CBCS SCHEME

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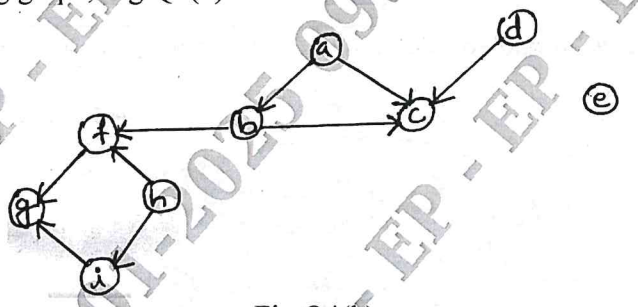
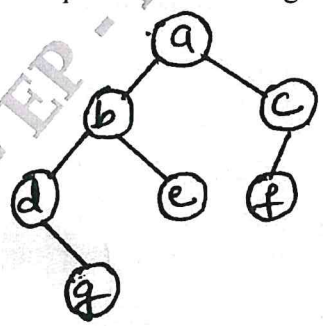
BCS401

Fourth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
Analysis and Design of Algorithms

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain the various steps in algorithm design and analysis process with the flow diagram.	08	L1	CO1
	b.	Give formal and informal definitions of asymptotic notations.	06	L1	CO1
	c.	Explain the general plan of mathematical analysis of recursive algorithm with an example.	06	L1	CO1
		OR			
Q.2	a.	Design algorithm for tower of Hanoi problem and obtain time complexity.	10	L1	CO1
	b.	Write an algorithm to search an element in an array using sequential search. Discuss the best case, worst case and average case efficiency of this algorithm.	10	L1	CO1
		Module – 2			
Q.3	a.	Write an algorithm to sort the numbers using insertion sort. Discuss its efficiency.	10	L2	CO2
	b.	Design quick sort algorithm and obtain its best, average and worst case efficiency.	10	L2	CO2
		OR			
Q.4	a.	Write merge sort algorithm and sort the list E X A M P L E.	08	L2	CO2
	b.	Apply the DFS based algorithm to solve the topological sorting problem for the following graph, Fig.Q4(b)  Fig.Q4(b)	06	L3	CO2
	c.	Write algorithm for pre-order, post order and in order traversals of a tree. Write pre-order, in-order and post order for the given tree.  Fig.Q4(c)	06	L2	CO2

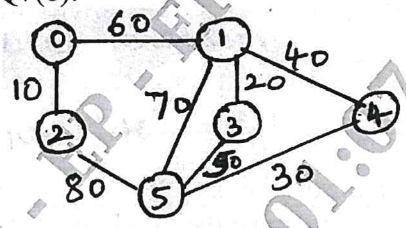
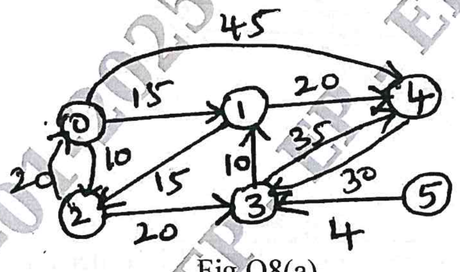
		Module – 3			
Q.5	**a.**	Define AVL tree. Construct AVL tree for the list 5, 6, 8, 3, 2, 4, 7.	**10**	**L3**	**CO3**
	b.	Define heap. Sort the following lists by heapsort: H E A P S O R T (in alphabetical order)	**10**	**L3**	**CO3**
		OR			
Q.6	**a.**	Write the algorithm for comparison counting sort. Discuss its efficiency.	**10**	**L2**	**CO4**
	b.	Design Horspools algorithm for string matching. Apply Horspools algorithm to find the pattern BARBER on the text JIM_SAW_ME_IN_BARBERSHOP	**10**	**L3**	**CO4**
		Module – 4			
Q.7	**a.**	Write Warshall's algorithm and apply the same to compute transitive closure of a directed graph. $\begin{array}{c} \\ a \\ b \\ c \\ d \\ e \end{array}\begin{array}{c} \begin{array}{ccccc} a & b & c & d & e \end{array} \\ \begin{bmatrix} 1 & 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 \\ 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 1 \end{bmatrix} \end{array}$	**10**	**L3**	**CO3**
	b.	Construct minimum cost spanning tree using Kruskal's algorithm for the following graph, Fig.Q7(b).  Fig.Q7(b)	**10**	**L3**	**CO4**
		OR			
Q.8	**a.**	Solve the following single source shortest path problem assuming vertex '5' as the source.  Fig.Q8(a)	**10**	**L3**	**CO4**
	b.	Write Huffman's algorithm. Construct Huffman tree and resulting code word for the following: Character: A, B, C, D, E, - Probability: 0.5, 0.35, 0.5, 0.1, 0.4, 0.2 Encode the text DAD_CBE.	**10**	**L4**	**CO4**
		Module – 5			
Q.9	**a.**	Explain the following with example: (i) P problem (ii) NP problem	**06**	**L1**	**CO5**
	b.	What is decision tree? Construct decision tree for the three element insertion sort.	**08**	**L2**	**CO5**
	c.	Construct state space tree to solve 4 queens problem.	**06**	**L3**	**CO5**

Table for Q.8 b:

Character	A	B	C	D	E	-
Probability	0.5	0.35	0.5	0.1	0.4	0.2

OR

Q.10	**a.**	What is backtracking? Apply back tracking to solve the below instance of sum of subset problem: s = {3, 5, 6, 7}, d = 15	**10**	**L3**	**CO6**
	b.	Solve the following instance of knapsack problem using branch and bound technique knapsack capacity = 10.	**10**	**L4**	**CO6**

Item	Weight	Value
1	4	40
2	7	42
3	5	25
4	3	12

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BCS402

Fourth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
Microcontroller

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain the purpose of various fields of current program status register with a neat diagram.	05	L2	CO1
	b.	Explain the ARM design philosophy.	06	L2	CO1
	c.	Explain the core extensions of ARM processor with neat block diagram.	09	L2	CO1
		OR			
Q.2	a.	Explain Embedded systems hardware with a neat block diagram.	06	L2	CO1
	b.	What is pipelines in ARM? Illustrate with an example the pipeline stage of ARM 9 and ARM 10.	09	L2	CO1
	c.	Describe the RISC design philosophy with 4 design rules.	05	L2	CO1
		Module – 2			
Q.3	a.	Explain the following with examples : (i) RSC (ii) MLA (iii) STRH (iv) SWP	10	L2	CO2
	b.	Explain the different data processing instruction in ARM.	10	L2	CO2
		OR			
Q.4	a.	Explain Barrel shifter instruction in ARM with suitable examples.	10	L2	CO2
	b.	Explain the different branch instruction of ARM processor.	05	L2	CO2
	c.	Explain co-processor instruction of ARM processor.	05	L2	CO2
		Module – 3			
Q.5	a.	Explain the different basic data types in C. Provide examples of how each data type can be used in a C program.	08	L2	CO3
	b.	Discuss the concept of register allocation in compiler optimization. Illustrate its significance with an example.	07	L2	CO3
	c.	Describe the process of a function call in C.	05	L2	CO3
		OR			
Q.6	a.	Discuss the common portability issues faced when writing C programs. How can these issues be mitigated.	07	L2	CO3
	b.	Explain the concept of pointer aliasing with example.	07	L2	CO3
	c.	How are function calls handled efficiently in calling function in C?	06	L2	CO3
		Module – 4			
Q.7	a.	What are interrupts? Discuss interrupt vector table with diagram for ARM processor.	06	L2	CO4
	b.	Describe the sequence of operations that occurs when an ARM processor handles an IRQ exceptions.	06	L2	CO4
	c.	Discuss the priority system for exception in ARM processor.	08	L2	CO4
		OR			
Q.8	a.	Explain the role of the link register in ARM exception handling.	08	L2	CO4
	b.	Explain the design and implementation of an interrupt stack in a ARM-based system. Explain the steps involved.	08	L2	CO4
	c.	What are the key differences between a boot loader and firmware?	04	L2	CO4

