

(Please write your Enrolment No. immediately)

Enrolment No. 23

## MID TERM EXAMINATION

B.TECH PROGRAMMES (UNDER THE AEGIS OF USICT)

III Semester, November, 2022

Paper Code: AIDS213/AIML213/IOT213

Subject: Critical Reasoning and Simple Thinking  
(AIML/AIDS/IOT)

Time: 1½ Hrs.

Max. Marks: 30

Note: Attempt Q.No.1 which is compulsory and any two more questions from remaining.

Q.No.	Question	Max. Marks	CO(s)
1	Differentiate between the following: a) Critical and uncritical reasoning b) Inductive and Deductive arguments c) Valid and Invalid arguments d) Explanations and clarifications e) Scientific reasoning and analytical reasoning	2 2 2 2 2	CO1,2 CO2 CO2 CO2 CO2
2 a)	Explain different types of bias in reasoning	2	CO2
b)	What is critical reasoning. Explain the principles and concepts of critical reasoning.	5	CO1
3 a)	What is an argument. Explain the structure of argument by giving appropriate example.	5	CO2
b)	The cellular service quality has dropped significantly in India. Ten years ago, there were no instances of call drop or no connectivity. There is also a decrease in the speed and reliability of service.  <i>All of the following would tend to strengthen the conclusion of the argument above except:</i>  A. The volume of connections handled by the Mobile operators has increased dramatically over the last ten years. B. Unprecedented increases in the cost as well as scarce availability of spectrum for mobile services have put severe pressure on the Mobile companies. C. Mobile services have diversified from carrying mere voice data to a whole range of internet data such as downloading, video-calling, data sharing, etc. D. The opposition to negative externality of cellular radiation has obstructed increase of network services in response to the increasing subscriber base.  Justify your answer.	5	CO2
4 a)	Statement: Should those who receive dowry, despite the law prohibiting it, be punished?  Arguments:  I. Yes, those who violate the law, must be punished. II. No, dowry system is firmly rooted in the society since time immemorial.	5	CO1

B.TECH PROGRAMMES(UNDER THE AEGIS OF USICT)

III SEMESTER, JANUARY 2023 (Regular)

PAPER CODE: AIDS213/AIML213

SUBJECT: CRITICAL REASONING AND SYSTEM THINKING (AIML/AIDS)

TIME: 1 HR 30 MINS MAX. MARKS: 30

NOTE: ATTEMPT QUESTION NO. 1 WHICH IS COMPULSORY AND ANY TWO MORE QUESTIONS FROM THE REMAINING.

1) Explain the following:

- a) Thinking out of the box (2) CO3
- b) Design thinking (2) CO4
- c) Risk management (2) CO4
- d) Abilene paradox (2) CO4
- e) System thinking (2) CO4

2)a) What do you mean by idea generation? Also explain various idea generation techniques.

(5) CO3

b) Explain fish bone analysis. (5) CO3

3)a) Explain system structure and behaviour. (5) CO4

b) What are various fallacies in reasoning? (5) CO4

4)a) Define term brainstorming and explain various processes of doing brainstorming sessions.

(5) CO 3

b) Explain six thinking hats methods. (5) CO 3

**END TERM EXAMINATION**

THIRD SEMESTER [B.TECH] FEBRUARY 2023

Paper Code: AIDS/AIML/IOT-213

Subject:- Critical Reasoning and  
Systems Thinking

Time: 3 Hours

Maximum Marks: 75

**Note:** Attempt five questions in all including Q.No. 1 which is compulsory.  
Select one question from each unit.

Q1. Answer the following questions:- (Any Six)

(a) List at least four different types of obstacles to Critical Thinking. Describe each obstacle in at least two lines. [2.5]

(b) Explain what is an argument with the help of an example. [2.5]

(c) Write an example of a well-defined problem statement. Why do you believe that the example given is a well-defined problem statement? [2.5]

(d) List any two different techniques for idea generation using Lateral Thinking. Explain each of them in 3-5 sentences. [2.5]

(e) Explain the concept of Abilene Paradox. [2.5]

(f) "For a surprisingly large number of clinical trials, scientists cannot reproduce the original result when a study is repeated. This suggests that something may be seriously wrong with the system of peer review and publication around clinical trials." Identify the conclusion in the above argument. [2.5]

(g) A \_\_\_\_\_ is a closed chain of causal connections from a stock, through a set of decisions or rules or physical laws or actions that are dependent on the level of the stock, and back again through a flow to change the stock. Fill in the blank and explain your answer.

