CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

University Teaching Department
Feb 2024
CLASS TEST - II
Department of Computer Science and Engineering Branch-Artificial Intelligence

Subject: *Foundations of Electronics Engineering*   Subject Code:A000171 (028)
TIME: *120 Minutes*   *MAX. MARKS: 40*

Note: *Attempt ANY Eight questions. All questions carry equal marks.*

Q-1	Draw and explain VI characterstics of common emitter configuration.	5
Q-2	Explain the reason why a transistor cannot be substituted by back-to-back connected diodes.	5
Q-3	Draw the classification of field-effect transistors	5
Q-4	Elaborate on the output characteristics of metal-oxide-semiconductor field-effect transistor (MOSFET) and provide the equation for drain current (Id).	5
Q-5	Write a note on Metal Semiconductor junction	5
Q-6	Explain the construction of JFET.	5
Q-7	Compare BJT and FET.	5
Q-8	Elobrate full wave rectifier.	5
Q-9	Draw small signal model of MOSFET.	5
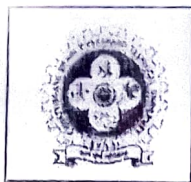
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY

Department of Computer Science & Engineering

Class Test – II   Session- Nov – Dec, 2023 Month-Jan

Sem- CSE 1ˢᵗ(AI)/DS

Subject name – Engineering Mathematics-I   **Subject- Code-A000172(014)**

Max Marks: 40   Min Marks: 14   Time Allowed: 2 hrs

Note: -Part A is compulsory, attempt any questions from B,C and D.
CO1: Solve engineering related problems based on concepts of multivariate calculus.
C02: Use basic concepts of vector analysis (divergence,gradient,curl) to solve related problems.

Q.N.	Questions	Marks	Levels of Bloom's Taxonomy	COs
	Unit I			
Q1	Evaluate $\int_0^a \int_y^a \frac{x}{x^2+y^2} dx dy$ by changing the order of integration.	[4]	Apply	CO1
Q2	Find the maxima or minima of the function $u(x,y) = \cos(x)\cos(y)\cos(x+y)$.	[8]	Apply	CO1
Q3	Evaluate the integral : $\int_0^{log2} \int_0^x \int_0^{x+logy} e^{x+y+z} \, dz \, dy \, dx$.	[8]	Analyze	CO1
Q4	(d)Define Euler's theorem on homogeneous function and If $u = \tan^{-1}\frac{x^3+y^3}{x+y}$,then prove that $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = \sin 2u.$	[8]	Apply	CO1
	Unit II			
Q1	Find the directional derivative $F(x,y,z) = xy^2 - 4x^2y + z^2$ at $(1,-1,2)$ in the direction of $6i + 2j + 3k$.	[4]	Apply	CO2

Q2	Verified the Stoke's theorem, when $\vec{F} = (2x - y)i - yz^2j - y^2zk$, where S is upper half surface of $x^2 + y^2 + z^2 = 1$ and C is the circle.	[8]	Understand	CO2
Q3	Explain some physical interpretations of curlF, divF, grad∅. Find the curl and the divergence of the given vector field : $(i) F(x, y, z) = xzi + yzj + xyk$ $(ii) F(x, y, z) = 4xyi + (2x^2 + 2yz)j + (3z^2 + y^2)k$	[8]	Apply	CO2
Q4	State Green's theorem and evaluate: $\int_C (x^2 - y^2)dx + (2y - x)dy$, where C consists of the boundry of the region in the first quadrant that is bounded by the graphs of $y = x^2$ and $y = x^3$.	[8]	Understand	CO2

Subject Name &Code: Learning Programming Concept With C , **Subject Code: A000173(022)**
B.Tech.- 1ˢᵗ Semester CT-2
Course: B. Tech Honors (Artificial Intelligence& Data Science)

Maximum Marks: 40

Time Allowed: 2 Hours

Minimum Pass Marks: 14

Note- Attempt All Question

	Question	Marks
1.	Define C-array. Write format of declaring an array with example and explain how an array is different from other variable?	04 marks
2	Write a program to print one dimensional array in reverse order. **OR** Write a program for multiplication of 2D array in C.	06 marks
3	Define Functions in C. And Also describe in detail different aspects of functions	06 marks
4	What do you understand by call by value and call by reference explain with a C program **OR** Write a C program to print elements of Fibonacci series using recursion	06 marks
5	Explain types of pointer arithmetic with a C programming code for each	08 marks
6	What is dangling pointer describe in brief with example and a C program	04 marks
7	Differentiate between null pointer and void pointer .	06 marks

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CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY

Department of Computer Science & Engineering

Class Test – II Session- NOV – DEC, Month-FEB

Sem- CSE 1ˢᵗ (AI/DS)

Subject Name - Fundamentals of Computational Biology   **Subject- Code-A000174(028)**

Max Marks: 40   Min Marks:14   Time Allowed:2 hrs

Note: -Part A is compulsory, attempt any questions from B,C and D.

CO1: Understand the principles of computational biology.
CO2: Apply computational techniques to analyze biological data.

