

Printing Pages : 1

Paper Code : BHU-822

(C) (SVSU:2022-2023/R)

ENROLLMENT NO.

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B.TECH. (CS,IT,EC,CE,ME)

4th YEAR, 8th SEMESTER EXAMINATION

UNIVERSAL HUMAN VALUES - II : UNDERSTANDING HARMONY

[Time: 3:00 Hrs.]

Max. Marks:70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS**QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.**

(4*3=12)

- What is the role of education-sanskar? Components of human Education.
- Animal Consciousness vs Human Consciousness.
- Is human relationship important?
- What is the content of self – exploration?
- Right understanding & Right Feeling
- What is the meaning of *Vishwas* & What is the meaning of *Samman*.

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- Explain the process of value education.
- Enlist Priority: Right Understanding, Relationship & Physical Facility.
- Discuss your own view on the Gross misunderstanding is "Human Being = Body.
- Write the Participation in the Universal Order as a Human Being.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- Explain the harmony in the society (society being an extension of family)
- What is Naturally Acceptable and what is Not Naturally Acceptable to us at various levels of our Living?
- What do we use (physical things) daily basis? List them. Can you measure physical things? Like height, weight, number, volume, Etc.
- Write your own view on Self Reflection, taking Responsibility -What can it looks like?

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- Physical things Limited or Unlimited? What are they doing to my body and giving to myself?
- Your own view Tendency of Human Living with Inhuman Consciousness.
- Write your own view on Respect. Respect: Right Evaluation. over evaluation. Under evaluation, Otherwise evaluation.

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- Write your view on Happiness (Sukh). Prosperity. Right Understanding. Physical Facilities (Suvidha).
- Define Desire, Aim, objective, purpose with regards to Human Value.
- Define process of Conduct in 4 orders, Need for definite human conduct

Printing Pages : 1

Paper Code : - BCSE -812

(B) (SVSU) : 2023-2024/R

Enrollment No.

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B.Tech (CSE/IT)
IV YEAR, VIII SEMESTER EXAMINATION
CRYPTOGRAPHY & NETWORK SECURITY

[Time : 03:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.**QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.**

(4*3=12)

- What are the Cryptographic Attacks? Explain each one with example.
- Define and explain the term Plaintext, Cipher text and Cipher.
- What is the purpose Initial and Inverse permutation in DES?
- Describe the Euclidean algorithm for finding the GCD of two numbers.
- What do you understand by Cryptography? Differentiate between Steganography and Steganography.
- Describe the concept of Symmetric key algorithms. Explain its properties.

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- Define and explain the term Cryptography and Cryptanalysis.
- What are parameters.Message Authentication Codes? Explain any two
- Explain Vigenere cipher algorithm by encrypting the message using key of your choice.
- Describe the Shannon's theory of confusion and diffusion.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- What is Substitute Byte Transformation used in AES (Advanced Encryption Standard)? Explain it with help of example.
- Describe Shift Row Transformation used in AES (Advanced Encryption Standard) with help of example.
- What is the concept of triple DES? Explain the steps used in triple DES.
- Describe Digital Encryption Standard (DES) in brief? Give an overview of DES with help diagram.

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- Explain the Key Substitution Using S-Box eg. 101010 to 0110 in DES (Data Encryption Standard) method.
- Explain the Key Generation, Encryption and Decryption of DES algorithm in brief and explain number rounds used in DES.
- Give note on public key cryptography and RSA and explain how it works with security aspect

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- What is the purpose of Feistel Cipher Algorithm? How it works? Explain its steps to transform plaintext block to Ciphertext Block.
- What are the 4 main parameters of RSA? Perform encryption for the plain text $M = 25$ using the RSA Algorithm $p = 5$, $q = 11$ and the public component $e = 13$
- What is Advanced Encryption Standard method? Explain its AES Block Cipher algorithm.

Printing Pages : 1

Paper Code : - BCSE-003

(A) (SVSU) : 2023-2024/R

Enrollment No.

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B.TECH (CSE/IT)

IV YEAR, VII SEMESTER EXAMINATION

CYBER LAW AND ETHICS

[Time : 03:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.

(4*3=12)

- Define the term Cyber Law. Give the importance of cyber laws?
- Explain Minimum Contacts theory.
- State and explain Sliding Scale theory.
- State Jurisdiction aspects in cyber law. Differentiate between subject matter and pecuniary jurisdiction.
- What is Digital Signature? How digital signature work?

