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1B1N22223 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC AUTO Degree Examination, November 2022

SDC1MT01 – Mathematics

(2022 Admission onwards)

Time: 2 ½ hours Max. Marks : 80

PART A
Answer *all* questions.
Each question carries *Two* marks.

1. Find $\lim_{x\to 5}\frac{x^2-25}{x-5}$
2. Find $\lim_{x\to\infty}\frac{2x^2-1}{3x^2+1}$
3. Differentiate $f(x) = 5x^4 + 2x^3 - 7x^2 + 8x + 1$.
4. State Mean value theorem for derivatives.
5. Differentiate $f(x) = \frac{1}{x^2}$.
6. Define critical points of a function.
7. A circle with radius r millimetres has area $A = \pi r^2$ square millimeters. Find the rate of increase of area with respect to radius at $r = 3$.
8. Evaluate $\int_1^3 (x^2 + 2)dx$
9. Find the average value of $f(x) = 3x^2 + 9$ on [0,2]
10. Find $\sum_{i=1}^{4}(i^2 - i)$.
11. A bus travels $4x^2$ meters in x seconds. Find the average velocity during the time interval Δx if $x_0 = 2$ and $x = 4$.
12. A car has velocity $3t^2 + 2t - 6$ at time t. Where is the position of the car at $t = 3$?
13. If $y = f(x)$ and $x^2 + 8y^2 = 1$, express dy/dx in terms of x and y.
14. If $x = 2t$ and $y = t^3$, what is the slope of the tangent line?
15. Is $f(x) = x^5 - x^3 - 2x^2$ increasing or decreasing at $x = -2$?

[Ceiling = 25 Marks]

PART B

Answer *all* questions.
Each question carries *Five* marks.

16. Differentiate $f(x) = \frac{9x+2}{x^2+5}$.

17. Find $f'(1)$ for the function $f(x) = (3x^2 + 2)^2$.

18. Find the equation of the tangent line to the graph $f(x) = x^2 + 6x + 8$ at $x_0 = 1$.

19. Find the maximum and minimum points and values for $y = x^2 - x$ on [-2, 2].

20. Analyze the critical points of $f(x) = x^3 - 6x^2 + 5$.

21. Draw the graph of the step function f on [-1,2] defined by

$$f(x) = \begin{cases} -2 & if\ -1 \le x < 0 \\ 2 & if\ 0 \le x \le 1 \\ 4 & if\ 1 < x \le 2 \end{cases}$$

Compute the signed area of the region between its graph and the x axis.

22. State the Fundamental Theorem of Calculus. Using the Fundamental Theorem of Calculus, compute $\int_0^2 x^3 dx$.

23. Sketch the area of the region bounded by the x axis, the y axis, the line $x = 3$ and the parabola $y = x^2$. Compute the area of the region.

[Ceiling = 35 Marks]

PART C

Answer any *two* questions
Each question carries *Ten* marks.

24. Calculate an approximate value for $\frac{2}{(0.99)^2+\sqrt{0.99}}$.

25. Sketch the graph of $f(x) = x - \frac{1}{x}$

26. (a) Show that $f(x) = |x|$ has no derivative at $x = 0$, yet is continuous.

(b) Does $\lim_{x\to 0} \frac{|x|}{x}$ exist?

27. (a) Find $\lim_{x\to 0} \frac{cosx-1}{sinx}$

(b) Sketch and find the volume of the region under the graph of $y = x^2$ defined on [0,2] is revolved about the x axis.

[2 x 10 = 20 Marks]

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC AUTO Degree Examination, November 2022

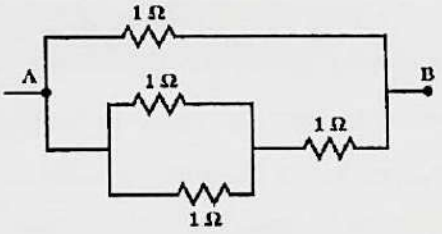
SDC1AU02 – Basics of Electrical & Electronic Engineering

(2022 Admission onwards)

Time: 2 ½ hours Max. Marks : 80

PART – A
Answer *all* questions.
Each question carries Two mark.
Ceiling -25 Marks