(i) Interconnections

(ii) Feedback loop

(iii) Flows

(iv) Mental model

[2.5]

(h) "If a child gets a new toy, he or she will want to play with it; So, if a nation gets new weapons, it will want to use them." The above is an example of which fallacy?

(i) Faulty analogy

(ii) Slippery Slope

(iii) Hasty Generalization

(iv) Straw man

[2.5]

**UNIT-I**

Q2. (a) Analyze critically the following passage and answer the following questions: (7)

There is a Thai saying, "False happiness makes people become haughty and arrogant. Real happiness makes people joyful and fills them with wisdom and compassion." Is one happy just because one is wealthy? All too many people have allowed money to ruin their lives. We have to understand the importance of absolute happiness over relative happiness. Absolute happiness is not how one stands compared with others, nor is it a transitory, illusory happiness (relative happiness) that fades with the passing of time. In fact it is a state where we strive to attain a state of life where, no matter what circumstances we may encounter, we can feel that life itself is a joy. When we attain that state of life, our lives overflow with unsurpassed joy, wisdom, and compassion—just as the Thai proverb says: "Real happiness makes people joyful and fills them with wisdom and compassion." All kinds of things happen in life. There is sadness, there is happiness. Every day, there are things we may find unpleasant or annoying. Good friends may sometimes quarrel. A family may have a sick child, or one of the family members may suffer unemployment. We face all kinds of sufferings and problems. How formidable are the challenges of living!

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We have to bring out enough strength from within that enables us to persevere in life to the very end. The strength which we are able to manifest through our own efforts serves as the propulsive force for us to pierce through the clouds of suffering like a rocket and powerfully ascending higher and higher, without limit, to fly serenely through the skies of happiness. And we can develop the ability to change all that is negative in our lives into something positive. We can transform all problems into happiness, sufferings into joy, anxiety into hope, and worry into peace of mind. We will always be able to find a way forward. It is our inherent immense power that gives vitality to and breathes fresh life into all things, including individuals, organizations, societies, and nations.

- (i) What is the definition of human happiness?
  - (ii) Author differentiates between absolute happiness and relative happiness. Do you feel this is the key conclusion or there are other conclusions also?
  - (iii) What are the reasons provided by the writer to support the above conclusions?
  - (iv) Are there any biases in this passage? If yes, elaborate.
  - (v) We can transform all problems into happiness'. Do you agree with statement, if yes how can we do this?
  - (vi) Do you agree with the key conclusions of the writer? Give reasons.
  - (vii) Give some other suggestions how can one live mostly in a state of happiness.
- (b) Which of the following statement(s) are correct with respect to "Critical Thinking." Explain your answer. (8)
- (i) If you have never properly examined your beliefs, they are not truly yours.
  - (ii) It applies only to your individual beliefs.
  - (iii) It is not about what you think, but how you think.
  - (iv) It focuses not on what causes a belief, but on whether it is worth believing.

### OR

- Q3. (a) What are biases? Classify which of the following sentences showcase Personal Bias, Confirmation Bias, Gender Bias, Anchoring bias, Survivorship Bias, Normalcy Bias, Unconscious Bias, Conscious Bias or none of the above. (7)
- (i) Sally is in support of gun control. She seeks out news stories and opinion pieces that reaffirm the need for limitations on gun ownership. When she hears stories about shootings in the media, she interprets them in a way that supports her existing beliefs.
  - (ii) I feel whatever are my circumstances, whatever is my past, the forces that determine my future are nowhere but within my own heart and mind. It is here that the star of my destiny shines.
  - (iii) I tell Ram that the exclusive pursuit of one's own interests cannot bring true happiness. It is in striving for the sake of others that the great path to genuine happiness is opened.
  - (iv) My mother told me that from a healed, peaceful heart, humility is born; from humility, a willingness to listen to others is born; from a willingness to listen to others, mutual understanding is born; and from mutual understanding, a peaceful society will be born.
  - (v) Education is a process of stimulating and awakening people from the very core of their being, enabling them to unlock and develop the power within them to create happiness. My teacher's belief in this is very strong.
  - (vi) Victory in any endeavor is decided by how effectively we use our time without wasting a moment, and how hard we work even when our efforts go unnoticed.
  - (vii) While it is important to win, it's even more important to remain undefeated no matter what happens. This is particularly valid for boys.

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P2/4

Q3. What is a deductive argument? What is an inductive argument? Give an example of each. [8]

### UNIT-II

Q4. (a) In the following argument, what is the implicit premise that will make the argument either valid or strong? [7]

"Sunita failed her driving test three times. She's probably not paying attention."

