

Critical and Creative Thinking (CCT) Practice

UNIT 1- POOCH CAFÉ







Frame 1

Frame 2

Frame 3

Question 1:

Who would you advise using the adage, 'if God..... a door'

Person (i)	Person (ii)	Person (iii)	Person (iv)
I scored full marks in the Music test!	We have finalized our vacation plans	I'm repainting the doors & windows this week	I wish I'd been chosen for the debate competition.
			

- a) Person (i)
- b) Person (ii)
- c) Person (iii)
- d) Person (iv)

Question 2:

Identify the words that appropriately indicate the type of sense of humour displayed by the dog in Frame 3 of the cartoon strip.

- a) Caring and tongue-in-cheek
- b) Indifferent and insulting
- c) Wry and tongue-in-cheek
- d) Wry and indifferent

UNIT 2: KONERU HUMPHY'S LIFE

Read the following fact file on Koneru Humphy.

THE HUMPHY FILE

- Born March 31, 1987 (Gudivada, Andhra Pradesh)
- Began learning chess at age six
- Highest rating: 2623 (2009)
- Current rating: 2580
- Highest ranking: No. 2
- Current ranking: No. 3

Timeline: early start, consistent success

<p>1993: First tournament (Vijayawada city championship; first in under-8)</p> <p>1995: Won first State championship (under-8)</p> <p>1996: Won first National championship (under-10)</p> <p>1997: Earned FIDE rating (2140) at National 'B' championship Won first global championship (world</p>	<p>under-10 title)</p> <p>1999: Asian under-12 boys' champion</p> <p>2000: Asian junior champion</p> <p>2001: World junior (under-20) girls' champion at 14 First title in men's open events (Hotel Lipa International, Hungary) Became Woman Grandmaster</p> <p>2002: Became Grandmaster</p> <p>2003: Asian champion</p> <p>2006: Two gold medals at Doha Asian Games</p> <p>2007: Two gold and two silver at Asian Indoor Games</p> <p>2011: Challenger for the world title</p> <p>2012: Bronze at World Rapid Championship</p> <p>2015: Bronze at World Team Championship</p> <p>2019: World rapid champion</p>
---	---

Question 3:

Choose the dictionary meaning of the word in the title 'The Humphy File'.

- a) noun. a line of people or things one behind another.
- b) verb. (of a group of people) walk one behind the other, typically in an orderly and solemn manner
- c) noun. a collection of information about a particular person or thing.
- d) noun. a tool with a roughened surface, typically of steel, used for smoothing or shaping a hard material.

Question 4:

Pick the option that lists the correct arrangement of events in the descending order of years given in the text.

- (i) Asian Indoor Games
 - (ii) World under-10 global championship
 - (iii) Men's open events
 - (iv) Asian Champion
 - (v) World rapid champion
 - (vi) Title -Grandmaster
- a) (i), (v), (vi), (ii), (iii) and (iv)
 - b) (v), (i), (iv), (vi), (iii) and (ii)
 - c) (vi), (iii), (iv), (v), (ii) and (i)
 - d) (ii), (iv), (i), (vi), (iii) and (v)