		Module – 5			
Q.9	a.	Explain the basic operation of a cache controller.	06	L2	CO5
	b.	With a neat diagram, explain the basic architecture of a cache memory.	10	L2	CO5
	c.	Mention any 4 relationship between cache and main memory.	04	L2	CO5
		OR			
Q.10	a.	Write a note on cache write policy both write back or write through.	10	L2	CO5
	b.	Describe the allocation policy on a cache miss.	04	L2	CO5
	c.	Write a note on following : (i) Write buffers (ii) Cache efficiency	06	L2	CO5

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BCS403

Fourth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
Database Management System

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Define the following terms: (i) Database (ii) Schema (iii) Entity (iv) DDL (v) Degree of a relationship	05	L1	CO1
	b.	Briefly explain characteristics of database approach.	05	L2	CO1
	c.	List and explain advantages of using DBMS approach.	10	L2	CO1
		OR			
Q.2	a.	Define the following terms: (i) Cardinality (ii) Weak entity (iii) Program data independence (iv) DML (v) Value sets	05	L1	CO1
	b.	Describe three-schema architecture. Why do we need mappings between schema levels?	05	L2	CO1
	c.	Explain different types of attributes in ER model with suitable example for each.	10	L2	CO1
		Module – 2			
Q.3	a.	With suitable example, explain the entity integrity and referential integrity constraints. Why each is considered important?	05	L2	CO2
	b.	Discuss equijoin and natural join with suitable example using relational algebra notation.	05	L2	CO2
	c.	Given the relational tables: Employee: EID | Name | DepID | Salary 1 | Alice | 10 | 5000 2 | Bob | 20 | 6000 3 | Eve | 20 | 6500 Department: DeptID | DeptName 10 | HR 20 | IT 30 | Sales Project PID | Project Name | DeptID 101 | Project Alpha | 10 102 | Project Beta | 20 103 | Project Gamma | 30 Write relational algebra expression for the following: (i) Find the names and salaries of all employees in the 'IT' department. (ii) Find the ID's and names of employees who are in the 'IT' department and have a salary greater than 6000. (iii) Find the ID's and names of employees who are either in the 'HR' department or have a salary greater than 6000. (iv) Find the names of employees who are not in the 'IT' department (v) Find the names of employees along with their department names.	10	L3	CO2

OR

Q.4	**a.**	Explain any two operations that change the state of relation in a database. Provide suitable examples.	**05**	**L2**	**CO2**
	b.	Discuss the aggregation functions and grouping in relational algebra with suitable examples.	**05**	**L2**	**CO2**
	c.	Given the relational tables: Student: SID | Name a | Alice b | Bob c | Carol Project: PID | Project Name p | Alpha q | Beta r | Gamma Language: LID | Language Name x | Python y | Java z | C++ Enrollment: SID | PID a | p a | q b | q c | r Write relational algebra expression for the following: (i) Rename the student table to Learner and display it. (ii) Find the students (learners) who are not enrolled in any project. (iii) Find the students who are enrolled in all projects. (iv) Find the students who are not enrolled in any project. (v) Find the students who are enrolled in both the 'Alpha' and 'Beta' projects.	**10**	**L3**	**CO2**

Module – 3

Q.5	**a.**	Explain Armstrong inference rules.	**05**	**L2**	**CO4**
	b.	What is the need for normalization? Explain 1NF, 2NF and 3NF with examples.	**05**	**L2**	**CO4**
	c.	What is functional dependency? Write an algorithm to find minimal cover for set of functional dependencies. Construct minimal cover M for set of functional dependencies which are: E = {B → A, D → A, AB → D}	**10**	**L3**	**CO4**

OR

Q.6	**a.**	Explain the types of update anomalies in SQL with an example.	**05**	**L2**	**CO4**
	b.	Explain types of JBBC drivers.	**05**	**L2**	**CO5**
	c.	Consider the schema R = ABCD, subjected to FDs F = {A →B, B →C}, and the non-binary partition D1 = {ACD, AB, BC}. State whether D1 is a lossless decomposition? [give all steps in detail].	**10**	**L3**	**CO4**

Module – 4

Q.7	**a.**	Define transaction. Discuss ACID properties.	**05**	**L2**	**CO5**
	b.	With a neat diagram, explain transition diagram of a transaction.	**05**	**L2**	**CO5**
	c.	Demonstrate working of assertion and triggers in SQL with example.	**10**	**L3**	**CO5**

OR

Q.8	**a.**	Explain cursor and its properties in embedded SQL with suitable example.	**05**	**L2**	**CO5**
	b.	Determine if the following schedule is serializable and explain your reasoning: i) T1 : R(X)W(X) T2 : R(X)W(X) T1 : COMMIT T2 : COMMIT ii) T1 : W(X)R(Y) T2 : R(X)W(Y) T1 : COMMIT T2 : COMMIT	**05**	**L2**	**CO5**

	c.	Consider the tables below: Sailors (sid : integer, sname : string, rating : integer, age : real) Boats (bid : integer, bname : string, color : string); Reserves (sid : integer, bid : integer, day : date) Write SQL queries for the following: (i) Write create table statement for reserves. (ii) Find all information of sailors who have reserved boat number 101. (iii) Find the names of sailors who have reserved at least one boat. (iv) Find the names of sailors who have reserved a red boat. (v) Find the average age of sailors for each rating level.	10	L3	CO5
		Module – 5			
Q.9	**a.**	Explain the CAP theorem.	**05**	**L2**	**CO6**
	b.	What is NOSQL graph database? Explain Neo4j.	**05**	**L2**	**CO6**
	c.	Why concurrency control and recovery are needed in DBMS? Demonstrate with suitable examples types of problems that may occur when two simple transactions run concurrently.	**10**	**L3**	**CO5**
		OR			
Q.10	**a.**	Explain basic operations CRUD in MongoDB.	**05**	**L2**	**CO6**
	b.	Explain deadlock prevention protocols.	**05**	**L2**	**CO5**
	c.	Briefly discuss the two-phase looking techniques f_0 concurrency control.	**10**	**L3**	**CO5**