1. State and explain Ohms law in electric circuits?
2. Find the equivalent resistance of the given network?

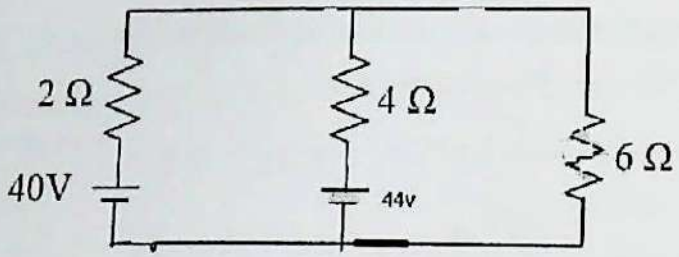


3. State and explain Super position theorem.
4. State Faraday's law of electromagnetic induction.
5. Draw and explain impedance triangle.
6. What is Reluctance and Magnetic flux in magnetic circuits?
7. What is PN junction diode?
8. What is ripple factor?
9. Explain transistor biasing.
10. Why CE configuration of transistor is used in amplification?
11. Draw the pin diagram of OPAMP
12. What is Hartley Oscillator?
13. With a diagram list out different biasing circuits.
14. What is Resonance?
15. What is modulation in communication?

PART – B

Answer *all* questions.
Each question carries Five marks.
Ceiling -35 Marks

16. Solve the circuit by mesh analysis



17. Explain Norton's theorem.
18. With neat diagrams explain about the power factor of R,RL,RC and RLC circuits.
19. Differentiate between active and passive elements? Give examples?
20. What is filters? Explain the types.
21. What is CE configuration of transistor? Also explain amplification factor and input-output characteristics.
22. Compare the advantages and disadvantages of positive and negative feedback circuits.
23. What is modulation? Explain its types.

PART - C

Answer any *two* questions.
Each question carries Ten marks.

24. With circuit diagram and waveforms explain half wave and full wave rectifier.
25. What is transistor biasing? Explain the need for biasing. With diagrams explain the types of transistor biasing circuits.
26. What is oscillator? Explain the classification of oscillators.
27. Explain with diagram and derive the expression for inverting and non inverting amplifiers.

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC AUTO Degree Examination, November 2022

SDC1AU03 – Basic Mechanical Engineering

(2022 Admission onwards)

Time: 2 ½ hours Max. Marks : 80

PART – A
Answer *all* questions.
Each question carries Two marks.
Ceiling -25 Marks

1 What is extensive property and intensive property, give example.

2 Define PMM1.

3 Differentiate between COP and efficiency.

4 Explain the term CRDI.

5 Why Different Types Of Sound Are Produced In Different Bikes, Though They Run On Si Engines?

6 Explain different classification of an IC engine.

7 Which Pump is more efficient: Centrifugal Pump Or Reciprocating Pump? Comment.

8 Explain steam turbines.

9 Write the name of any four Popular turbines.

10 Name some secondary refrigerants.

11 What are the requirements of air conditioned space?

12 Define Rope transmission system.

13 Name any four non conventional machining operations?

14 List any four forging operations.

15 Explain different operations to be carried out in a Lathe.

PART – B

Answer *all* questions.
Each question carries Five marks.
Ceiling -35 Marks

16 Give the two statements of the Second law of thermodynamics.

17 An engine operates between temperatures of 900 "K and T, and another engine between and 400° K. For both to do equal work, the value of T2 will be?

18 What are the advantages of lubrication in Ic Engine?

19 Explain Carburetor and its functions.

20 Explain the flow diagram of a Nuclear plant.

21 What are the basic Units of Mechanical Refrigeration systems ?

22 Compare ECM and EDM.

23 Explain Simple and compound gear train.

PART - C

Answer any *two* questions.
Each question carries Ten marks.

24 Explain MPFI, CRDI and GDI.

25 Explain hydroelectric power plants in detail.

26 Compare Comfort air conditioning and Industrial conditioning.

27 Write an essay on casting and welding.

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC SD Degree Examination, November 2022

SDC1IT01 – Discrete Mathematics

(2022 Admission onwards)

Time: 2 ½ hours Max. Marks : 80

PART – A
All questions can be attended
Each question carries Two mark.
Ceiling -25 Marks

1. Define Contradiction with example.
2. Define minterm and maxterm.
3. Define Boolean algebra.
4. Show that $\neg P \wedge P$ is a tautology or not ?
5. Define Euler Graph.
6. Define Binary tree with example.
7. Define m-array tree.
8. Is K_4 is Eulerian?
9. Give an example of sets A, B and C such that $A \cap B = A \cap C$, but $B \neq C$.
10. Prove Distributive law in logic using truth table?
11. Define De Morgan's law with truth table.
12. Explain Hamiltonian Graph with example.
13. Prove that in any graph the degree sum of all vertices is even.
14. Give an example of the relation which is reflexive, transitive but not symmetric.
15. Define isomorphism of the two graph.