(i) Identify the conclusion in the argument given below:

"You should definitely let me look after your dog while you're on holiday. I love dogs. And dogs love me. I have many of dogs at home and know how to look after them. I have six dogs, and I talk to them all the time. I'm a real dog expert."

(b) Correct the following sentences using Inductive Reasoning, where words we use are important. [8]

(i) You never go to library and read!

(ii) Men don't survive severe Heart Attack.

(iii) Ram always end up quarreling.

(iv) Laptops will continue to enhance their features every year.

**OR**

Q5. (a) Which of the following are valid arguments. Justify your answer. [7]

(i) Because banning assault rifles violates a constitutional right, the U.S. government should not ban assault rifles.

(ii) The Wall Street Journal says that people should invest heavily in stocks. Therefore, investing in stocks is a smart move.

(iii) When Judy drives her car, she's always late. Since she's driving her car now, she will be late.

(iv) Any movie with clowns in it cannot be a good movie. Last night's movie had at least a dozen clowns in it. Consequently, it was awful.

(v) Without a military intervention in nation X, terrorists cannot be defeated. They will always be able to find safe haven and support in the X regime. [Premise] Even if terrorists are scattered around the world, support from nation X will increase their chances of surviving and launching new attacks. The war on terrorism must include a massive military strike on nation X.

(vi) No one should buy a beer brewed in Canada. Old Guzzler beer is brewed in Canada. So, no one should buy it.

(vii) I have been alive every day for the last 10,000 days; thus, I will always be alive.

(b) Give an example of each. Use one sentence for each of the following [8]

(i) Description

(ii) Clarification

(iii) Summary

(iv) Opinion

### UNIT-III

Q6. (a) Which of the following statement(s) are true in respect of the way the mind works? [5]

(i) The mind is a pattern-making system.

(ii) The arrangement of information is always less than the best possible arrangement.

(iii) The patterns tend to become established ever more rigidly since they control attention.

(iv) Information that is arranged as part of one pattern can easily be used as part of a completely different pattern.

(v) Left and right part of the brain function differently.

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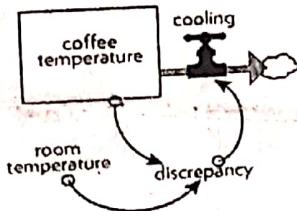
- (b) List five important areas on which an effective problem solver focusses on [5]  
 (c) How does lateral thinking techniques facilitate the generation of ideas? How do they overcome / by-pass the existing mind-patterns? Explain using an example. [5]

OR

- Q7. (a) Write at least four essential rules to be followed during a "brainstorming session" for generation of ideas. [5]  
 (b) Which one of the following can be used as "Sources of Data" during a problem-solving process? Select the option(s) which are correct. There can be multiple correct options. [5]  
 (i) Observations  
 (ii) Fish-bone analysis  
 (iii) Interviews  
 (iv) Published Materials  
 (c) Apply 5 Why technique to find out the root cause of why you ate popcorns while watching a movie last night. [5]

## UNIT-IV

- Q8. (a) (i) Explain the working of a feedback loop in a system. Draw the appropriate diagram(s). Explain the nature of the following feedback loop. [7]



- (ii) What kind of loop the following system demonstrates  
*When we were kids, the more my brother pushed me, the more I pushed him back, so the more he pushed me back, so the more I pushed him back.*  
 (b) What are systems? What are the characteristics of the systems? Explain briefly the following systems. [8]  
 (i) Solar Systems  
 (ii) Transport Systems  
 (iii) Social Systems

OR

- Q9. (a) Write a short note on cognition and perception in Indian knowledge systems. [7]  
 (b) Is systems thinking different from design thinking. Explain with the help of an example. [8]

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AIDS/AIML/IOT-Q13

Total No. of Pages: 2

Student Name: ..... KASAK .....

Enrollment No: ..... 02715611922 .....

### Mid-Term Examination – November 2023

**Programme: B.Tech (AIDS/AIML/IOT)**

**Semester: Third Semester (Aug. 2023 – Dec. 2023)**

**Paper Code: AIDS/AIML/IOT213**

**Paper Name: Critical Reasoning and Systems Thinking**

**Time: 1½Hrs.**

**Maximum Marks: 30**

**Note:**

- Question No. 1 is compulsory.
- Attempt any two questions from the remaining questions.
- All questions carry equal marks.