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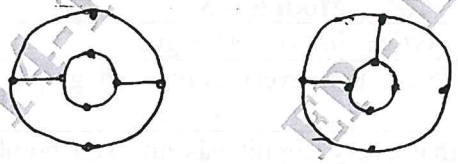
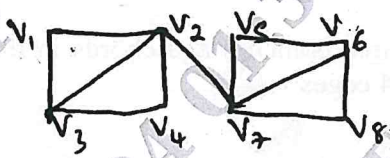
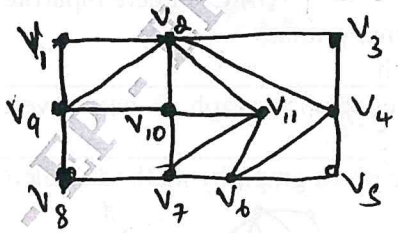
BCS405B

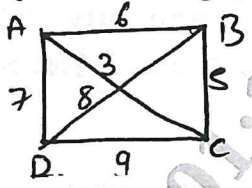
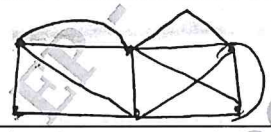
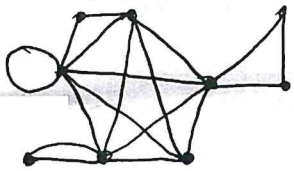
Fourth Semester B.E./B.Tech. Degree Supplementary Examination, June/July 2024

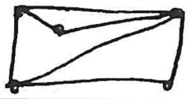
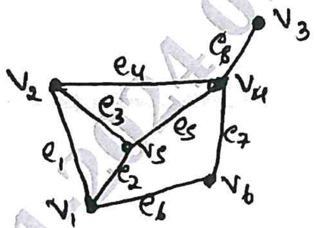
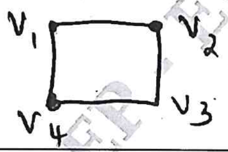
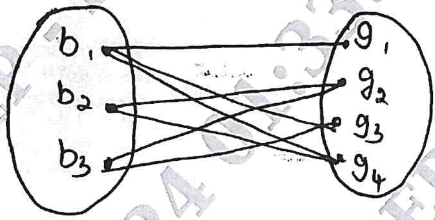
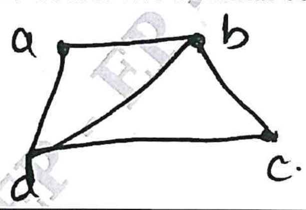
Graph Theory

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Define connected graph. Let G = (V, E) be a connected graph, what is the largest possible value of |V|, if |E| = 19 and deg(V) ≥ 4 for all v ∈V?	06	L2	CO1
	b.	Define isomorphism of two graphs. Show that the two graphs are not isomorphic. 	07	L2	CO1
	c.	Show that in a graph G, the number of odd degree vertices is even.	07	L3	CO1
		OR			
Q.2	a.	Show that the maximum number of edges in a simple graph with n vertices is $\frac{n(n-1)}{2}$.	06	L3	CO1
	b.	In the given graph, identify the different paths from V_1 to V_8. How many of these path have length 5? 	07	L2	CO1
	c.	Show that a simple graph with n vertices and K components can have atmost $\frac{(n-K)(n-K+1)}{2}$ edges.	07	L3	CO1
		Module – 2			
Q.3	a.	Define Euler circuit. Find the Euler circuit in the graph below. 	06	L2	CO2
	b.	Prove that in a complete graph with n vertices, where n ≥ 3, there are $\frac{(n-1)}{2}$ edge disjoint Hamiltonian cycles.	07	L3	CO2
	c.	Write a note on "Konigsberg bridge problem".	07	L3	CO2

		OR			
Q.4	**a.**	Explain travelling salesman problem. Solve the travelling salesman problem for the weighted graph shown in Fig.Q4(a).  Fig.Q4(a)	**06**	**L2**	**CO2**
	b.	Define Hamilton cycle. How many edge disjoint Hamilton cycles exist in the complete graph with seven vertices? Also draw the graph to show these Hamilton cycle.	**07**	**L3**	**CO2**
	c.	Define complete symmetric digraph with an example. Prove that in any digraph, the sum of indegree of all vertices is equal to sum of outdegree and this sum is equal to number of edges.	**07**	**L3**	**CO2**
		Module – 3			
Q.5	**a.**	Prove that a tree with n vertices has (n – 1) edges.	**06**	**L3**	**CO3**
	b.	Define spanning tree. Prove that every connected graph has atleast one spanning tree.	**07**	**L3**	**CO3**
	c.	Define cut set. Prove that every circuit has an even number of edges in common with any cut set.	**07**	**L3**	**CO3**
		OR			
Q.6	**a.**	Define binary tree. If a tree T has 4 vertices of degree 2, 1 vertex of degree 3, 2 vertices of degree 4 and 1 vertex of degree 5, find the number of leaves in T.	**06**	**L2**	**CO3**
	b.	(i) Find all the spanning tree of the below graph.  (ii) Find the number of tree branches and chords in the following graph with 7 vertices and 14 edges. 	**07**	**L3**	**CO3**
	c.	Define edge connectivity and vertex connectivity. Show that edge connectivity of graph G cannot exceed the degree of the vertex with the smallest degree in G.	**07**	**L3**	**CO3**
		Module – 4			
Q.7	**a.**	Define: (i) Planar graph (ii) Complete bipartite graph (iii) Dual of a planar graph. Give one example for each.	**06**	**L2**	**CO4**
	b.	Prove that in a connected planar graph G has n vertices, e edges and r regions then n – e + r = 2.	**07**	**L3**	**CO4**
	c.	Check the planarity of the given graph by method of elementary reduction. 	**07**	**L3**	**CO4**
		OR			

Q.8	a.	Define complete graph with an example. Show that Peterson graph is non-planar.	06	L3	CO4
	b.	Draw the geometric dual of the given graph: 	07	L2	CO4
	c.	Define adjacency matrix and incidence matrix. Write down the adjacency matrix for the given graph G. 	07	L3	CO4
		Module – 5			
Q.9	a.	Define chromatic polynomial of a graph. Find the chromatic polynomial of the graph. 	06	L2	CO5
	b.	Prove that a graph with atleast one edge is 2-chromatic iff it has no circuits of odd length.	07	L3	CO5
	c.	Define complete matching. Obtain 3 complete matching from the given graph. 	07	L3	CO5
		OR			
Q.10	a.	Prove that a graph with atleast one edge is 2-chromatic if and only if it has no circuits of odd length.	06	L2	CO5
	b.	Define covering of a graph. Obtain two minimal coverings of the graph. 	07	L3	CO5
	c.	Prove that a covering of a graph is minimal if and only if g contains no paths of lengths three or more.	07	L3	CO5

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BCS401

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2024
Analysis and Design of Algorithms