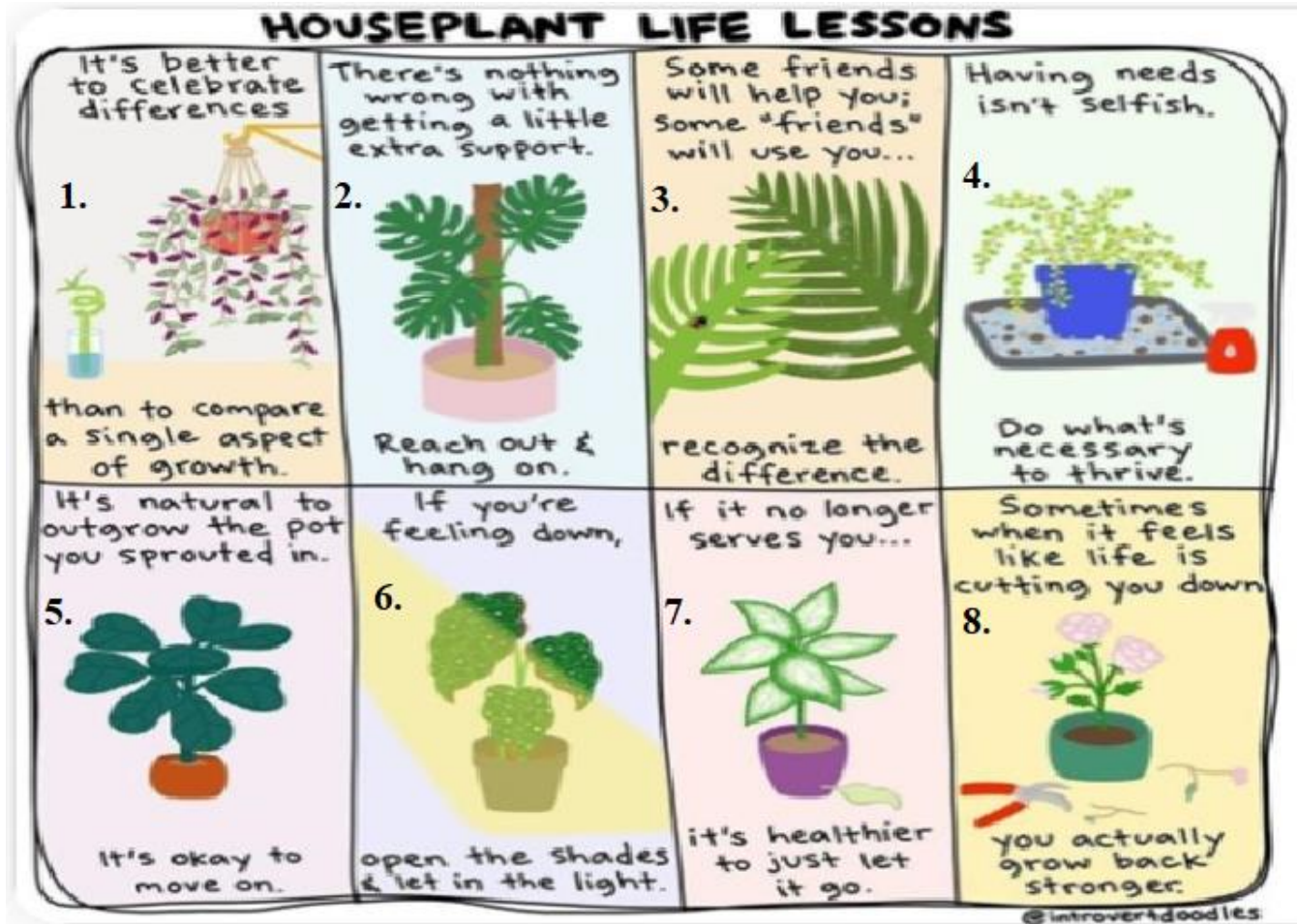
Question 5:

Based on the text, choose the statement that is NOT TRUE about Humpy's participation.

- a) Won the Vijaywada city championship in less than 2 years of learning chess.
- b) Has achieved a ranking higher than the current one, earlier.
- c) Won the World Junior - under 20 girls' championship in early teens.
- d) Has been a defender for the World Title between 2007 and 2012.

UNIT 3: HOUSEPLANT LIFE LESSONS

Study the illustrated chart and attempt the questions that follow.



Task I:

Based on your understanding of *Houseplant Life Lessons*, you are requested to respond to two situations.

Read the situations in Questions 6 and 7 and choose the option that lists the appropriate response.

Question 6:

Situation- My Science project group has 6 members, including me. They all are very quick with understanding concepts and experiments. I'm the only one who is usually slow. I really can't seem to keep up. What should I do?

Response-

- a) No.8
- b) No.5
- c) No.4
- d) No.2

Question 7:

Situation- I took time away from preparing for my Quiz competition to help two of my neighbourhood friends for their class exam. However, when I needed some help with my Science survey, none of them volunteered. I felt hurt and disappointed.

Response-

- a) No.3
- b) No.5
- c) No.1
- d) No.4

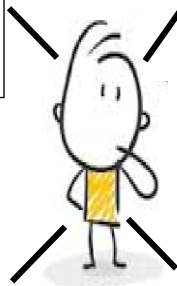
Task II: Based on your understanding of *Houseplant Life Lessons*, identify the person suitable for the given advice.