		<b>Question 1</b>	<b>Marks</b>	<b>CO</b>
1	<b>Compare the following terms with proper example:</b>		[2.5]	CO1
	(a) Scientific Reasoning vs. Analytical Reasoning		[2.5]	CO2
	(b) Modus Tollens vs. Modus Ponens		[2.5]	CO2
	(c) Inductive vs. Deductive Arguments		[2.5]	CO2
		(d) Sound vs. Unsound Arguments	[2.5]	CO2
		<b>Question 2</b>		
2(A)	Which of the following are valid/Invalid arguments. Justify your answer. a. Because banning assault rifles violates a constitutional right, the U.S. government should not ban assault rifles. b. The Wall Street Journal says that people should invest heavily in stocks. Therefore, investing in stocks is a smart move. c. When Judy drives her car, she's always late. Since she's driving her car now, she will be late. d. Any movie with clowns in it cannot be a good movie. Last night's movie had at least a dozen clowns in it. Consequently, it was awful. e. Without a military intervention in nation X, terrorists cannot be defeated. They will always be able to find safe haven and support in the X regime. Even if terrorists are scattered around the world, support from nation X will increase their chances of surviving and launching new attacks. The war on terrorism must include a massive military strike on nation X. f. No one should buy a beer brewed in Canada. Old Guzzler beer is brewed in Canada. So, no one should buy it.		[5]	CO2

	<b>Correct the following sentences using Inductive Reasoning, where Words we use are important.</b>		
2(B)	<ul style="list-style-type: none"> <li>a. You never help!</li> <li>b. Young, male ex-cons with no education always end up arguing.</li> <li>c. People don't survive pancreatic cancer.</li> <li>d. Computers will continue to double in power every two years.</li> <li>e. I have been alive every day for the last 10,000 days. I will always be alive.</li> </ul>	[5]	CO1
<b>Question 3</b>			
3(A)	<b>Give an example of each. Use one sentence for each of the following</b> Description Opinion Clarification Summary Belief Illustration Argument Explanation	[5]	CO2
3(B)	<p>What are the following sentences in terms of: Description, summary, opinion or belief, clarification or illustration, argument, or explanation?</p> <ul style="list-style-type: none"> <li>a. It's immoral to buy incredibly cheap clothing: people work long hours for terrible pay in over-crowded factories in order to produce it.</li> <li>b. The clothing we buy is only incredibly cheap because the people making it are paid so little.</li> <li>c. He ran rapidly and gracefully out of the water because he had a crab attached to his face.</li> <li>d. You ought to buy copies of this book for all your friends: it is excellent value and will almost certainly make them all cleverer.</li> </ul>	[5]	CO2
<b>Question 4</b>			
4	<p>What are biases? Classify which of the following sentences showcase Personal bias, Confirmation bias, Gender bias, Anchoring bias, Survivorship bias, Normalcy bias, Optimism bias, Unconscious/conscious bias or none as mention above with generous reason.</p> <ul style="list-style-type: none"> <li>a. An overconfident business leader determines to acquire a company they see increased potential in and feel will get high earnings even though their performance exhibits otherwise. Past success or achievements may lead to an overblown ego.</li> <li>b. Research funding for coronary artery disease in men is far greater than for women, yet the risk population of women, which is an older age group, suffers more morbidity and mortality. The lack of funding for women's disease in effect maintains women's lower economic status.</li> <li>c. A hospital is conducting research on trauma patients admitted to the ER, seeking to find out which procedures work best. However, researchers can only begin their studies if a patient is stable enough to give consent.</li> <li>d. An individual who receives a hurricane alert may underestimate how serious it is.</li> <li>e. If the hurricane affects their area, nothing bad will happen to the people personally.</li> </ul>	[10]	CO1

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CLASS TEST

B.TECH. PROGRAMMES

Third Semester, December, 2023

Paper Code: AIML/AIDS-213

Subject: CRST

Time: 1 Hrs.

Max. Marks: 30

Note : Attempt Q. No. 1 which is compulsory and any two more questions from remaining.

**Q1.** Compare the following terms:

- |                                       |                 |
|---------------------------------------|-----------------|
| (a) Idea generation vs. brainstorming | CO3 (2.5x4 =10) |
| (b) Fish bone analysis.               | CO3             |
| (c) Planning in teams.                | CO3             |
| (d) Tools in project management       | CO4             |

**Q2. (A)** Which of the following are true in respect of the way the mind works?

- |   |         |
|---|---------|
| (a) The brain cannot do more than one task at a time.                                       |         |
| (b) Most people do not use 10% of our brain capacity.                                       |         |
| (c) The patterns tend to become established ever more rigidly since they control attention. |         |
| (d) The brain feels no pain.  | CO3 (5) |
| (e) Memories can change over time.  | CO3 (5) |