PART – B

All questions can be attended
Each question carries Five marks.
Ceiling -35 Marks

16. Explain Travelling Salesman Problem.
17. Explain any algorithm using an example to find the spanning tree of a connected graph.
18. Define Planar Graph. Is $K_{3,3}$ is planar or not? Justify.
19. Let X = {1,2,3,4}, If R= {<x,y>/ x-y is an integral non-zero multiple of 2, x and y ∈ X} and S= {<x,y>/ x-y is an integral non-zero multiple of 3, x and y ∈ X}

    Then find R, S, R∪ S, R ∩ S
20. Prove that, a graph is a tree there is one and only one path between every pair of vertices.
21. Show that $P \rightarrow (Q \rightarrow R) \Leftrightarrow (P \wedge Q) \rightarrow R$ is tautology using truth table?
22. Define isomorphism between two graphs. Show that following graphs are not isomorphic

23. Define Network flow of the Graph.

PART - C

Answer any *two* questions.
Each question carries Ten marks.

24. a) Define Partially Ordered Set.

    b) Explain Hasse Diagram

    c) Let X = {2,3,6,12,24,36} and the relation ≤ be such that x ≤ y if x divides y . Draw the Hasse Diagram of the poset
25. State and Prove Max-Flow Min-Cut Theorem.
26. What do you mean by Boolean Algebra.
27. Explain Adjacency matrix and Incident matrix with an example.

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC SD Degree Examination, November 2022

SDC1IT02 – Programming in C

(2022 Admission onwards)

Time: 2 ½ hours Max. Marks : 80

PART – A
All questions can be attended
Each question carries Two mark.
Ceiling -25 Marks

1 What is a global and local variable in C?

2 Differentiate between text file and binary files in c?

3 What is meant by library files?

4 Describe the primitive data types in c language

5 What is the difference between ++x and x++?

6 What are the characteristics of 4th generation of computer?

7 What is null pointer and when null pointer is used?

8 Convert $(AB)_{16}$ to $(.....)_{10}$?

9 What is an array of structures?

10 Describe switch statement?

11 What is ternary operator in C?

12 What is the difference between while loop and do while loop in C?

13 What is operator precedence in C?

14 Add the following binary numbers $(11011)_2$ and $(1011)_2$?

15 Describe about structure in C?

PART – B
All questions can be attended
Each question carries Five marks.
Ceiling -35 Marks

16 What is recursion? Write a program to find factorial of a number using recursion?

17 What is a pointer? Explain how the pointer variable declared and initialized?

18 Explain about programming languages?

19 Differentiate between break and continue statements with a suitable example?

20 With the help of program find the sum of first 5 natural numbers. Explain the working of for loop?

21 What is an algorithm? Write an algorithm to swap two numbers.

22 Explain any five type operators in C?

23 Describe string manipulation functions with suitable example?

PART - C

Answer any *two* questions.
Each question carries Ten marks.

24 Write a C program to read name and marks of n number of students and store them in a file?

25 What is user defined function? With suitable example explain the following?

a) Actual and formal parameters?

b) Call by value and call by reference?

26 Explain *if* statement, *if else* statement, *nested if else* statement, and *else if* ladder statement with suitable example?

27 Explain about formatted and unformatted input output functions in C with suitable example?

2 x 10 = 20 Ma

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC SD Degree Examination, November 2022

SDC1IT03 – Internet Programming

(2022 Admission onwards)

Time: 2 ½ hours Max. Marks : 80

PART – A
All questions can be attended
Each question carries Two mark.
Ceiling -25 Marks

1 What are graphical browsers?

2 What you mean by search engines?

3 What do you mean by SMTP?

4 Explain the syntax of any two form elements?

5 When are using the tag <pre>?

6 Write down any four text formatting tags and their uses.

7 How to include an image in your website?

8 What do you mean by ID selector?

9 What do you mean by mouse over event?

10 What are the differences between ID selector and Class selector?

11 Which are the data types allowed in javascript?

12 What is Dreamweaver and why we are using it?

13 Briefly explain about the toolbars in Photoshop.

14 List any 5 tools in flash CS6?

15 Which colors are representing as CMYK?

PART – B

All questions can be attended
Each question carries Five marks.
Ceiling -35 Marks

16 Briefly explain the working of FTP Protocol

17 Write short note on e-commerce. Give an example for e-commerce website.

18 Explain the concept of hyperlink with the help of an example?

19 How to insert a 2X2 table in HTML file with dummy data?

20 Explain in detail about the selectors in CSS.

21 Write a program to find the square of a number using java script.

22 How to create a table for displaying a mark list in Dreamweaver?

23 Write a note on PALETTES

PART - C

Answer any *two* questions.
Each question carries Ten marks.

