R6762	Sub. Code
	541201

M.C.A. DEGREE EXAMINATION, APRIL – 2022.

Second Semester

Computer Applications

DESIGN AND ANALYSIS OF ALGORITHMS

(CBCS – 2020 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Pseudo Code?

2. List some methods for specifying an Algorithm.

3. What is Sorting?

4. What is Time Efficiency?

5. What is Dynamic Programming?

6. What is Knapsack problem?

7. What is Combinatorial Object?

8. Mention the purpose of Optimization.

9. What is Backtracking?

10. Mention the importance of Graph Colouring.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write the fundamental of Algorithm for Problem Solving.

Or

(b) Discuss briefly about the Mathematical Analysis for Recursive Algorithms.

12. (a) Discuss in detail about Section Sort with example.

Or

(b) Explain briefly about the Divide and Conquer Technique with example.

13. (a) Explain in detail about the Prim's Algorithm with suitable example.

Or

(b) Briefly describe the Greedy Technique with suitable example.

14. (a) Write a short note on Insertion Sort?

Or

(b) Explain briefly about generation Combinatorial Objects.

15. (a) Briefly explain the Assignment Problem and its application.

Or

(b) Write a short note on NP Complete Problem.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write the Algorithm for Computing Fibonacci Sequence of Numbers.

17. Explain briefly about

    (a) Depth first search

    (b) Breath first search

18. Discuss briefly about the Dijikstra's Algorithm and its benefits.

19. Explain briefly about

    (a) Problem Reduction

    (b) Reduction of Optimization Problem

20. Give a brief account on 8 Queen's Problem with suitable example.

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M.C.A. DEGREE EXAMINATION, APRIL – 2022.

Second Semester

Computer Applications

ADVANCED JAVA PROGRAMMING

(CBCS – 2020 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. What is the need for java Language?
2. What is Architecture Neutral?
3. Differentiate static binding and dynamic binding.
4. What are the properties of an interface?
5. What is metadata?
6. What is JDBC Driver?
7. What is a Datagram?
8. Define RMI.
9. What is URL and give its format?
10. What is the use of JApplet?

Section B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the different components of JDK? Explain.

Or

(b) Illustrate the difference between java & C++. Why is Java language important in relevance to the Internet?

12. (a) Explain in detail about visibility control in java.

Or

(b) Explain wrapper classes.

13. (a) Narrate the SQL Exception Methods.

Or

(b) Explain JDBC classes.

14. (a) Write short notes on URL connection class.

Or

(b) Briefly explain the TCP/IP Server Sockets.

15. (a) Briefly explain layout manager.

Or

(b) Narrate the graphics methods.

Section C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe all the primitive data types supported by Java with appropriate examples. Also specify their storage capacity and range.

17. Design a class to rep a bank account. Include the following members

    Data members:

    *Name of depositor.

    *account number.

    *type of account.

    *balance amount in the account.

    Methods:

    *to assign initial values.

    *to deposit an amount.

    *to withdraw an amount after checking balance

    *to display the name and balance.

18. Describe the JDBC architecture.

19. Explain the Datagram Programming with an example.

20. With suitable example explain AWT Controls.

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	541203

M.C.A. DEGREE EXAMINATION, APRIL – 2022

Second Semester

Computer Application

ACCOUNTING AND FINANCIAL MANAGEMENT

(CBCS – 2020 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What do you mean by journal?

2. What do you mean by suspense account?

3. Define cost accounting.

4. What is prime cost?

5. Define standard costing.

6. What is meant by standard hour?

7. Define Finance.

8. What you mean by Time Value of Money?

9. What is meant by cost of capital?

10. Define capital structure.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define ledger. Why is it known as the principle book of accounts?

Or

(b) Journalize the following transactions in the books of Gery :

2018 Jan.			Rs.
"	1	Started business with cash	4,500
"	1	Paid into bank	2,500
"	2	Goods purchased for cash	1,500
"	3	Purchase of furniture and payment by Cheque	500
"	5	Sold goods for cash	600
"	8	Sold goods to Arvind	400
"	10	Goods purchased from Amrit	700
"	12	Goods returned to Amrit	100
"	15	Sold goods to Ram Swaroop for cash	250
"	18	Cash received from Arvind Rs. and discount allowed to him Rs.4	396
"	21	Withdrew from bank for private use	100
"	21	Withdrew from bank for use in the business	500
"	25	Paid telephone rent for one year	40
"	28	Cash paid to Amrit in full settlement of his account	594
"	30	Paid for: Stationery	20
		Rent	100
		Salaries to staff	250

12. (a) State three advantages of cost accounting to management.

Or

(b) From the 'following information, find out the amount of profit earned during the year, using marginal costing technique.

Fixed cost Rs. 5,00,000

Variable cost Rs. 10 per unit

Selling price Rs. 15 per unit

Output level 1,50, 000 units.

13. (a) What is the difference between standard cost and estimated cost?

Or

(b) The standard cost card shows the following details relating to material needed to produce 1 kg. of groundnut oil:-

Quantity of groundnut required 3 kg.

Price of groundnut Rs. 2.50 per kg

Actual production data :

Production during the month 1,000 kg

Quantity of material used 3,500 kg

Price of groundnut Rs. 3 per kg

Calculate :

(i) Material Cost Variance

(ii) Material Price Variance

(iii) Material Usage Variance

14. (a) What do you mean by finance? Discuss various approaches to finance function.

Or

(b) Rs. 1,000 is deposited in a financial institution for a period of 3 years. The Financial institution pays 10 per cent interest compounded annually. From the above information find out the amount payable by the institution at the end of the period.

15. (a) What are the characteristics of Cost of Capital?