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	What is an algorithm? Explain the fundamentals of algorithmic problem solving.	10	L2	CO1
	b.	Develop an algorithm to search an element in an array using sequential search. Calculate the best case, worst case and average case efficiency of this algorithm.	10	L3	CO1
		OR			
Q.2	a.	Explain asymptotic notations with example.	10	L2	CO1
	b.	Give the general plan for analyzing the efficiency of the recursive algorithm. Develop recursive algorithm for computing factorial of a positive number. Calculate the efficiency in terms of order of growth.	10	L3	CO1
		Module – 2			
Q.3	a.	Explain Strassen's matrix multiplication approach with example and derive its time complexity.	10	L3	CO2
	b.	What is divide and conquer? Develop the quick sort algorithm and write its best case. Make use of this algorithm to sort the list of characters: E, X, A, M, P, L, E.	10	L2	CO2
		OR			
Q.4	a.	Distinguish between decrease & conquer and divide & conquer algorithm design techniques with block diagram. Develop insertion sort algorithm to sort a list of integers and estimate the efficiency.	10	L3	CO2
	b.	Define topological sorting. List the two approaches of topological sorting and illustrate with examples.	10	L2	CO2
		Module – 3			
Q.5	a.	Define AVL tree with an example. Give worst case efficiency of operations on AVL tree. Construct an AVL tree of the list of keys: 5, 6, 8, 3, 2, 4, 7 indicating each step of key insertion and rotation.	10	L3	CO3
	b.	Define Heap. Explain the bottom-up heap construction algorithm. Apply heap sort to sort the list of numbers 2, 9, 7, 6, 5, 8 in ascending order using array representation.	10	L3	CO3
		OR			
Q.6	a.	Define 2-3 tree. Give the worst case efficiency of operations on 2-3 tree. Build 2-3 tree for the list of keys 9, 5, 8, 3, 2, 4, 7 by indicating each step of key insertion and node splits.	10	L3	CO3
	b.	Design Horspool algorithm for string matching. Apply this algorithm to find the pattern BARBER in the text: JIM_SAW_ME_IN_A_BARBERSHOP	10	L3	CO3
		Module – 4			
Q.7	a.	Apply Dijkstra's algorithm to find the single source shortest path for given graph [Fig.Q7(a)] by considering 's' as source vertex. Illustrate each step.	10	L3	CO4

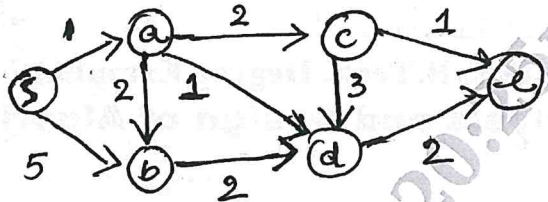

Fig.Q7(a)

	b.	Define transitive closure. Write Warshall's algorithm to compute transitive closure. Illustrate using the following directed graph.	10	L3	CO4

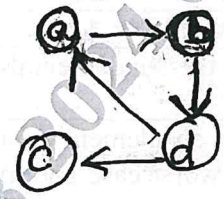

Fig.Q7(b)

OR

Q.8	a.	Define minimum spanning tree. Write Kruskal's algorithm to find minimum spanning tree. Illustrate with the following undirected graph.	10	L3	CO4

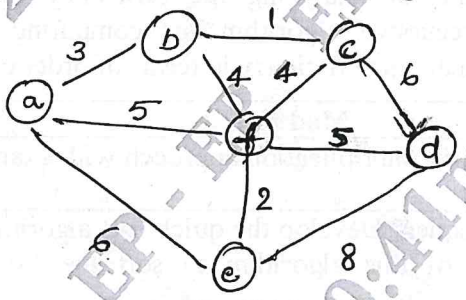

Fig.Q8(a)

	b.	Construct Huffman Tree and resulting code for the following: (i) Encode the text : ABACABAD (ii) Decode the text : 100010111001010	10	L3	CO4

Character	A	B	C	D	-
Probability	0.4	0.1	0.2	0.15	0.15

Module – 5

Q.9	a.	Explain n-Queen's problem with example using backtracking approach.	10	L2	CO5
	b.	Solve the following instance of the knapsack problem by the branch-and-bound algorithm. Construct state-space tree. The knapsack's capacity W is 10.	10	L3	CO5

Item	Weight	Value
1	4	$ 40
2	7	$ 42
3	5	$ 25
4	3	$ 12

OR

Q.10	a.	Differentiate between Branch and Bound technique and Backtracking. Apply backtracking to solve the following instance of subset-sum problem S = {3, 5, 6, 7} and d = 15. Construct a state space tree.	10	L3	CO5
	b.	Explain greedy approximation algorithm to solve discrete knapsack problem.	10	L2	CO5

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CBCS SCHEME

USN | | | | | | | | | | |

BCS402

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2024
Microcontrollers

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain the architecture of an arm embedded device with a neat diagram.	10	L2	CO1
	b.	How are monitor and control internal operations performed in ARM core? Explain in brief.	10	L2	CO1
		OR			
Q.2	a.	Explain memory management in ARM core. Compare cache and tightly coupled memory.	10	L2	CO1
	b.	Explain mechanism applied by ARM core to handle exception, interrupts using different vector table.	10	L2	CO1
		Module – 2			
Q.3	a.	Examine data processing instructions requirement in the manipulation of data register? Explain in brief data processing instructions.	10	L2	CO2
	b.	Explain with examples the following 32-bit instruction of ARN processor i) CMN ii) MLA iii) MRS iv) BIC v) LDR.	10	L2	CO2
		OR			
Q.4	a.	Explain the following with example : i) Stock operation ii) Swap instructions.	10	L2	CO2
	b.	Explain Branch instructions in ARM with suitable example. Demonstrate Branch instruct usage flow of execution with an example program.	10	L2	CO2
		Module – 3			
Q.5	a.	How registers are allocated to optimize the program? Develop an assembly level program to find the sum of first to integer numbers.	10	L2	CO3
	b.	How complier handles a "for loop" with variable number of iterations N and loop controlling with an example.	10	L2	CO3
		OR			
Q.6	a.	Explain the following terms with an appropriate example : i) Pointer Aliasing ii) Portability issues.	10	L2	CO3
	b.	How function calling is efficiently used by ARM through APCS with an example program.	10	L2	CO3
		Module – 4			
Q.7	a.	Explain ARM processors exception and modes with a neat diagram.	10	L2	CO4
	b.	Explain exception priorities and link register offset.	10	L2	CO4
		OR			
Q.8	a.	List ARM firmware suite features. Explain firmware execution flow and Red Hat Boot.	10	L2	CO4
	b.	Explain IRQ and Fir exception, also to enable and disable IRQ and FIQ interrupts.	10	L2	CO4
		Module – 5			
Q.9	a.	Explain basic architecture of cache memory.	10	L2	CO5
	b.	Explain process involved in main memory mapping to a cache memory.	10	L2	CO5
		OR			
Q.10	a.	Explain with diagram set associative cache. How are efficiency is measured?	10	L2	CO5
	b.	Briefly explain cache line replacement policies with an example.	10	L2	CO5

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CBCS SCHEME

USN | | | | | | | | | | |

BCS403

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2024
Database Management Systems

