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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC AUTOMOBILE Degree Examination, November 2025

AUE1FM105 – Fundamentals of Renewable Energy & Sustainability

(FYUGP 2025 Admission onwards)

Time: 1 ½ hours Max. Marks : 50

PART – A
All questions can be attended.
Each question carries Two mark.
Ceiling -16 Marks

		COs	Knowledge Level(KL)	Marks
1	Define the term electricity.	1	1	2
2	Explain the relationship between voltage, current resistance and power using analogies.	1	1	2
3	Mention any two advantages and disadvantages of AC and DC.	2	2	2
4	How energy efficient appliances helps to reduce utility bills?	2	2	2
5	Explain photovoltaic effect and how is it used in solar panels?	3	2	2
6	Mention any two factors that determine a good location for a residential wind turbine.	3	2	2
7	How does streaming videos contribute to your digital carbon footprint?	4	2	2
8	What does the Energy Star label indicate about a electrical appliance?	4	2	2
9	List any two signs that a company might be engaging in greenwashing.	5	2	2
10	If an appliance uses 1500 watts for 2 hours a day, how many kWh does it consume in a day?	5	2	2

PART – B

All questions can be attended.

Each question carries six marks.

Ceiling -24 Marks

		COs	Knowledge Level(KL)	Marks
11	Analyze the role of home feasibility assessments in determining the suitability of a home for different types of renovations or upgrades.	1	2	6
12	Discuss the benefits and challenges of Electric vehicle technology.	4	3	6
13	Describe the role of energy storage in renewable energy systems.	2	2	6
14	Examine the impact of global supply chains on hidden emissions. How can companies and policy makers reduce hidden emissions in supply chains?	5	3	6
15	Illustrate the role of consumer behavior in crafting digital marketing strategies.	6	3	6

PART - C

Answer any *one* questions.

Each question carries Ten marks.

		COs	Knowledge Level(KL)	Marks
16	Compare and contrast different types of renewable energy sources including their advantages and disadvantages.	2	3	10
17	Explain the concept of carbon footprint, its major contributors and its significance in sustainable development.	4	3	10

1 x 10 = 10 Marks

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC AUTOMOBILE Degree Examination, November 2025

CSC1MN103 – Foundation of Programming concepts

(FYUGP 2025 Admission onwards)

Time: 2 hours Max. Marks : 70

PART – A

All questions can be attended.
Each question carries **Three** mark.
Ceiling -24 Marks

		COs	Knowledge Level(KL)	Marks
1	What is computational thinking?	CO1	R	3
2	Define 'input' and 'output' in the context of problem-solving.	CO1	R	3
3	What is an algorithm? List any three characteristics of a good algorithm.	CO2	R	3
4	What are loops? Give any two computational problems with loops.	CO2	R	3
5	What is the main purpose of using a flowchart in program design?	CO2	U	3
6	Explain the advantages and disadvantages of flowcharts.	CO2	R	3
7	Define pseudocode and state one advantage of using it.	CO2	R	3
8	What is a high-level programming language? Give one example.	CO3	R	3
9	Briefly explain the difference between source code and machine code	CO3	U	3
10	Compare procedural and object-oriented programming.	CO4	R	3
11	What is the primary function of a compiler? How does it differ from interpreter?	CO3	R	3
12	Define the term 'debugging' in programming.	CO4	R	3

PART – B

All questions can be attended.
Each question carries **six** marks.
Ceiling -36 Marks

		COs	Knowledge Level(KL)	Marks
13	What is the difference between the "Top-Down" and "Bottom-Up" approaches to problem-solving? Briefly explain the methodology of each approach.	CO1	U	6
14	Describe the three basic types of algorithms: sequential, decision-based, and iterative.	CO2	U	6
15	What is problem solving? Explain the importance of problem solving in computer science.	CO4	U	6
16	Explain the difference between syntax errors and logical errors using a clear example for each	CO4	U	6
17	Write pseudocode to find the sum of the first 'N' natural numbers, where 'N' is a value provided by the user.	CO2	A	6
18	List and explain the purpose of any five of the following flowchart symbols: Terminator, Process, Input/Output, Decision, Connector, Flow Lines.	CO2	U	6
19	Describe the five main steps of the problem-solving process, from understanding the problem to testing the solution.	CO1	U	6
20	Write an algorithm and draw a flowchart to check if a number entered by a user is even or odd.	CO2	A	6

PART - C

Answer any ***one*** question.
Each question carries **Ten** marks.