Or

(b) A company has EBIT of Rs. 1,00,000. If expenses a return on investment at a rate of 12.5%. You are required to find out total value of the firm according to the Modigliani theory.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Enter the following in a cash book with cash and discount columns only :

2018

January	1	Manmohan started business with Rs. 10,000; paid into bank Rs. 8,000.
"	3	Bought office furniture by Cheque Rs. 3,000.
"	5	Sold goods for cash Rs. 1,000.
"	8	Paid Anand Rs. 600 and was allowed a discount of Rs. 60.

2018

January	12	Received from Mani a Cheque for Rs. 690 and allowed him a discount of Rs. 10; the Cheque was deposited into bank.
”	18	Withdrew from bank for office use Rs. 1,000.
”	24	Received for cash sales by Cheque Rs. 1,200.
”	31	Drew for personal use cash Rs. 100; Salaries paid Rs. 500.

17. Margin of safety Rs. 10,000 which represent 40% of sales. P.V. ratio 50% calculate (a) Sales (b) Breaking even sales (c) Fixed cost (d) Profit

18. Distinguish between fixed budget and flexible. Briefly state the circumstances in which flexible budgets are used.

19. Using the information give below, compute the pay-back period under Traditional pay-back method and discounted pay-back method and comment on the results.

Initial outlay Rs. 80,000

Estimated life 5 years

Profit after tax :

End of year	1	Rs. 6,000
	2	14,000
	3	24, 000
	4	16,000
	5	NIL

Depreciation has been calculated under straight line method. The cost of capital may be taken at 20% p.a and P.V. of Re. 1 at 20% p.a is give below:

Year	1	2	3	4	5
P.V. Factor	0.833	0.694	0.579	0.482	0.402

20. Examine the different approaches to calculate the cost of equity.

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R6765	Sub. Code
	541204

MCA DEGREE EXAMINATION, APRIL – 2022

Second Semester

Computer Applications

OPERATING SYSTEMS

(CBCS – 2020 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. List out different services of operating systems.
2. What are the purpose of operating system?
3. List the process state.
4. Define critical section.
5. What is the functionality of dispatcher?
6. What is preemptive scheduling?
7. What is Page Fault?
8. What is Segmentation?
9. What are different file types?
10. List out file operations.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain symmetric multiprocessing architecture.

Or

(b) List the various services provided by operating systems.

12. (a) Narrate the information associated with process control block.

Or

(b) What is the function of Schedulers? Explain the different types of Schedulers.

13. (a) Narrate the Scheduling Criteria.

Or

(b) Evaluate FCFS CPU scheduling algorithm for given problem

Process	P1	P2	P3	P4
Process Time	10	15	8	6
Arrival Time	5	3	0	4

14. (a) What is contiguous memory location? Explain it.

Or

(b) What is fragmentation? Explain its types and disadvantages

15. (a) Write briefly about file attributes, operations, types and structure.

Or

(b) Write short notes on Directory Structure.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain different operating system structures with neat sketch.

17. State critical section problem. Discuss the solutions to solve the critical section problem.

18. Write and explain Banker's algorithm for deadlock avoidance.

19. What are the various disk-scheduling algorithms? Explain.

20. Describe various file access methods.

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R6766	Sub. Code
	541205

M.C.A. DEGREE EXAMINATION, APRIL – 2022

Second Semester

Computer Application

MOBILE APPLICATION DEVELOPMENT

(CBCS – 2020 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is play store?

2. How will you install a new app on your android mobile phone?

3. How inter-app communication is done?

4. Specify any two software constraints for mobile apps.

5. Define WiFi.

6. What is Data Persistence?

7. Define Maps.

8. Specify the use of GPS.

9. What is Map Kit?

10. Define Mobile OS.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain any five business drivers for mobile applications.

Or

(b) How will you publish your mobile app?

12. (a) Explain design constraints for mobile apps.

Or

(b) Explain touch events and gestures.

13. (a) Write the procedures to integrate video files with your mobile app.

Or

(b) Explain any two features in android mobile settings.

14. (a) Explain about data binding with UI components in the mobile app.

Or

(b) Explain the mobile app development environment.

15. (a) Explain the iOS features.

Or

(b) How will you integrate your address book into the mobile app?

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the quality constraints for mobile apps.

17. How will you design flexible user interfaces for mobile applications?

18. Explain the uses of cloud interaction with mobile apps.

19. Explain mobile app integration with social media.

20. Explain location and map kit and its uses.

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R6767	Sub. Code
	541556

M.C.A. DEGREE EXAMINATION, APRIL – 2022

Second Semester

Computer Application

Elective – MACHINE LEARNING

(CBCS – 2020 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

1. What is an inductive bias?
2. Define Search space.
3. What are perceptrons?
4. Define RELU.
5. Define Bayes Theorm.
6. What Mistake Bound Model?
7. Give an example for case-based learning.
8. What is the use of radial functions?
9. Define learning rule set.
10. What is a sigmoid function?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain version spaces and candidate elimination.

Or

(b) Explain decision tree learning.

12. (a) Compare single and multilayer networks.

Or

(b) How a model is evaluated?

13. (a) Explain maximum likelihood.

Or

(b) Explain hypothesis spaces.

14. (a) Explain case-based learning with steps.

Or

(b) Compare Regression and Classification.

15. (a) Explain reinforcement learning.

Or

(b) Explain tensor flow and its functions for deep learning.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the fundamentals of machine learning.

17. Explain feed-forward and backward networks.

18. Explain naïve Bayes classifiers.

19. Explain KNN Algorithm.

20. How a binary classification is done using Keras and TensorFlow

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