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Define database. Elaborate component modules of DBMS and their interactions.	10	L2	CO1
	b.	Describe the three-schema architecture. Why do we need mappings among schema levels?	06	L2	CO1
	c.	Explain the difference between logical and physical data independence.	04	L2	CO1
		OR			
Q.2	a.	Draw an ER diagram for an COMPANY database with employee, department, project as strong entities and dependent as weak entity. Specify the constraints, relationships and ratios in the ER diagram.	10	L3	CO3
	b.	Define the following terms with example for each using ER notations: Entity, attribute, composite attribute, multivalued attribute, participation role.	10	L3	CO3
		Module – 2			
Q.3	a.	Discuss the update operations and dealing with constraint violations with suitable examples.	08	L2	CO2
	b.	Illustrate the relational algebra operators with examples for select and project operation.	06	L2	CO2
	c.	Discuss the characteristics of relations that make them different from ordinary table and files.	06	L2	CO2
		OR			
Q.4	a.	Perform (i) Student U instructor (ii) Student ∩ Instructor (iii) Student – Instructor (iv) Instructor – Student on the following tables: Student Fname | Lname Susan | Yao Ramesh | Shah Johnny | Kohler Barbara | Jones Amy | Ford Jimmy | Wang Ernest | Gilbert Instructor Fname | Lname John | Smith Ricardo | Browne Susan | Mao Francis | Johnson Ramesh | Shah	04	L3	CO2
	b.	Consider the following relational database schema and write the queries in relational algebra expressions: EMP(Eno, Ename, Salary, Address, Phone, DNo) DEPT(DNo, Dname, DLoc, MgrEno) DEPENDENT(Eno, Dep_Name, Drelation, Dage) (i) List all the employees who reside in 'Belagavi'. (ii) List all the employees who earn salary between 30000 and 40000 (iii) List all the employees who work for the 'Sales' department (iv) List all the employees who have at least one daughter (v) List the department names along with the names of the managers	10	L3	CO2

	c.	Consider the two tables T_1 and T_2 shown below: T_1 P | Q | R 10 | a | 5 15 | b | 8 25 | a | 6 T_2 A | B | C 10 | b | 6 25 | c | 3 10 | b | 5 Show the results of the following operations: (i) $T_1 \bowtie_{T_1.P=T_2.A} T_2$ (ii) $T_1 \bowtie_{T_1.Q=T_2.B} T_2$ (iii) $T_1 \bowtie_{(T_1.P=T_2.A \text{ AND } T_1.R=T_2.C)} T_2$	06	L3	CO2
		Module – 3			
Q.5	a.	Discuss the informal design guidelines for relation schema design.	08	L2	CO4
	b.	Define 1NF, 2NF, and 3NF with examples.	06	L2	CO4
	c.	Write the syntax for INSERT, UPDATE and DELETE statements in SQL and explain with suitable examples.	06	L2	CO3
		OR			
Q.6	a.	Discuss insertion, deletion and modification anomalies. Why are they considered bad? Illustrate with examples.	10	L2	CO3
	b.	Illustrate the following with suitable examples: (i) Datatypes in SQL (ii) Substring Pattern Matching in SQL.	10	L2	CO3
		Module – 4			
Q.7	a.	Consider the following relations: Student(Snum, Sname, Branch, level, age) Class(Cname, meet_at, room, fid) Enrolled(Snum, Cname) Faculty(fid, fname, deptid) Write the following queries in SQL. No duplicates should be printed in any of the answers. (i) Find the names of all Juniors (level = JR) who are enrolled in a class taught by I. Teach. (ii) Find the names of all classes that either meet in room R128 or have five or more students enrolled. (iii) For all levels except JR, print the level and rthe average age of students for that level. (iv) For each faculty member that has taught classes only in room R128, print the faculty member's name and the total number of classes she or he has taught. (v) Find the names of students not enrolled in any class.	10	L3	CO3
	b.	What do understand by correlated Nested Queries in SQL? Explain with suitable example.	04	L2	CO3
	c.	Discuss the ACID properties of a database transaction.	06	L2	CO4
		OR			
Q.8	a.	What are the views in SQL? Explain with examples.	04	L3	CO5
	b.	In SQL, write the usage of GROUP BY and HAVING clauses with suitable examples.	06	L2	CO3
	c.	Discuss the types of problems that may encounter with transactions that run concurrently.	10	L2	CO5

		Module – 5			
Q.9	a.	What is the two phase locking protocol? How does it Guarantee serializability.	06	L2	CO5
	b.	Describe the wait-die and wound-wait protocols for deadlock prevention.	08	L2	CO5
	c.	List and explain the four major categories of NOSQL system.	06	L2	CO3
		OR			
Q.10	a.	What is Multiple Granularity locking? How is it implemented using intension locks? Explain.	10	L2	CO5
	b.	Discuss the following MongoDB CRUD operations with their formats: (i) Insert (ii) Delete (iii) Read	06	L2	CO4
	c.	Briefly discuss about Neo4j data model.	04	L2	CO4

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CBCS SCHEME

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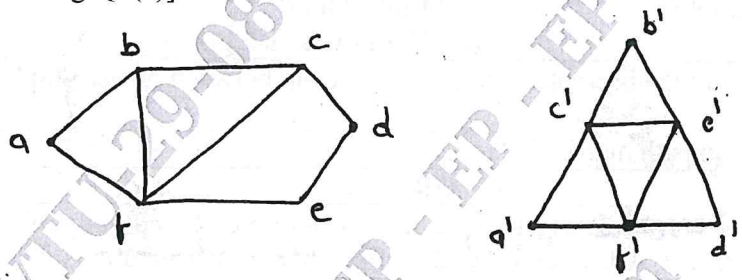
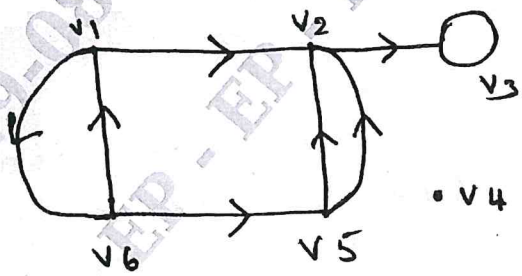
BCS405B

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2024
Graph Theory

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Define graph. List and explain the types of graph.	08	L1	CO1
	b.	Prove that the number of vertices of odd degree in a graph is always even.	06	L2	CO1
	c.	Define isomorphic graph and verify the following graphs are isomorphic or not. [Refer Fig.Q1(c)]  Fig.Q1(c)	06	L2	CO1
		OR			
Q.2	a.	Explain the following graphs: (i) Bi-partile graph (ii) Sub graphs (iii) WALK (iv) Path	10	L1	CO1
	b.	Prove that a simple graph with n vertices and K components can have at most $(n-K)(n-K+1)/2$ edges.	10	L2	CO1
		Module – 2			
Q.3	a.	State and prove necessary condition of a graph to be a Euler graph.	10	L2	CO2
	b.	List and explain the different operations on graph.	10	L2	CO2
		OR			
Q.4	a.	Define diagraph. Find the indegree and outdegree of the following graph [Fig.Q4(a)].  Fig.Q4(a)	08	L2	CO2
	b.	Illustrate the travelling salesman problem using a graph.	06	L2	CO2
	c.	List and explain different digraphs and binary relations.	06	L2	CO2
		Module – 3			
Q.5	a.	Define a tree. Prove that in a graph G there is one and only one path between every pair of vertices, G is a tree.	06	L1	CO3