Question 8:

Choose the option that identifies the person needing advice no.1.

(i) My teacher says that I need to work harder at Math. I tried asking my friends for help but they are all busy with their assignments. I'm worried.

(iii) My teacher says that I'm a Math whiz! My problem, however, is that I struggle with Art and History whereas my friends manage these rather well. I wish I could become like others in these subjects too.



(ii) My teacher says that I must participate in the Math quiz at the inter-school level. I am quite nervous and don't know how to refuse. I'm sure I'll disappoint her.

(iv) My teacher says that I must be regular with Art classes as I draw well. My parents, however, want me to spend all my time practicing Math problems. I don't know how to convince them.

- a) option (i)
- b) option (ii)
- c) option (iii)
- d) option (iv)

Question 9:

Choose the option that identifies the person needing advice no.6.

(i) Jaitesh was gifted a new bicycle but has yet to learn how to ride it.

(ii) Tina has a lot of relatives coming over next weekend.

(iii) Stanley missed watching his favourite T.V. programme.

(iv) Akram has had a quarrel with his best friend.

- a) option (i)
- b) option (ii)
- c) option (iii)
- d) option (iv)

Task III: Choose the correct option.

Question 10:

Which quote closely corresponds to the *Houseplant Life Lesson-No. 8*?

<p>"It is difficult to prove yourself reliable when people are required to wait for you."</p>	<p>PUSH YOURSELF BECAUSE, NO ONE ELSE IS GOING TO DO IT FOR YOU.</p>	<p>THE HARDER YOU WORK FOR SOMETHING, THE GREATER YOU'LL FEEL WHEN YOU ACHIEVE IT.</p>	<p>Only those who dare to fail GREATLY can ever achieve GREATLY.</p>
(i)	(ii)	(iii)	(iv)

- a) option (i)
- b) option (ii)
- c) option (iii)
- d) option (iv)

UNIT 4- PAPER CRAFT

Kabir is working on an Art Integrated Mathematics project. The theme is 'Life in Water'. He has decided to create a school* of different coloured fish, similar to this



He has chosen to create his fish as shown in the figure below. Each fish would be made of squares and triangles of paper.



There are two sizes of fish that he wants to create. According to the dimensions of materials he has, he has decided to have the area of each big fish as 352 cm^2 .

Question 11: What should the side of each square be?

- a) 18.66 cm
- b) 8 cm
- c) 64 cm
- d) 32 cm

*School of fish = a group of fish

Question 12: If the side of the square used for the smaller fish is half the size used for the bigger fish, then the ratio of their areas is-

- a) 1 : 2
- b) 2 : 1
- c) 1 : 4
- d) 4 : 1

Question 13: What is the total area of the coloured paper that Kabir needs in order to create his school of fish?

- a) 4675 cm²
- b) 4576 cm²
- c) 7654 cm²
- d) 5674 cm²

UNIT 5: MOVIE TIME

Sania was rummaging her drawer, when she found some old movie tickets. With a smile, she remembered seeing the famous cartoon movie, which the adults had also enjoyed. It was a weekday, so the movie theatre was not completely full. Some adults and mostly children were at the theatre.

That day, the ratio of the number of adults to children was 3:5.

- Each person had a seat in the *Balcony* or had a seat in the *Stalls*.
- $\frac{2}{15}$ of the children had seats in the Stalls.
- 468 children had seats in the Balcony.
- There were exactly 1200 seats in the theatre.



Question 14: How many children had come to watch the movie?

- a) 324
- b) 540
- c) 432
- d) 243

Question 15: How many people had come to watch the movie?

- a) 766
- b) 700
- c) 846
- d) 864

Question 16: What percentage of seats was occupied in the theatre that day?

- a) More than 70%
- b) Less than 70%
- c) More than 75%
- d) More than 80%

UNIT 6: Purity of Gold

Read the following conversation between Shubhi and her mother and then answer the questions given below:

Shubhi: Mother, what are you gifting me on my birthday?

Mother: Dear, I will buy for you a beautiful pair of gold earrings.

Shubhi: Wow! Mother I am eagerly waiting for them. Let's go shopping right now.

Shubhi and her mother visit the nearby jewellery shop.