		COs	Knowledge Level(KL)	Marks
21	A student's marks in three subjects are given as input. You need to design a solution to calculate the total and average marks. a) Define the inputs, output, and constraints for this problem. (2 marks) b) Write a clear, step-by-step algorithm to solve the problem. (4 marks) c) Draw a neat flowchart that logically represents your algorithm. (4 marks)	CO2	A	10
22	Compare and contrast the three main types of programming languages: Machine Language, Assembly Language, and High-Level Language. Your answer must discuss their key characteristics, including human readability, machine dependence, and ease of programming. For each language type, provide one major advantage and one disadvantage.	CO3	An	10

1 x 10 = 10 Marks

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC AUTOMOBILE Degree Examination, November 2025

AUE1CJ101 – Basic Mechanical Engineering

(FYUGP 2025 Admission onwards)

Time: 2 hours Max. Marks : 60

PART – A

All questions can be attended.
Each question carries **Two** mark.
Ceiling -20 Marks

Q. No.		COs	Knowledge Level(KL)	Marks
1	Define intensive and extensive properties.	1	Understand	2
2	Provide the statement of Zeroth law of thermodynamics.	1	Remember	2
3	Explain any four causes of irreversibility.	1	Remember	2
4	Compare 2 stroke and 4 stroke engines.	2	Understand	2
5	Explain the working of CRDi engine.	2	Remember	2
6	List down different types of hybrid vehicles.	2	Remember	2
7	Explain the differences between turbo machines and positive displacement machines.	3	Understand	2
8	Classify hydraulic turbines with examples.	3	Remember	2
9	Draw the schematic diagram of closed cycle gas turbine	3	Understand	2
10	Compare soldering and brazing operation.	4	Remember	2
11	List down different processes that can be performed on a lathe machine.	4	Remember	2
12	Write a short note about arc welding process.	4	Understand	2

PART – B

All questions can be attended.
Each question carries six marks.
Ceiling -30 Marks

Q. No.		COs	Knowledge Level(KL)	Marks
13	Provide the two statements of second law of thermodynamics. Also prove that violating one statement will violate the other.	1	Apply	6
14	With a neat diagram, explain the working of Battery ignition system.	2	Understand	6
15	With a neat sketch, explain the working of reciprocating pump.	3	Understand	6
16	Explain the working of Pelton turbine with a neat diagram.	3	Understand	6
17	Explain the working of CNC machine. Also give their applications and advantages.	4	Understand	6
18	Explain up milling and down milling operation with suitable diagram.	4	Understand	6

PART - C

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

Q. No.		COs	Knowledge Level(KL)	Marks
19	Explain the working of a hydro electric power plant with a suitable diagram.	3	Apply	10
20	With a schematic diagrams, compare Electro discharge machining (EDM) and Electro chemical machining (ECM) processes.	4	Apply	10

1 x 10 = 10 Marks

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC AUTOMOBILE Degree Examination, November 2025

AUE1CJ102 – Basics of Electrical & Electronic Engineering

(FYUGP 2025 Admission onwards)

Time: 2 hours Max. Marks : 60

PART – A
All questions can be attended.
Each question carries Two mark.
Ceiling -20 Marks

		COs	Knowledge Level(KL)	Marks
1	Differentiate between dependent and independent sources.	CO1	AP	2
2	Obtain the equivalent resistance of three resistors connected in parallel.	CO1	AP	2
3	Define Ohm's Law.	CO1	UN	2
4	Define reluctance of a magnetic circuit.	CO3	UN	2
5	State Lenz's law.	CO3	UN	2
6	Define the rms value of an ac waveform.	CO2	UN	2
7	What is the difference between intrinsic and extrinsic semiconductor.	CO3	AP	2
8	What happens to the depletion region when a diode is a) forward biased b) Reverse biased	CO3	AP	2
9	Write two advantages of negative feedback	CO4	UN	2
10	Define inverting amplifier with its gain formula.	CO4	UN	2
11	Explain about radio waves.	CO5	UN	2
12	Define amplitude modulation.	CO5	UN	2

PART – B

All questions can be attended.
Each question carries six marks.
Ceiling -30 Marks

		COs	Knowledge Level(KL)	Marks
13	State and describe the applications of Kirchhoff's Current Law (KCL) and Kirchhoff's Voltage Law (KVL).	CO1	AP	6
14	Derive the expression for power consumed by a pure inductor.	CO2	AP	6
15	Define mmf, flux, reluctance, permeability, relative permeability, and permeance.	CO3	AP	6
16	Explain intrinsic and extrinsic semiconductors with neat diagrams.	CO3	AP	6
17	Explain the working of noninverting amplifier with circuit diagram and gain equation.	CO4	AP	6
18	Compare Amplitude modulation and Frequency modulation.	CO5	AP	6

PART - C

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

		COs	Knowledge Level(KL)	Marks
19	Explain Thevenin's Theorem and outline the steps to find a circuit's Thevenin equivalent.	CO2	AP	10
20	Explain the structure and working of NPN transistor with its different modes of operation.	CO4	AP	10

1 x 10 = 10 Marks

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC AUTOMOBILE Degree Examination, November 2025

AUE1CJ103 - MATHEMATICS

(FYUGP 2025 Admission onwards)