	b.	Explain the following: (i) Cut-edge (ii) Cut-vertex (iii) Cut-set	06	L1	CO3
	c.	Find and construct the following: (i) Minimum possible height of 11 vertex binary tree (ii) A binary tree for a given 11 such that the farthest vertex is as far as possible from the root that must have exactly 2 vertices at each level, except at zero level.	08	L2	CO3
		OR			
Q.6	a.	Prove that every circuit has an even number of edges in common with any cut set.	10	L2	CO3
	b.	Prove that ring 50 m of any two cut-sets in a graph is either a third cut-set or an edge disjoint union of cut-sets.	10	L2	CO3
		Module – 4			
Q.7	a.	Define the following: (i) Planar graph (ii) Embedding (iii) Non-planar (iv) Kuratowski's 2 graph	08	L2	CO4
	b.	Explain the simple observation mode relationship between planar graph and dual G*.	08	L2	CO4
	c.	Write a note on path matrix.	04	L1	CO4
		OR			
Q.8	a.	Prove that two graphs G1 and G2 are isomorphic if and only if their incidence matrices A(G1) and A(G2) differ only by permutations of rows and columns.	10	L2	CO5
	b.	Describe the observations that can be made about circuit matrix B(G) 01 and graph G.	10	L2	CO5
		Module – 5			
Q.9	a.	Prove that every tree with two or more vertices is 2 - chromatic.	10	L2	CO5
	b.	Explain the following for chromatic polynomial: (i) Finding a maximal independent set (ii) Finding all maximal independent set.	10	L2	CO5
		OR			
Q.10	a.	Prove that the vertices of every planar graph can be properly colored with five colors.	10	L2	CO5
	b.	Explain the Greedy colouring algorithm.	10	L2	CO5

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CBCS SCHEME

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BIS402

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2024
Advanced Java

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	What is collection Frame Work? Explain the methods defined by the following Interfaces: (i) Collection (ii) List (iii) Sorted Set (iv) Queue	10	L2	CO1
	b.	What are Legacy Classes? Explain any four legacy classes of Java's collection Frame work with suitable program.	10	L2	CO1
		OR			
Q.2	a.	Explain how collectors can be accessed using an iterator with example.	5	L3	CO1
	b.	What are the various changes that collection framework underwent recently?	5	L1	CO1
	c.	With an example program, explain how to store user-defined classes in collections.	10	L2	CO1
		Module – 2			
Q.3	a.	Explain any two character extraction methods of string class.	5	L2	CO2
	b.	Explain the various string constructors used in Java with examples.	10	L2	CO2
	c.	Explain additional string methods.	5	L2	CO2
		OR			
Q.4	a.	Briefly describe special string operations with syntax and examples.	5	L2	CO2
	b.	Explain the following methods of string buffer class with examples : (i) capacity ( ) (ii) reverse ( ) (iii) insert (iv) append ( )	10	L2	CO2
	c.	Explain any four string modification methods of string class.	5	L2	CO2
		Module – 3			
Q.5	a.	Explain the four types of the swing buttons, with demonstration program.	10	L3	CO3
	b.	Explain MVC connector Architecture.	5	L2	CO3
	c.	What are the two key swing features? Discuss.	5	L1	CO3
		OR			
Q.6	a.	Explain the following : (i) JLabel and Image Icon. (ii) JTextField	10	L2	CO3
	b.	Write a program to demonstrate a simple swing application.	10	L3	CO3
		Module – 4			
Q.7	a.	Explain the life cycle of Servlets.	5	L2	CO4
	b.	Describe the core interfaces that are provided in Jakarta (Javax), Servlet, http package.	5	L2	CO4
	c.	Define JSP. Explain the different types of JSP tags by taking suitable example.	10	L2	CO4
		OR			

Q.8	a.	Explain any two cookies method.	5	L1	CO4
	b.	With a code, explain how to handle HTTP get requests and HTTP post requests.	10	L2	CO4
	c.	Explain how cookies can be handled using servlets.	5	L4	CO4
		Module – 5			
Q.9	a.	Explain different steps involved in JDBC process with a code snippet.	10	L3	CO5
	b.	List and elaborate Database Metadata Object methods.	5	L2	CO5
	c.	List and explain three kinds of exception occurred in JDBC.	5	L2	CO5
		OR			
Q.10	a.	Mention all steps to create the association between the database and a JDBC/ODBC bridge.	12	L3	CO5
	b.	Explain the four types of JDBC drivers.	8	L2	CO5

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CBCS SCHEME

BUHK408

USN | | | | | | | | | | |

Question Paper Version : A

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2024
Universal Human Values Course

Time: 1 hr.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

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1. The purpose of value –Education is to
a) Foster universal core values
b) Make syllabus easy
c) Develop values in individual
d) Both A and C

2. Self exploration uses two mechanisms i) Natural Acceptance ii) ---------?
a) Experiential validation b) Reason
c) Logical Thinking d) Theoretical concept

3. Once we know what is valuable to us, these values becomes the basis, the anchor for _____
a) Knowledge b) Actions c) Society d) None of these

4. To fulfill Human Aspirations, what are necessary
a) Both values and skills b) Values
c) Skills d) None of these

5. Which the following are the encompassing principles underlying the successful implementation of value education?
A) Conviction B) Connection C) Critical thinking D) Commitment
choose the most appropriate answer from the options given below :
a) A, C and D only b) B, C and D only c) A, B and D only d) None of these

6. Value and skills should go hand in hand
a) True b) False c) Cannot tell d) None of these

7. Are the content of self – exploration
a) Program b) Desire c) Both a and b d) None

8. Human life is lived at four levels individual, Family, Society and _____
a) Nature b) Nurture c) World d) Universe

9. Any course content on value education needs to be
a) Universal b) Rational c) Natural d) All of these

10. Value education enables us to
a) To understand our needs
b) Visualize our goals correctly
c) Indicate the direction for their fulfillment
d) All of the above

11. Harmony should be maintained in
a) Between body and life
b) Between self and society
c) Between life and environment
d) All of these

12. I being the
a) does, seer and Enjoyer b) doer
c) seer d) enjoyer

13. Which of the following is NOT response of the self?
a) Knowing b) Assuming c) Recognizing d) Preconditioning

14. Activities of self (I) are
a) Happiness b) Prosperity
c) Desire, thought and expectation d) None

15. The requirement of body is right utilization and nurturing
a) Desire b) Protection c) Thought d) Expectation

16. The _____ is an instrument of _____
a) I, Body b) Body, I c) Both a and b d) None

17. The activity of desire, thought and expecting together is called as
a) Body b) Health c) Imagination d) Future

18. Imaging is _____ with time
a) Continuous b) Discontinuous c) Random d) Different

19. Where there is harmony among the parts of the body it is known as
a) Swasthya b) Sanyam c) Prosperity d) None

20. Knowing means having the
a) Assumption b) Right understanding
c) Right feeling d) None

21. Harmony should be maintained in
a) Between body and life
b) Between self and society
c) Between life and environment
d) All of these