Shubhi: Mother, what do you mean by 24 ct Gold?

Mother: Gold is alloyed because in its purest form, it's too soft for making jewellery. It can easily be bent with bare hands, or get scratched or marred.

An alloy is any mix of metal with other metals, used to give the material certain desired properties, like: increased hardness, variations in color, lower melting points, higher melting points, or even lower price.

Gold purity content is categorized using the carat system. Depending on the ratio of pure gold to other alloys, the gold used in rings and other jewellery is usually categorized as 10k, 14k, 18k, 22k and 24k. We use K or ct or sometimes kt for carat.

The higher the carat, the purer the gold. 24k gold is also called pure gold or 100 per cent gold. This means that all 24 parts in this type of gold are all pure without traces of any other metals. 22K gold means there are 22 parts of gold and 2 parts of other metals.

Question 17: Shubhi draws a table to calculate the purity of different types of gold, choose the correct values of x and y:

Carat	Parts of gold	Purity in %
24 k	24/24	99.9%
22k	22/24	X
18 k	y/24	75

- a) $x = 99.9\%$ and $y = 20$
- b) $x = 95\%$ and $y = 20$
- c) $x = 91.7\%$ and $y = 18$
- d) $x = 86\%$ and $y = 18$

Question 18: The cost of 5 gm of gold earring was Rs.22,000/-. The shopkeeper charged making charges @ Rs 1000 per gm of gold. Also, a GST of 18% was charged. What is the total amount that Shubhi has to pay?

- a) Rs.27,000
- b) Rs 31,860
- c) Rs 29,000
- d) Rs.34,220

Question 19: The shopkeeper apprised Shubhi about the special schemes of 5 % discount available if she pays through card. If Shubhi pays by card then what is the amount that she will be charged?

- a) Rs. 30267
- b) Rs. 30367
- c) Rs. 30000
- d) Rs. 31000

Question 20: Shubhi saw a beautiful ring which was made of Electrum. Electrum is an alloy of gold and silver with a small amount of other metals and is white in colour.

The ratio of gold and silver in a sample of electrum is 9:7. If the weight of the silver in that sample of alloy is 9.8 kg. Then, what is the weight of the gold in the alloy?

- a) 11.2 kg
- b) 8.8 kg
- c) 10.5 kg
- d) 12.6 kg

UNIT 7: OUR FOOD

A diet that is balanced and diverse is considered healthy. Read the infographic below and answer the questions that follow:

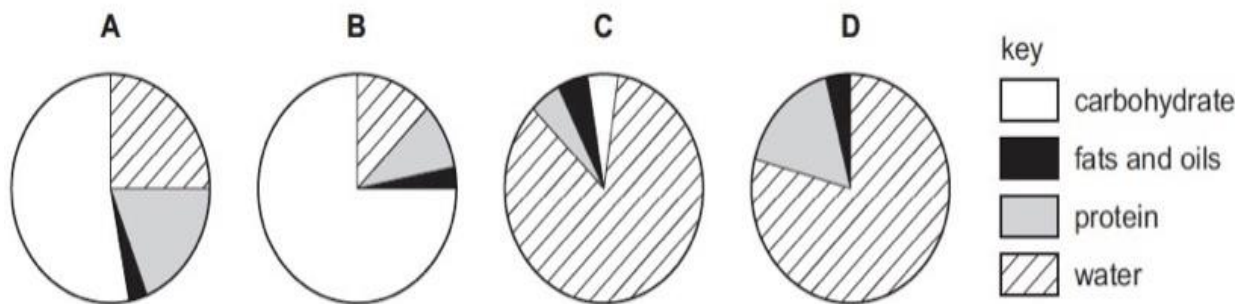


Source: FSSAI

Question 21: Saba's parents insist that she eat a lot of fruits and salads to build immunity. Which of the following components of food would help in this?

- a) Proteins
- b) Roughage
- c) Vitamins
- d) Carbohydrates

Question 22: Saba and Mridula examine and represent the composition of 100 g of four different types of foods as below.



Which one of the above would provide the most energy?

- Food A
- Food B
- Food C
- Food D

Question 23: When asked, Saba suggested the following ways to reduce sugar to a friend.