Q.N.	Questions	Marks	Levels of Bloom's Taxonomy	COs
	Unit I			
Q1	What do you understand by cancer spread? In brief please explain the cell cycle of a cancer cell.	[4]	Understand	CO1
Q2	Explain Lotka-Volterra model in detail. Also write the mathematics expression for prey and predator concentrations by using appropriate constants.	[8]	Analyze	CO1
Q3	In detail explain the concept of infectious disease spread. Please discuss the SIR and SIS models with examples and mathematical expression.	[8]	Understand	CO1
Q4	State continuity equation and find out the exit velocity of a fluid flowing in pipe when the diameter is reduced from 100mm to 80mm. Given that velocity of fluid at entry point is 0.6 m/s	[8]	Apply	CO2
	Unit II			
Q1	What is the difference between breathing and respiration?	[4]	Understand	CO1
Q2	In detail, please describe the process of cellular respiration process. Write mathematical equations associated with respiration.	[8]	Understand	CO2
Q3	What do you understand by flux balance analysis? What is the use of flux balance analysis? Give an appropriate example how can one formulate and solve the flux balance.	[8]	Apply	CO2
Q4	In brief explain the fick's law of diffusion and mathematical expression associated with fick's law.	[8]	Understand	CO2

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Department of Computer Science & Engineering

Class Test – II   Session- July – Dec, 2023

Sem- 1ˢᵗ CSE (AI)/DS

Code-A000175(020)

Time Allowed:2 hrs

Month-February

Subject- Environment Science

Max Marks: 40

Note: - Q1 is compulsory for both units.
Attempt any two from questions 2, 3 and 4 for each unit.

CO1: Students will grasp the fundamental concept of ecosystems, food chain including their structure, function, and dynamics.
CO2: Students will evaluate the distribution and magnitude of biodiversity across various regions and ecosystems.
CO3: Learners will assess the direct and indirect impacts of pollution on the environment, human health, andecosystems.

Q.N.	Questions	Marks	Levels of Bloom's Taxonomy	COs
Unit III				
Q1	Explain the concept of niche and ecotone in an ecosystem.	[4]	Understand	CO1
Q2	Write detailed notes on aquatic ecosystems and their unique characteristics.	[8]	Understand	CO1
Q3	How do food chains and food webs differ, and why are they important in ecosystems?	[8]	Apply	CO1
Q4	Explain the concept of an energy pyramid and its significance in understanding ecosystem dynamics.	[8]	Analyze	CO1
Unit IV & V				
Q1	Write short notes on Pollution.	[4]	Understand	CO3
Q2	Describe strategies and approaches for the conservation of biodiversity, including both in-situ and ex-situ methods.	[8]	Understand	CO2
Q3	Write detailed notes on biodiversity, its measurement and management.	[8]	Analyze	CO2
Q4	What are some effective prevention, control, and mitigation measures for pollution, considering both technological solutions and policy interventions?	[8]	Understand and Analyze	CO3

Time Allowed:2 hours

Maximum Marks:40
Minimum Pass Marks:14

Note: ATTEMPT ALL QUESTIONS
          INTERNAL CHOICE IS GIVEN.

Q1. a) Define the term "Professional "Ethics"   (2)

b) Mentioned the features of Self-employed professional?

           Or   (8)

Discuss the Rights of Professional?

Q2. a) What is Loyalty?   (2)

b) What is organizational loyalty? Discuss.

           Or   (8)

Write short notes on " Dual Interpretation of loyalty" ?

Q3. a) Define IPR?   (2)

b) What are the advantages of IPR?

           Or   (8)

Write short notes on

I)   Trade Marks

II)   Industrial Design.

Q4. Differentiate between expertise authority and positioned authority?

           Or   (10)

Write short notes on Gilligan's Theory?

Chhattisgarh Swami Vivekanand Technical University

University Teaching Department

B. Tech(H) (Artificial Intelligence/Data Science), 1ˢᵗ Sem

Class Test - II, February, 2024

<Language and Writing Skills> (A000177(046))

Time Allowed: 2 hours

Maximum Marks: **40**
Minimum Pass Marks: **14**

Note: ATTEMPT ALL QUESTIONS
INTERNAL CHOICE IS GIVEN.

Q1. A) Give one word for the following: (5)

i) Absence of Government.

ii) One who is a great lover of book.

iii) One who is all powerful

iv) One who believe in the existence of God

v) Government by the people.

B) Give the antonyms of the following: (5)

i) Artificial ii) Barbarous iii) Callous iv) Foreign v) Plenty

Q2 A) Define reading.   (2)

B) Discuss the techniques of effective reading in brief?

                    Or   (8)

What preparations are required for effective presentation?

Q3 A) What is Syllable?   (2)

B) Discuss in detail the characteristics of good report?

                    Or   (8)

Explain in details the back matter of the technical report?

Q4 Imagine you are applying for a position as a Web Designer in an MNC stationed at Pune. Please draft a job application letter and create a structured resume that highlights your relevant education, skills, and experiences.

                    Or   (10)

Prepare a letter of an enquiry for the supply of 50 laptops, for your organisation. Assume suitable data for the same.