MID-SEMESTER EXAMINATION, MAY - 2023
UNIVERSAL HUMAN VALUES (GEN 1972)

Programme: B.Tech **Semester: 4th**
Full Marks: 30 **Time: 2 Hours**

Subject/Course Learning Outcome	*Taxonomy Level	Ques. Nos.	Marks
CO-1: Able to understand the Need, Basic Guidelines, Content and Process for Value Education with experiential validation through the mechanism of self-exploration.	1, 2	1.(a,b, c) 4 (a) 5(a)	10
CO-2: Able to understand the harmony in Human Beings leading to identification of basic aspirations, exploring content of imagination, with feeling of self-regulation, prosperity and health.	2,4,5	2(a,b) 3(a,b) 4(b,c)	12
CO-3: Able to understand harmony in the Family and Society at large by fulfilling foundational values of relationship and by effectively contributing as members/leaders in team dynamics.	2,3,4	2(c) 3(c) 5(b, c)	8

*Bloom's taxonomy levels: Remembering (L1), Understanding (L2), Application (L3), Analysis (L4), Evaluation (L5), Creation (L6)

Answer all questions. Each question carries equal mark.

1.	(a)	What are the ways to verify the proposal in value education?	2
	(b)	Does value education add value to your education? Enlist the basic guidelines for universal value education.	2
	(c)	How would you assess your value as a human being? Illustrate your answer with examples.	2
2.	(a)	How does self-exploration help you evolve as person of value?	2

	(b)	Prosperity means having the feeling of more than required physical facilities. Do you agree? Support your answer with a few examples.	2
	(c)	Is there a gap between 'What I am' and 'What I want to become'? If there is, how do you think this gap can be filled?	2
3.	(a)	What are pre-conditionings? What are the sources?	2
	(b)	Distinguish between animal and human consciousness. Do all humans live with human consciousness?	2
	(c)	How can right understanding ensure happiness in continuity?	2
4.	(a)	How are needs of the body different from the needs of the self? Support your answers with examples.	2
	(b)	Draw the circadian rhythm and briefly explain the biological clock.	2
	(c)	'Nature can fulfill the need of everyone but cannot fulfill the greed of even one person.' Explain this statement with the present-day context of our behavior towards nature.	2
5.	(a)	Do you agree that trust is the foundation of all human relationships?	2
	(b)	If human being is the co-existence of the body and the self, what would you prioritize and why?	2
	(c)	What do you mean by competence and intention. Briefly explain with examples.	2
		End of Questions	

MID-SEMESTER EXAMINATION, May-2023
Computer Science Workshop 2 (CSE3141)

Programme: B.Tech(CSE/CSIT) **Semester:4th**
Full Marks: 30 **Time: 2 Hours**

Subject/Course Learning Outcome	*Taxonomy Level	Ques. Nos.	Marks
Analysis algorithm using time and space complexity	L4	Q.1	6
Understanding and effectively use ADT, java collection, sorting and searching	L4	Q.2,Q Q.3,Q .4,Q. 5	24
Applying linkedlist, stack, queue on different problem solving			
Applying priority queue, graph on problem solving			
Understanding algorithm design tchniques			
Applying design techniques on problem solving			

*Bloom's taxonomy levels: Remembering (L1), Understanding (L2), Application (L3), Analysis (L4), Evaluation (L5), Creation (L6)

Answer all questions. Each question carries equal mark.

1. (a) Write a program to create a class **ArrayApp**, add a method to the class which takes two increasing order integer arrays as argument and find maximum sum by choosing few consecutive elements from one array then few elements from other. The element switching can happen at transition point only when element value is same in both the array. Find the time complexity of the function using the step count method. 2

(b) Create another method which takes an integer array as argument. and return the smallest positive missing number. 2

(c) Create and add a recursive method to **ArrayApp** class which takes an integer as its argument and returns the hexadecimal form Create a main method to invoke the above method for execution. 2

Note: Write as a single program for Q.1a, Q.1b, Q.1c

2 (a) Write a program to create a class **AttendanceApp** having registration number, name and number of classes attended as instance member variables and total no. of classes as static member and calculate the percentages of attendance of each student. 2

(b) Create a table to store the registration number and the percentage of attendance. Use appropriate collection class to store it. 2

(c) Display the table. Find and display the student having attendance less than 75% and remove them from the table. Count the number of students having attendance more than or equals to 75%. 2

Note: Write as a single program for Q.2a, Q.2b, Q.2c

3. (a) Write a program to sort elements of a given array using quick sort. 2

(b) Show and justify how quick sort is not a stable sorting algorithm with an example. 2

(c) Find the best, worst, and average case time complexity. 2

4. (a) Create a class **SortApp,** add a method to it which takes an array of positive elements as its argument and perform the reduction operation. In each reduction operation the smallest positive element value is picked, and all the elements are subtracted by that value. The function prints the number of elements left after each reduction process. 2

(b) Add a method to the **SortApp** class which takes two arrays as its argument and sort the first array according to the order defined in second array. 2

(c) Add a method to the **SortApp** class to invoke the above method and calculate the time complexity of the above two methods. 2

Note: Write as a single program for Q.4a, Q.4b, Q.4c

5. (a) Create a class **SearchApp,** add a method to this class which takes argument an array of integer in which all the elements appear even number of times except two, which appear odd number of times. The function find which elements appear odd number of times in *O(n)* time complexity and *O(1)* space complexity. 2

(b) Add a method to the **SearchApp**, class which takes an array of integers as its argument and find a triplet whose sum is equal to a given value. Calculate its time complexity.

(c) Add a method to **SearchApp** class which takes an array as its argument and find the majority element., which appear more than n/2 times. Return 0 in case there is no majority element. Add the required method to execute the abive created methods.

Note: Write as a single program for Q.5a, Q.5b, Q.5c

End of Questions