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- Explain different category of Cyber Crime.
- Discuss about the IT Act 2000, and its salient features with the context of individual being booked under this act.
- Write a note on Identity theft and Cyber terrorism.
- Explain the concept of Public and Private Key in reference to data protection.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- Explain the process of creation and authentication of Digital Signature with a neat diagram.
- How does Cyber Security become an integral part of person's life? Explain it with a suitable example.
- Give an overview of Computer and Web technology.
- Describe Cyber jurisprudence and Indian cyber law in detail.

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- Give the concept of Digital Certificate. Compare and contrast digital signature and digital certificate.
- What do you mean by E-Contracting? Discuss salient features of e-contracting.
- Discuss International Law and Jurisdictional issues in cyberspace.

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- What is Copyright? Explain the Interface with Patent and Copyright law.
- Explain about E-Governance under Indian Perspective. List out advantage and disadvantage of E-Governance?
- Write a short note on E-Commerce and its salient features.

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Paper Code BCSE-005

(A) (SVSU:2022-2023/R)

ENROLLMENT NO.

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B.TECH. (CS/IT/CSE-AI-ML)
4TH YEAR, 8TH SEMESTER EXAMINATION
COMPARATIVE STUDY

[Time: 3:00 Hrs.]

Max. Marks:70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.**QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.**

(4*3=12)

a)	Explain the significance of regional organizations.
b)	Critically examine the challenges before democracy?
c)	What role Sub-Sahara Africa play in the African Politics?
d)	What was Arab Spring?
e)	Explain the charter of European Union.
f)	Analyze the difference between regional organization and international organization.

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

a)	Explain the kinds of regional organization?
b)	Write down the difference between West Asia and Middle East as a region.
c)	What are the tools and methods to study comparative politics?
d)	Explain the difference between Democracy and Autocracy.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

a)	Can the UN serve as a balance against the US dominance?
b)	Define international terrorism. Describe the nature and the main characteristics of international terrorism.
c)	Analyze the role of India in SAARC?
d)	Write down the difference between West Asia and Middle East as a region.

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

a)	What do you understand by comparative politics? Examine the changing nature and scope of comparative politics.
b)	Explain the changing nature of nation-state in the context of globalization.
c)	What do you understand by authoritarian regimes? Draw comparison between authoritarian and democratic regimes.

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

a)	Critically examine the role of United Nations in the maintenance of global peace and order?
b)	Analyze the difference between scope and functions EU and ASEAN.
c)	What do you mean by the concept of Sovereignty? Explain the John Austin theory of Sovereignty?

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Paper Code : - BHU-822

(A) (SVSU) : 2024-2025/R

Enrollment No.

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B. TECH (CE/CSE/IT)

IV YEAR VIII SEMESTER EXAMINATION

UNIVERSAL HUMAN VALUES - II: UNDERSTANDING HARMONY

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.

(4*3=12)

a)	What is the role of education-sanskar? Components of human Education.
b)	Animal Consciousness vs Human Consciousness.
c)	Is Human Relationship Important?
d)	What is the content of self – exploration?
e)	Write about the (i) Harmony (ii) Happiness (iii) Right Understanding (iv) Right Feeling
f)	What is the meaning of Vishwas & What is the meaning of Samman.

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

a)	How can You Understanding the harmony in the Nature.
b)	Define following terms (i) Gratitude (ii) Feeling of care (iii) Feeling of trust
c)	How long do we use physical things? How many do we need? Physical things Limited or Unlimited? What are they doing to my body and giving to myself?
d)	How much money if you are given –you will become happy, will not have issues in relationship?

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

a)	Write about the Feelings (i) Respect (ii) Affection (iii) Care (iv) Guidance (v) Reverence (vi) Glory (vii) Gratitude (viii) Love.
b)	Define following terms (i) Self Exploration (ii) Natural Acceptance (iii) Experiential Validation
c)	What do you mean by Harmony in Nature , Nature = Collection of Units = 4 Orders
d)	Define the Differences human conscious Vs animal conscious with transform progress.

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

a)	Write short answer on your view about Values, Human Values, Value Education, Self Exploration.
b)	Elaborate the terms Respect = Right Evaluation, Over evaluation, under evaluation, Otherwise evaluation.
c)	Elaborate Harmony in the Family – the Basic Unit of Human Interaction

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

a)	Write your view on all units around us exhibit definite conduct... except human being
b)	Write about the Understanding Harmony in the Society, way to create it.
c)	Universal Human Values (UHV) can create Better Academic Environment in College write your view.