24 Explain the different types of e-business models? What is the difference between e-commerce and e-business?

25 How to create HTML frames. Explain with example.

26 Write different types of selectors in CSS with example? Create a web page for your profile and add appropriate css selectors for formatting the document using CSS file

27 How to create a Website using Dreamweaver?

2 x 10 = 20 Marks

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC AUTO/BVOC SD Degree Examination, November 2022

A01 – Litmosphere : The world of Literature

(2022 Admission onwards)

Time: 2 hours Max. Marks : 60

Part A

Answer the following questions in two or three sentences each (2 marks each)

1. What does the "starless night" symbolise in the poem *The Thought Fox*?
2. What image of himself does Flaubert present in *Memoirs* to his readers?
3. Who are the people really interested in poetry according to Marianne Moore?
4. Who are the three passengers in the tram who were chosen as her characters by Agatha Christie?
5. What piece of advice does Mahfouz's father offer him when he hesitated to join school?
6. How did Josiah Amberley distract the investigation?
7. How was Purl received by the other members in the firm on her first day?
8. What is the purpose of Dalit literature according to Sharankumar Limbale?
9. How did the General respond to the issue of the cockroach in the salad?
10. What does the bride in Suniti Namjoshi's poem want?
11. How does Limbale define the terms Satyam, Shivam and Sundaram?
12. Why does Louis MacNeice call the birds of posterity "wingless birds"? **(Ceiling 20 marks)**

Part B

Answer the following questions in a paragraph: Each question carries 5 marks

13. Comment on the ending of the movie *Purl*
14. Discuss' The Cockroach' as a political satire.
15. The significance of the title *Half a Day.*
16. How does Holmes arrive at the conclusion that Amberley was the murderer?
17. What are the feminist aspects discussed in the poem *The Sleeping Fool?*
18. Dalit aesthetics according to Limbale.
19. How does Ted Hughes establish the connection between the process of creative writing and the image of a fox moving in a dense jungle? **(Ceiling 30 marks)**

Part C

Write an essay on any one of the following in about 200 words

20. Susan Glaspell's *Trifles* is a play that criticizes patriarchy which demands conformity of women. Discuss.
21. How does Justice Ameer depict the emptiness and incompletion of a transgender self in the poem *Body without the "d"?* **(1x10=10 marks)**

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC AUTO/BVOC SD Degree Examination, November 2022

A02 – Functional Grammar and Communication in English

(2022 Admission onwards)

Time: 2 hours Max. Marks : 60

Section A

Do as directed (2 marks each)

1. Here ..... the apples.

   (Use the appropriate form of ***be***.)

2. Lionell Messi is a prodigious player today because he spent all his teenage years in training.

   (Identify the adverbial clause.)

3. Speak the truth, or I will kill you

   (Convert this compound sentence into a complex one.)

4. Identify the missing prepositions.

   a) He will arrive ..... 10 a.m.

   b) Trains pass ..... the tunnel.

5. Shall I ever forget those happy days?

   (Transform this interrogative sentence into an assertive one.)

6. ..... ego is ..... biggest enemy of success.

   (Identify the missing articles.)

7. He (do) the work since 2020.

   (Use the appropriate form of 'do'.)

8. He said, "I am happy."

   (Change into indirect speech.)

9. The woodcutter cuts down the tree.

   (Convert to passive voice.)

10. I shall give him one ..... of advice.

    (Fix the missing part of the collocation.)

11. Everybody likes flowers.

    (Convert into a negative sentence)

12. Choose the appropriate connectives:

    a) This course is challenging, ... (because/but) not impossible.

    b) KSEB made a profit of 100 crores ..... (through/after) ten years of losses.

(Ceiling – 20 Marks)

Section B

Answer the following (5 marks).

13. Identify the four types of sentences and write two examples each for all types.
14. Punctuate the following:

    he said why do you come and disturb me what a nuisance you are why cant you play somewhere else can't you see that i want to work go away at once and do not come here again.
15. Differentiate formal and informal communication.
16. Explain any two barriers to communication and the means of overcoming them.
17. You are selected to represent the university in the inter-university cricket match. Prepare an email to inform the Class tutor that you will not be able to attend the class for the next three days.
18. The inauguration of your Department Association was held last week. Prepare the programme minutes.
19. A reputed daily in Malayalam has invited applications for the post of a Journalist Trainee. Prepare a short CV and a letter for the same.

    The advertisement has specified the following: Age below 25, graduate with a flair for writing in Malayalam and English, publications in media, and preference for journalism diploma holders.

(Ceiling:30 marks)

Section C

Answer any *one* of the following. (10 marks)

20. Prepare a review of a book/film that you have read/watched recently.
21. You have presently completed your graduation in English Language and Literature. You wish to pursue MA in English Language and Literature offered by Oxford University. Prepare an SOP.

(1 x 10 = 10 Marks)