22. The foundational value in relationship is
a) Respect b) Love c) Trust d) Glory

23. Ensuring right understanding and feeling in the others is called
a) Care b) Affection c) Gratitude d) Guidance

24. Harmony in the family is the building block for harmony in the
a) Society b) Individual c) Friend d) Relative

25. The total numbers of feelings in human relationship
a) 5 b) 10 c) 9 d) 8

26. Comprehensive human goal is right understanding prosperity, trust (fearlessness) and
a) Co-existance b) Happiness c) Abhay d) None

27. There is justice in relationship when there is
a) Mutual fulfillment b) Self regulation c) Freedom d) None

28. The extension of family is
a) Self b) Body c) Society d) Nature

29. The feeling of relatedness to all human beings is called
a) Love b) Affection c) Gratitude d) Respect

30. Acceptance of excellence in others is called
a) Reverence b) Glory c) Gratitude d) Guidance

31. All the units of nature can be classified into _____ orders
a) Two b) Three c) Four d) Six

32. Which of the following does not form an order in nature?
a) BIO b) Animal c) Consciousness d) Human

33. Which of the following statements is true,
a) Material units have only two kinds of activities recognizing and fulfilling
b) Material units have three kinds of activities assuming, recognizing and fulfilling
c) Material units have only four kinds of activities knowing, assuming, recognizing and fulfilling
d) None of the statement

34. Which of the following statement is not true?
a) There is inter connectedness in nature
b) There is recyclability and self regulation in nature
c) There is struggle for survival in nature
d) There is mutual fulfillment in nature

35. According to quantity, which of the following is true for the orders in nature
a) Bio order >> Physical order >> Animal order >> Human order
b) Animal order >> Bio order >> Physical order >> Human order
c) Physical order >> Bio order >> Animal order >> Human order
d) None of the above

36. What are the fundamental components of ecosystems?
a) Plants and Animals b) Air and water
c) Rocks and minerals d) All of these

37. The third order of nature is
a) Material order b) Animal order c) Plant order d) Human order

38. The activities in human body are
a) Composition b) Decomposition c) Respiration d) All of these

39. The systems in nature are
a) Cyclic b) Mutually fulfilling
c) Both a and b d) None of these

40. The natural characteristics/Svabhava of a human being are
a) Perseverance b) Bravery c) Generosity d) All of these

41. The only effective way to ensure professional ethics is by developing
a) Knowledge b) Ethical conduct
c) Ethical competence d) Professional activities

42. How does unethical practices in various professions can be resolved
a) Through skills b) Through knowledge
c) Through practical d) Via right understanding

43. What provides clear guidance and policy frame work conducive to the development of an un-fragmented human society and a universal human order
a) Humanistic education b) Humanistic constitution
c) Profession d) Ethical Human conduct

44. The right understanding gained through self exploration also enables us to identify the definitiveness of human conduct. What is this called?
a) Ethical Human conduct b) Values
c) Policy d) Utility values

45. Primary step to move towards the holistic alternative is to develop the right understanding among humans and the commitment to
a) Do practical b) Remain calm c) Live accordingly d) Teach others

46. The right understanding helps us identify the comprehensive human goal in terms of
a) Samadhan b) Samridhi c) Sah-astitva d) All of these

47. The humanistic education will facilitate the process of self exploration which will lead to continuous
a) Education b) Self evolution c) Development d) People friendly

48. The values of human being can be enumerated as
a) Nine b) Thirty c) Eighteen d) Twenty four

49. Which of the following is not a characteristic of professionalism?
a) Kindness b) Competency c) Morality d) Complacency

50. There are six characteristics of a professional style which is not a professional style?
a) Ethical b) Emotional c) Responsible d) Intellectual.

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CBCS SCHEME

BUHK408

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Question Paper Version : B

Fourth Semester B.E. Degree Examination, June/July 2024
Universal Human Values Course

Time: 1 hr.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

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1. The only effective way to ensure professional ethics is by developing
a) Knowledge b) Ethical conduct
c) Ethical competence d) Professional activities

2. How does unethical practices in various professions can be resolved
a) Through skills b) Through knowledge
c) Through practical d) Via right understanding

3. What provides clear guidance and policy frame work conducive to the development of an un-fragmented human society and a universal human order
a) Humanistic education b) Humanistic constitution
c) Profession d) Ethical Human conduct

4. The right understanding gained through self exploration also enables us to identify the definitiveness of human conduct. What is this called?
a) Ethical Human conduct b) Values
c) Policy d) Utility values

5. Primary step to move towards the holistic alternative is to develop the right understanding among humans and the commitment to
a) Do practical b) Remain calm
c) Live accordingly d) Teach others

6. The right understanding helps us identify the comprehensive human goal in terms of
a) Samadhan b) Samridhi c) Sah-astitva d) All of these

7. The humanistic education will facilitate the process of self exploration which will lead to continuous
a) Education b) Self evolution c) Development d) People friendly

8. The values of human being can be enumerated as
a) Nine b) Thirty c) Eighteen d) Twenty four

9. Which of the following is not a characteristic of professionalism?
a) Kindness b) Competency c) Morality d) Complacency

10. There are six characteristics of a professional style which is not a professional style?
a) Ethical b) Emotional c) Responsible d) Intellectual.

11. All the units of nature can be classified into _____ orders
a) Two b) Three c) Four d) Six

12. Which of the following does not form an order in nature?
a) BIO b) Animal c) Consciousness d) Human

13. Which of the following statements is true,
a) Material units have only two kinds of activities recognizing and fulfilling
b) Material units have three kinds of activities assuming, recognizing and fulfilling
c) Material units have only four kinds of activities knowing, assuming, recognizing and fulfilling
d) None of the statement

14. Which of the following statement is not true?
a) There is inter connectedness in nature
b) There is recyclability and self regulation in nature
c) There is struggle for survival in nature
d) There is mutual fulfillment in nature

15. According to quantity, which of the following is true for the orders in nature
a) Bio order >> Physical order >> Animal order >> Human order
b) Animal order >> Bio order >> Physical order >> Human order
c) Physical order >> Bio order >> Animal order >> Human order
d) None of the above

16. What are the fundamental components of ecosystems?
a) Plants and Animals b) Air and water
c) Rocks and minerals d) All of these

17. The third order of nature is
a) Material order b) Animal order c) Plant order d) Human order

18. The activities in human body are
a) Composition b) Decomposition c) Respiration d) All of these

19. The systems in nature are
a) Cyclic b) Mutually fulfilling
c) Both a and b d) None of these

20. The natural characteristics/Svabhava of a human being are
a) Perseverance b) Bravery c) Generosity d) All of these

21. Harmony should be maintained in
a) Between body and life
b) Between self and society
c) Between life and environment
d) All of these