Enrollment No.

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B.TECH (CSE/IT/ CSE-AL &ML)
IV YEAR, VII SEMESTER EXAMINATION
NEURAL NETWORK & DEEP LEARNING

[Time : 03:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.**QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.**

(4*3=12)

- List the different types of activation functions used in Neural Network and explain Sigmoid function in detail.
- What do you understand by regression? Explain with the help of suitable example.
- Differentiate Deep Learning and Artificial Intelligence
- What do you understand by perceptron?
- Compare deep learning and machine learning.
- Discuss Stochastic Gradient Descent in detail. How it can enhance the learning rate?

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- Define learning rate. What will be the effect of varying learning rate on Neural Network?
- What do you understand by RNN?
- Discuss Cross Entropy Cost Function.
- What do you understand by cost function?

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- What do you understand by Gradient Descent? How a Neural Network can learn with the help of Gradient descent?
- Write short notes on Gradient descent, SGD, mini-batch SGD.
- Discuss overfitting and regularization.
- Enlist the applications of Recursive Neural Network.

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- How dropout may be used for regularization in Neural Network? Discuss in brief.
- Discuss LSTM with some examples
- What are the applications of Neural Network?

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- What do you understand by Neural Network? Explain with the help of proper block diagram and different terminologies.
- Discuss the architecture of Neural Network. How will you decide the number of neurons for input and output layers?
- Discuss Convolutional neural Network.

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B.TECH.(CSE,IT)

IVth Semester / IInd Year Examination

DISCRETE MATHEMATICS

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

QUESTION NO.-1: ATTEMPT ANY *FOUR* PARTS.

(4×3=12)

a)	Explain pigeonhole principle with example.
b)	Prove that the function $f : \mathbb{R} \rightarrow \mathbb{R}$ be defined by $f(x) = 4x - 1, \forall x \in \mathbb{R}$. Then, show that f is one-one onto.
c)	Define Group and abelian group with example.
d)	Express the Boolean expression in three variables $(x+y+z)(xy+x'z)'$ in DNF.
e)	Show that dual of a complete lattice is complete.
f)	Define the degree of a vertex, isolated and pendant vertex.

QUESTION NO.-2: ATTEMPT ANY *THREE* PARTS.

(3×4=12)

a)	In a throw of a die find the probability of obtaining a number greater than 2.
b)	Prove that ${}^nC_r = ({}^nP_r)/r!$
c)	For every x and y in Boolean Algebra, prove that $x+y = 0 \Leftrightarrow x = 0, y = 0$.
d)	In a group $(G, *)$ prove that I) $(a^{-1})^{-1} = a$ II) $(ab)^{-1} = b^{-1}a^{-1}$

QUESTION NO.-3: ATTEMPT ANY *THREE* PARTS.

(3×6=18)

a)	Construct truth table for the following functions and check whether it is tautology or contradiction. $[(p \wedge q) \Rightarrow p] \Rightarrow (q \wedge \sim q)$
b)	Show that the set of all positive rational numbers forms an abelian group under the composition defined by $a * b = ab/2$
c)	If R is an equivalence relation on a set A then show that R^{-1} is also an equivalence relation.
d)	Justify that $(D_{36}, \wedge)$ is lattice.

QUESTION NO.-4: ATTEMPT ANY *TWO* PARTS.

(2×7=14)

a)	State and prove Lagrange theorem for group.
b)	Determine whether the relation $S = \{(a, b) : a \leq b\}$ on the set $\mathbb{R}$ of real numbers is an partial order relation.
c)	Two dice are thrown, find the probability that the sum of faces is 7 or 8 (ii) more than 8.

QUESTION NO.-5: ATTEMPT ANY *TWO* PARTS.

(2×7=14)

a)	The intersection of any two subgroups of a group G is again a subgroup.
b)	Define complemented lattice and then show that in a distributive lattice, if an element has a complement then this complement is unique.
c)	Explain the following terms with example: i. Chromatic number. ii. How many edges in $K_{3,3}$ iii. Hamiltonian graph.