Time: 2 hours Max. Marks : 60

PART – A

All questions can be attended.
Each question carries Two marks.
Ceiling - 20 Marks

		COs	Knowledge Level(KL)	Marks
1	Evaluate $\lim_{x\to 5} \frac{x-5}{x^2-25}$.	CO1	U	2
2	Find $\lim_{x\to 1^+} \frac{1}{x-1}$ and $\lim_{x\to 1^-} \frac{1}{x-1}$.	CO1	An	2
3	Determine the value of a where the function $f(x) = \begin{cases} x, & x < -2 \\ ax^2, & x \geq -2 \end{cases}$ is continuous at $x = -2$.	CO1	An	2
4	Find the slope of the tangent line to the curve $y = \sqrt{x}$ at $x = 4$.	CO1	Ap	2
5	Evaluate $\frac{dy}{dx}$ if $y = \frac{2x+5}{3x-2}$.	CO1	Ap	2
6	Evaluate $\frac{d^2y}{dx^2}$ the second derivative of $y = x^4 - 3x^3$	CO1	U	2
7	How fast is the area of a circle changing with respect to the radius when the radius is 10 cm?	CO1	Ap	2
8	Find the derivative of $y = (4 - 3x)^9$.	CO1	Ap	2
9	Determine whether the graph of the function $g(t) = 8t - t^4$ has any critical points on $[-2, 1]$.	CO2	An	2
10	Evaluate $\int sin^2 x dx$	CO3	Ap	2
11	Evaluate $\sum_1^4 k^2 - 3k$	CO3	Ap	2
12	Evaluate $\int_0^2 (\frac{t^2}{4} - 7t + 5)dt$	CO3	Ap	2

PART – B

All questions can be attended.
Each question carries **Six** marks.
Ceiling - 30 Marks

		COs	Knowledge Level(KL)	Marks
13	Prove that if a function f has a derivative at $x = c$, then f is continuous at $x = c$.	CO1	An	6
14	Find the tangent line to the circle $x^2 + y^2 = 25$ at the point $(3, -4)$.	CO1	Ap	6
15	Apply the Mean Value Theorem to find the value of c, for the function $f(x) = x^2$ on the interval $[0, 2]$.	CO2	Ap	6
16	Determine the intervals on which the graph of the function $f(x) = -x^3 + 12x + 5, -3 \leq x \leq 3$ is increasing or decreasing. Identify its extreme values.	CO2	An	6
17	Find the area of the region between the x - axis and the graph of $f(x) = x^3 - x^2 - 2x, -1 \leq x \leq 2$.	CO4	Ap	6
18	Find the area enclosed by the parabola $y = x^2$ and the line $x + 3$ on $[-1, 1]$.	CO4	Ap	6

PART - C

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

		COs	Knowledge Level(KL)	Marks
19	The dynamite blast blows a heavy rock straight up with an initial velocity of 160 ft/sec. It reaches a height of $s = 160t - 16t^2$ ft after t sec. a)How high does the rock go? b)What is the velocity and speed of the rock when it is 256 ft above the ground, both on the way up and on the way down? c)What is the acceleration of the rock at any time during its flight?	CO1	U, Ap	10
20	a)Show that the value of $\int_0^1 \sqrt{1 + cosx}\, dx$ cannot possibly be 2. b)Find the volume of the solid generated by revolving the region bounded by $y = \sqrt{x}$ and the lines $y = 1$, $x = 4$ about the line $y = 1$.	CO3 CO4	E, Ap	10

1 x 10 = 10 Marks

20

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester BVOC AUTOMOBILE/ BVOC SD Degree Examination, November 2025

SFD1FS113/AUE1FS113- Introduction to Computers and Office Automation

(FYUGP 2025 Admission onwards)

Time: 1 ½ hours Max. Marks : 50

PA R T-A
Answer all questions. Each question carries two mark.
Ceiling -16 Marks

1. Differentiate between input and output devices with one example each.
2. What is secondary storage? Give two examples.
3. Define system software with examples.
4. List any four uses of MS Word.
5. What is the use of the table feature in Word?
6. What is the difference between a worksheet and a workbook?
7. Give two examples of spreadsheet functions.
8. What is the role of slide master in presentations?
9. What is the significance of headers and footers in documents?
10. Name any two modern ICT tools used in offices.

PA R T-B
Answer all questions. Each question carries six marks.
Ceiling -24 Marks

11. Explain different types of computer memory with examples.
12. Discuss six formatting tools in word processing software.
13. Explain with examples the use of formulas and functions in spreadsheets.
14. How can pictures and videos be inserted in a PowerPoint presentation?
15. Explain the integration of Word and Excel in preparing reports with examples.

PART - C
Answer any one questions.
Each question carries ten marks.

16. Write an essay on the classification of computers, their features, and applications.
17. Discuss in detail how office automation tools improve efficiency in organizations.

1x 10 = 10 Marks