22. I being the
a) does, seer and Enjoyer
b) doer
c) seer
d) enjoyer

23. Which of the following is NOT response of the self?
a) Knowing
b) Assuming
c) Recognizing
d) Preconditioning

24. Activities of self (I) are
a) Happiness
b) Prosperity
c) Desire, thought and expectation
d) None

25. The requirement of body is right utilization and nurturing
a) Desire
b) Protection
c) Thought
d) Expectation

26. The _____ is an instrument of _____
a) I, Body
b) Body, I
c) Both a and b
d) None

27. The activity of desire, thought and expecting together is called as
a) Body
b) Health
c) Imagination
d) Future

28. Imaging is _____ with time
a) Continuous
b) Discontinuous
c) Random
d) Different

29. Where there is harmony among the parts of the body it is known as
a) Swasthya
b) Sanyam
c) Prosperity
d) None

30. Knowing means having the
a) Assumption
b) Right understanding
c) Right feeling
d) None

31. The purpose of value –Education is to
a) Foster universal core values
b) Make syllabus easy
c) Develop values in individual
d) Both A and C

32. Self exploration uses two mechanisms i) Natural Acceptance ii) ---------?
a) Experiential validation
b) Reason
c) Logical Thinking
d) Theoretical concept

33. Once we know what is valuable to us, these values becomes the basis, the anchor for _____
a) Knowledge
b) Actions
c) Society
d) None of these

34. To fulfill Human Aspirations, what are necessary
a) Both values and skills
b) Values
c) Skills
d) None of these

35. Which the following are the encompassing principles underlying the successful implementation of value education?
A) Conviction B) Connection C) Critical thinking D) Commitment
choose the most appropriate answer from the options given below :
a) A, C and D only b) B, C and D only c) A, B and D only d) None of these

36. Value and skills should go hand in hand
a) True b) False c) Cannot tell d) None of these

37. Are the content of self – exploration
a) Program b) Desire c) Both a and b d) None

38. Human life is lived at four levels individual, Family, Society and _____
a) Nature b) Nurture c) World d) Universe

39. Any course content on value education needs to be
a) Universal b) Rational c) Natural d) All of these

40. Value education enables us to
a) To understand our needs b) Visualize our goals correctly
c) Indicate the direction for their fulfillment d) All of these

41. Harmony should be maintained in
a) Between body and life b) Between self and society
c) Between life and environment d) All of these

42. The foundational value in relationship is
a) Respect b) Love c) Trust d) Glory

43. Ensuring right understanding and feeling in the others is called
a) Care b) Affection c) Gratitude d) Guidance

44. Harmony in the family is the building block for harmony in the
a) Society b) Individual c) Friend d) Relative

45. The total numbers of feelings in human relationship
a) 5 b) 10 c) 9 d) 8

46. Comprehensive human goal is right understanding prosperity, trust (fearlessness) and
a) Co-existance b) Happiness c) Abhay d) None

47. There is justice in relationship when there is
a) Mutual fulfillment b) Self regulation c) Freedom d) None

48. The extension of family is
a) Self b) Body c) Society d) Nature

49. The feeling of relatedness to all human beings is called
a) Love b) Affection c) Gratitude d) Respect

50. Acceptance of excellence in others is called
a) Reverence b) Glory c) Gratitude d) Guidance

* * * * *

CBCS SCHEME

BUHK408

USN | | | | | | | | | | |

Question Paper Version : C

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2024
Universal Human Values Course

Time: 1 hr.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

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1 All the units of nature can be classified into _____ orders
a) Two b) Three c) Four d) Six

2 Which of the following does not form an order in nature?
a) BIO b) Animal c) Consciousness d) Human

3 Which of the following statements is true,
a) Material units have only two kinds of activities recognizing and fulfilling
b) Material units have three kinds of activities assuming, recognizing and fulfilling
c) Material units have only four kinds of activities knowing, assuming, recognizing and fulfilling
d) None of the statement

4 Which of the following statement is not true?
a) There is inter connectedness in nature
b) There is recyclability and self regulation in nature
c) There is struggle for survival in nature
d) There is mutual fulfillment in nature

5 According to quantity, which of the following is true for the orders in nature
a) Bio order >> Physical order >> Animal order >> Human order
b) Animal order >> Bio order >> Physical order >> Human order
c) Physical order >> Bio order >> Animal order >> Human order
d) None of the above

6 What are the fundamental components of ecosystems?
a) Plants and Animals b) Air and water
c) Rocks and minerals d) All of these

7 The third order of nature is
a) Material order b) Animal order c) Plant order d) Human order

8 The activities in human body are
a) Composition b) Decomposition c) Respiration d) All of these

9 The systems in nature are
a) Cyclic b) Mutually fulfilling c) Both a and b d) None of these

10 The natural characteristics/Svabhava of a human being are
a) Perseverance b) Bravery c) Generosity d) All of these

11 The purpose of value –Education is to
a) Foster universal core values b) Make syllabus easy
c) Develop values in individual d) Both A and C

12 Self exploration uses two mechanisms i) Natural Acceptance ii) ---------?
a) Experiential validation b) Reason
c) Logical Thinking d) Theoretical concept

13 Once we know what is valuable to us, these values becomes the basis, the anchor for _____
a) Knowledge b) Actions c) Society d) None of these

14 To fulfill Human Aspirations, what are necessary
a) Both values and skills b) Values
c) Skills d) None of these

15 Which the following are the encompassing principles underlying the successful implementation of value education?
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choose the most appropriate answer from the options given below :
a) A, C and D only b) B, C and D only c) A, B and D only d) None of these

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18 Human life is lived at four levels individual, Family, Society and _____
a) Nature b) Nurture c) World d) Universe

19 Any course content on value education needs to be
a) Universal b) Rational c) Natural d) All of these

20 Value education enables us to
a) To understand our needs
b) Visualize our goals correctly
c) Indicate the direction for their fulfillment
d) All of the above

21 The only effective way to ensure professional ethics is by developing
a) Knowledge
b) Ethical conduct
c) Ethical competence
d) Professional activities

22 How does unethical practices in various professions can be resolved
a) Through skills
b) Through knowledge
c) Through practical
d) Via right understanding

23 What provides clear guidance and policy frame work conducive to the development of an un-fragmented human society and a universal human order
a) Humanistic education
b) Humanistic constitution
c) Profession
d) Ethical Human conduct

24 The right understanding gained through self exploration also enables us to identify the definitiveness of human conduct. What is this called?
a) Ethical Human conduct
b) Values
c) Policy
d) Utility values

25 Primary step to move towards the holistic alternative is to develop the right understanding among humans and the commitment to
a) Do practical
b) Remain calm
c) Live accordingly
d) Teach others

26 The right understanding helps us identify the comprehensive human goal in terms of
a) Samadhan
b) Samridhi
c) Sah-astitva
d) All of these

27 The humanistic education will facilitate the process of self exploration which will lead to continuous
a) Education
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c) Development
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28 The values of human being can be enumerated as
a) Nine
b) Thirty
c) Eighteen
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29 Which of the following is not a characteristic of professionalism?
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30 There are six characteristics of a professional style which is not a professional style?
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a) Between body and life
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d) All of the above

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CBCS SCHEME

BUHK408

USN | | | | | | | | | | |

Question Paper Version : D

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2024
Universal Human Values Course

Time: 1 hr.] [Max. Marks: 50

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