- Reduce intake of candies/ chocolates
- Reduce intake of complex carbohydrates
- Reduce intake of white breads/ refined flours
- Reduce intake of fats/ oils

Which one of the above suggestions should be adopted if one wants to reduce sugar in one's diet?

- i and ii
- ii and iii
- iii and iv
- i and iii

Question 24: High cholesterol in blood is a cause of concern as it blocks blood vessels. This inturn causes heart disease. A group of medicines- *statins* are prescribed by doctors to lower blood cholesterol. Scientists wanted to study the effectiveness of a new *statin*. For this, a group of 700 men and women with high cholesterol were chosen randomly. The study was undertaken over 8 months with the main aim to understand if taking this particular statin reduced the level of cholesterol in blood.

Which one of the following would be the best approach for the study?

- All the chosen people be given a fixed dose of statin over the period of time
- Half randomly chosen people in the group be given statin and the other half a placebo (dummy medicine)
- All men in the group be given statins and all women a placebo
- All in the group may choose to opt for either statin or placebo in the beginning of the study.

Unit8: LIGHTING OUR HOMES

Questions 25

Over the years, the way we light our homes and commercial spaces has changed. Mankind has moved from burning wood/candles to Incandescent bulbs to Compact Fluorescent (CFL) bulbs to LED (light emitting diodes).



What are the advantages of new forms of lighting?

Is this an advantage?	Yes/ No
LED are more energy efficient	
LEDs are brighter than CFLs (if they have similar wattage)	
CFL are less polluting than LEDs	
LEDs have a longer life span	

Question 26



In the above image a man is seen using a diffuser in front of a powerful light. What do you think is the function of the diffuser?

- a) The diffuser makes light soft edged and distributed.
- b) The diffuser reduces the power consumption of the light.
- c) The diffuser makes the light more intense and focussed.
- d) The diffuser helps the bulb to glow for a longer period of time.

Question 27:

Sangeeta wanted to light up her new house. She knew that she needed bright lights for the study, medium and diffused light for the living room and bright but diffused light for her porch. She went to the market to buy the lights and the lamp shades. Choose from the following tables, the combination that would be ideal for her.

	Living Room	Study	Porch
a)	Bright Incandescent, transparent	Bright Incandescent, transparent	Bright Incandescent, transparent
b)	Medium Power LED, diffusing	Bright LED, diffusing	Bright LED, diffusing
c)	Low Power CFL, transparent	Low Power CFL, transparent	Bright Incandescent, diffusing
d)	Bright LED, transparent	Bright LED, transparent	Low Power LED, transparent

Question 28:

Light Output	LED	CFL	Halogen/Incandescent
Lumens	Watts	Watts	Watts
300	4 - 5	8 - 12	35 - 40
500	6 - 8	13 - 18	50 - 60
750	9 - 13	18 - 22	75 - 100
1000	16 - 20	23 - 30	100
1400	25 - 28	30 - 55	150

Based on the above table, which of the following statements would be true?

- a) Halogen and Incandescent lights consume 10% more power than CFL lights.
- b) For an output of 1000 lumens LED lights consume upto 5 times more than the Incandescent lights.
- c) There is no difference in power consumption for lights of low lumens in the three categories.
- d) For an output of 1400 lumens CFL lights can consume upto 90 % more power than LEDs

UNIT 9: UNDERSTANDING POLLUTANTS

Air pollution is a long-standing environmental problem. Modern day air pollution is caused by emissions from many different sources including power generation, road transport, combustion, domestic heating, solvents, paints, agriculture and industrial processes. The air pollutants with the most significant environmental impacts are particulate matter (PM- complex mixture of organic and inorganic compounds), ozone (O_3), oxides of nitrogen (NO and NO_2), and volatile organic compounds (ex. Benzene- C_6H_6 , butadienes).

Source: <https://www.york.ac.uk/chemistry/research/wacl/research/air-pollution/>

Question 29:

Which one of the pollutant(s) mentioned above contains three atoms?

- i. C_6H_6
- ii. O_3
- iii. NO_2
- iv. NO

- a) i and ii
- b) ii and iii
- c) iii and iv
- d) ii and iv

Question 30:

Which one of the following belongs to the family of hydrocarbons?

- a) NO
- b) O_3
- c) NO_2
- d) C_6H_6