**Q2 (B)** Explain six thinking hats method.

**Q3. (A)** How design thinking different from system thinking? Give an example. CO4 (5)

**Q3. (B)** Explain systems and characteristics of the systems. CO4 (5)

**Q4.** Explain 5 techniques to find out the root cause of "Why the Company is negotiating a

Contract with a new service provider" CO4 (10)

# END TERM EXAMINATION

THIRD SEMESTER [B.TECH] JANUARY 2024

**Paper Code: AIDS/AIML/TOT-213**

**Subject: Critical Reasoning & Systems Thinking**

**Time: 3 Hours**

**Maximum Marks: 75**

**Note: Attempt five questions in all including Q.No.1 which is compulsory. Select one question from each unit.**

**Q1 Answer the following questions: (Any Six)**

- a) List out the importance of critical thinking in daily life. [2.5]
- b) What is the difference between Critical Reasoning and Uncritical Reasoning? [2.5]
- c) What is an argument? Give an example of an argument with two premises. [2.5]
- d) Indicate whether the following argument is deductive or inductive, "Ninety-eight percent of humans are mortal. Socrates is human. Therefore, Socrates is very likely to be mortal." Justify your answer with a relevant reason. [2.5]
- e) What is brainstorming? Explain, in brief. [2.5]
- f) What do you understand by the term, „Thinking outside the box”? [2.5]
- g) What is gambler's fallacy? Also, give a suitable example. [2.5]
- h) "Design thinking is different from other innovation and ideation processes." Discuss, in brief. [2.5]

## UNIT- I

- Q2 a)** List out the differences between "Analyzing Reasoning" and "Evaluating Reasoning". [7]
- b)** For each of the following passages indicate whether it constitutes an argument. For each argument specify what the conclusion is. [8]
- i) The *Wall Street Journal* says that people should invest heavily in stocks. Therefore, investing in stocks is a smart move.
  - ii) If guns are outlawed, then only outlaws will have guns. Don't outlaw guns.
  - iii) Rose hates Julia, and she always upsets her, so she should avoid her.
  - iv) People should have a respect for life because their own ethical standards endorse it.

- Q3 a)** "A bias can cause the perpetuation of misconceptions and misinformation." Shed light on the assertion from the perspective of Critical Thinking. [7]
- b)** For each of the following passages, indicate whether it contains examples of selfinterested thinking or group pressure. Substantiate your answer with a relevant reason. [8]

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- i) Mary: Animals have the same rights as humans.  
Jenny: What makes you think that?  
Mary: I love animals, and there are so many that are treated horribly all over the world. It's heart breaking.

ii) Christianity is superior to all other religions. I was raised Christian, and all my relatives are Christians. This is the only religion I've known, and the only one I need.

## **UNIT-II**

- Q4**

  - a) Draw out the differences between enumerative and analogical induction. Also, provide suitable examples in support of your answer. [7]
  - b) For each of the following arguments, indicate whether it is valid or invalid. Justify your answer with a substantial reason. [8]
    - i) Social welfare is by definition a handout to people who have not worked for it. But giving people money that they have not earned through labor is not helping anyone. It follows then that social welfare does not help anyone.
    - ii) Either your thinking is logical or it is emotional. It's obviously not logical. It's emotional.

**Q5**

  - a) What is the difference between deductive and inductive arguments? Discuss the four-step procedure to evaluate whether the argument is deductive or inductive and sound or cogent. [7]
  - b) Define as well as give an example of each of the following: [8]
    - i) Fact
    - ii) Opinion
    - iii) Description
    - iv) Clarification

UNIT-III

- Q6 a) Discuss, in detail, the characteristics of effective and ineffective problem solvers. [7]

b) What do you understand by the concept, "Fishbone Analysis"? What is its significance? Draft a fishbone diagram to analyze the causes of "Global Warming". [8]

Q7 a) Discuss the common problems of team dynamics and, also, suggest some solutions to evade those problems. [7]

b) "Six Thinking Hats Method is used to amplify creative conversations to get a variety of viewpoints and thinking styles." In light of the aforesaid statement, explain "Six Thinking Hats Method". Also, mention the benefits of this technique. [8]

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#### UNIT - IV

- Q8 a) What is Critical Thinking? Discuss some common impediments that hinder the process of Critical Thinking with relevant examples. [7]
- b) What is "Systems Thinking"? How can you call it a holistic approach that maximizes efficiency to solve problems and to bring about a social change? [8]
- Q9 a) "According to the Indian tradition, knowledge is produced when the generating conditions are sound and knowledge is valid." In view of it, discuss the role of cognition and perception in Indian Knowledge Systems. [7]
- b) What is risk management? Discuss, in detail, some risk management tools that can help in developing and implementing a project. [8]

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