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B.Tech (CSE)

**II YEAR, IV SEMESTER EXAMINATION
DESIGN AND ANALYSIS OF ALGORITHMS**

[Time : 03:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.**QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.**

(4*3=12)

- Define principle of optimality.
- Distinguish between deterministic and non-deterministic algorithm.
- Difference between Greedy Technique and Dynamic programming.
- Solve the following recurrence using Master method: $T(n) = 4T(n/3) + n^2$
- Name the sorting algorithm that is most practically used and also write its Time Complexity

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

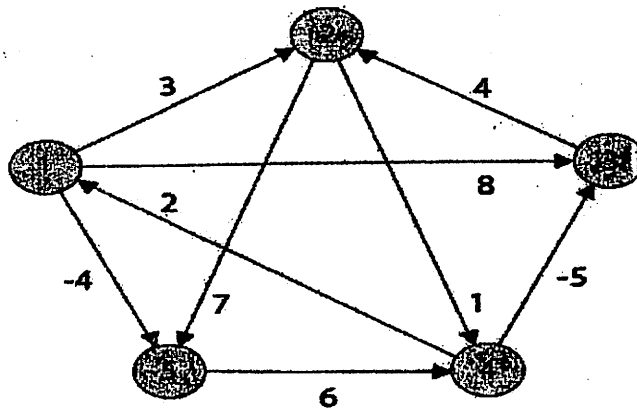
- Why do we perform topological sorts only on DAGs? Explain.
- Explain the role of Theta in analysis of algorithms with example.
- What is backtracking? Discuss sum of subset problem with the help of an example.
- Solve the recurrence equation

$$T(n) = 3T(n^{1/3}) + \log_3 n$$

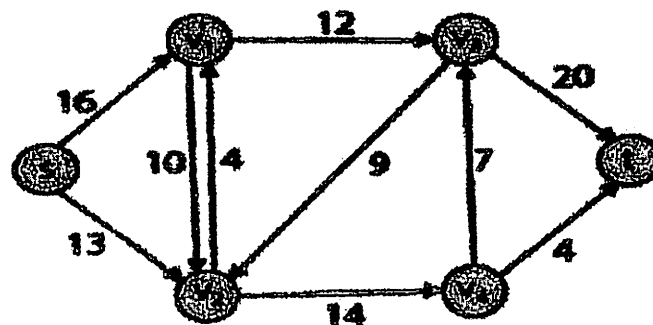
QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- Find the shortest path between all pair of the graph



- What is N-queen problem? Draw a state space tree for 4-queen problem using backtracking.
- What is the sum of subsets problem? Let $w = \{5, 7, 10, 12, 15, 18, 20\}$ and $m = 35$. Find all possible subsets of w that sum to m using recursive backtracking algorithm for it. Draw the portion of the state-space tree that is generated.
- Find the maximum flow through the given network using Ford-Fulkerson method.

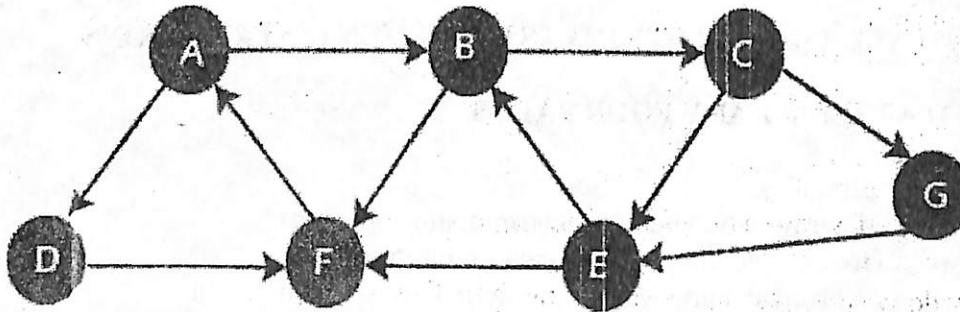


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QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- a) Explain the DFS for the given graph.



- b) Find the optimal parenthesization of matrix-chain product whose dimension is $\langle 30, 35, 15, 5, 10, 20, 25 \rangle$
- c) Compute the prefix function π for the pattern ababbabbabbababbabb when the alphabet is $\Sigma = \{a, b\}$. Explain also KMP algorithm.

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- a) Explain the term P, NP, NP-hard and NP –complete.
- b) Solve the recurrence
- i) $T(n) = 3T(n/4) + cn^2$ using recursion tree method.
 - ii) $T(n) = n + 2T(n/2)$ using Iteration method. (Given $T(1)=1$)
- c) Find the longest common subsequences for the sting
- $X = \langle A, B, C, B, D, A, B \rangle$
- $Y = \langle B, D, C, A, B, A \rangle$
