alpha-numeric
5. A series in which both alphabet and number s are used is called _____ series.
   1. Number
   2. Alphabetic
   3. Mixed
   4. Alpha-numeric
6. Natural number which are divisible by 2 are _____ numbers
   1. Even
   2. odd
   3. Natural
   4. Prime
7. Odd numbers are denoted by ___
   1. E
   2. O
   3. N
   4. P

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8. If the numerator is less than the denominator, then it is called a ____ fraction
   1. proper
   2. improper
   3. mixed
   4. not mixed

9. if the numerator is greater than or equal to its denominator, then it is an ____fraction.
   1. proper
   2. improper
   3. mixed
   4. Not mixed

10. Find the missing letter K1,M3, P5, T7,_____
   1. Y9
   2. Y11
   3. V9
   4. V11

11. What is the full form of LCM
   1. Least Common Multiple
   2. Largest Common Multiple
   3. Linked Common Multiple
   4. Large Common Multiple

12. What is the LCM of 12 and 20
   1. 60
   2. 2
   3. 12
   4. 20

13. What is the LCM of 24, 36, 40
   1. 360
   2. 120
   3. 240
   4. 480

14. What does the 'V' in VBODMAS stand for
   1. Vinculum
   2. Values
   3. Volume
   4. Vacuum

15. What does the 'O' in VBODMAS stand for
   1. Of
   2. options
   3. on
   4. None of the above

16. Sum of two positive numbers is a ___ number
    1. positive
    2. negative
    3. all of the above
    4. none of the above

17. Simplify 7-2+13-5-2+1
    1. 12
    2. 13
    3. 14
    4. 15

18. What is the square of 9
    1. 81
    2. 79
    3. 64
    4. 65

19. What is the square of 7
    1. 49
    2. 79
    3. 69
    4. 89

20. Is 144 a perfect square?
    1. True
    2. False

21. Is 169 a perfect square?
    1. True
    2. False

22. What is the cube of 9?
    1. 729
    2. 79
    3. 64
    4. 65

23. What is the cube of 7?
    1. 343
    2. 79
    3. 69
    4. 89

24. Is 343 a perfect cube?
    1. True
    2. False

25. In indices, simplify: 5^25 / 125^8

1. 5
2. 10
3. 15
4. 100

26. What is the angle between the hour and minute hands of a clock at 3:00 PM?

1. 0 degrees
2. 15 degrees
3. 30 degrees
4. 90 degrees

27. How many months have 31 days in a calendar year?

1. 10
2. 11
3. 12
4. 7

28. If today is Monday, what day will it be 50 days from now?

1. Monday
2. Tuesday
3. Wednesday
4. Thursday

29. How many degrees does the minute hand move in one hour?

1. 30 degrees
2. 60 degrees
3. 90 degrees
4. 360 degrees

30. What is the total number of days in a leap year?

1. 364
2. 365
3. 366
4. 367

31. What time is it when the hour and minute hands of a clock are exactly opposite each other?

1. 12
2. 6
3. 3
4. 9

32. The unknown quantities used in any equation is known as

1. Algebra
2. Equation
3. Variable
4. Constant

33. Find the value of x if 2x-5=3

1. 4
2. 5
3. 7
4. 1

34. What is the solution to the equation x + 7 = 12

1. 5
2. 7
3. 12
4. 19

35. Which of the following represents the solution to 5x - 3 = 12

1. 3
2. 5
3. 6
4. 9

36. Simplify the expression 2a + 4a - 3a

1. 3a
2. 5a
3. 6a
4. 7a

37. Profit is defined as:

1. The amount earned from selling a product.
2. The difference between the cost price and the selling price when the selling price is higher.
3. The total revenue generated from sales.
4. The amount of money spent on production.

38. A loss occurs when

1. The selling price is greater than the cost price.
2. The cost price is equal to the selling price.
3. The selling price is less than the cost price.
4. The cost price is higher than the production cost.

39. The profit percentage is calculated using which of the following formula?

1. (Selling Price - Cost Price) / Cost Price × 100%
2. (Cost Price - Selling Price) / Selling Price × 100%
3. Selling Price / Cost Price × 100%
4. (Selling Price + Cost Price) / 2

40. Which of the following statements about profit and loss is correct?

1. A loss percentage is always calculated based on the selling price.
2. Profit is calculated based on the selling price and is expressed as a percentage of the cost price.
3. Profit percentage is calculated based on the cost price.
4. Both profit and loss percentages are calculated based on the cost price.

41. If a product is sold at a 10% profit, this means:
    1. The selling price is 10% less than the cost price.
    2. The selling price is 10% more than the cost price.
    3. The cost price is 10% more than the selling price.
    4. The cost price is 10% less than the selling price.

42. The word 'per cent' is derived from the latin word _____
    1. per centum
    2. per centinum
    3. per centra
    4. None of the above

43. Numerator of the fraction in percentage is called the _____.
    1. rate per cent
    2. rate
    3. All of the above
    4. None of the above

44. Per centum' means _____
    1. per hundred
    2. per centinum
    3. per centra
    4. None of the above

45. Fractional equivalent of 2% is ____
    1. 1/50
    2. 1/100
    3. 1/80
    4. 1/90

46. Fractional equivalent of 5% is ____
    1. 1/20
    2. 1/100
    3. 1/80
    4. 1/90

47. The sum lent is called___
    1. Principal
    2. Interest
    3. Amount
    4. All of the above

48. Which of the following is not a type of interest
    1. Prime Interest
    2. Simple Interest
    3. Compound Interest
    4. All of the above

49. When interest is calculated on the original principal for any length of time, it is called _____

1. Amount
2. Simple Interest
3. Compound Interest
4. All of the above

50. Principal + Simple interest = _____

1. Principal
2. Interest
3. Amount
4. All of the above

51. . Find the interest to be paid on a loan of 6,000 at 5% p.a for 5 years.

1. 1500
2. 500
3. 2000
4. 1000

52. In coding language, if TRAINS is coded as RTIASN, then how will FLOWER be coded as?

1. LFOWER
2. LFWORE
3. WORELF
4. ERFLOW

53. If the word MACHANIC is coded as EMHCNACI in a certain code language, then how will WESTSIDE be coded in the same language?

1. EWTSISED
2. EWTSSIED
3. EWTSISDE
4. WETSSIED

54. In a code language, if TWENTY is coded as 863985 and ELEVEN is coded as 323039, how would you code TWELVE in the same code language?

1. 863903
2. 86365
3. 863203
4. 683583

55. If wall is called window, window is called door, door is called floor, floor is called roof, roof is called ventilator, what will a person be standing on?

1. door
2. ventilator
3. Roof
4. floor

56. If A is the father of B, but B is not the son of A, what is B to A?

1. Daughter
2. Brother
3. Sister
4. Mother

57. Pointing to a photograph, A says, "He is the son of the only son of my father." How is the person in the photograph related to A?

1. Brother
2. Son
3. Nephew
4. Cousin

58. If A is the mother of B, and B is the father of C, how is A related to C?

1. Aunt
2. Grandmother
3. Daughter
4. Sister

59. Mr Deepak Mohan walks 5 km towards the south and then turns to the right. After walking 3 km he turns to the left and walks 5 km. What direction is he facing right now?

1. West
2. South
3. North-East
4. South-West

60. Sowmya Krishnan walked 20 m towards the north. Then she turned right and walks 30 m. Then she turns right and walks 35 m. Then she turns left and walks 15 m. Finally she turns left and walks 15 m. In which direction and how many meters is she from the starting position?

1. 15 m West
2. 30 m East
3. 30 m West
4. 45 m East

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