

## Critical and Creative Thinking (CCT) Practice-V

April 2020

### UNIT 1: SPARROWS – HERE TODAY, GONE TOMORROW?

Read the following:

1. What were once upon a time seen in millions throughout the country, are today seen only in certain pockets of India? House sparrows. Why so? Conclusively, there have been no studies to identify the exact cause behind the sudden decrease in their numbers, but studies conducted in Jharkhand, India have pegged the decrease in sparrow count to be an alarming 80 percent. And lest you may assume, this is not limited to India alone!
2. There are a variety of reasons behind the declining sparrow count; with some pointing fingers at the architecture of modern houses which leaves little space for nesting sites. Add to it the decrease in shrub vegetation areas as well and the result is a drastic loss in habitat. Excessive use of pesticides in agriculture is another cause, as it causes a decrease in reproductive efficiency of the sparrows by infecting their egg sheaths and its diet, since the chief diet of sparrows is seeds, cereals and insects which in turn are the direct victims of pesticide usage.
3. Sparrows are known to be sedentary birds that usually do not prefer undertaking long flights. However, with the advent of mobile telephony and the corresponding erection of mobile

towers any and everywhere has made the sparrows an unwitting prey to technology. Mobile towers are known to emit radiation in the frequency of 900 to 1800 MHz which not just harms the thin chick skull and sparrow eggs, but also confuses and disorients the sparrow's navigational skills. Sparrows are rarely, or rather never found in areas having mobile towers.

4. The Nature Forever Society (NFS) was founded by an Indian conservationist Mohammed Dilawar. He started his work helping the house sparrows in Nasik. Emphasizing the crying need to conserve house sparrows, Dilawar said, "The indifference caused by a lack of emotional connect has pushed these birds to the edge of extinction."



5. The NFS started an international initiative to celebrate World

Sparrow Day. This was first celebrated on 20 March 2010. After that, every year this day was celebrated all over the world to raise the awareness about house

sparrows and other common birds affected by the environment. In 2012, the sparrow was adopted as the state bird of Delhi.

### Question 1:

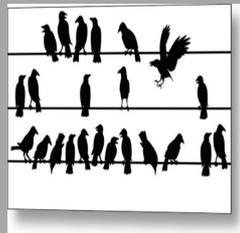
Based on the passage above, match column A with column B and write the answers in the space provided. There's an extra point given in column B.

Column A	Column B
Paragraph nos.	Central idea
1	(i) Predatory tech
2	(ii) A resourceful enterprise
3	(iii) Recognizing the need
4	(iv) A cause for concern
5	(v) Purposeful technocrats
	(vi) The grounds for the problem

- a) 1.-iv, 2.-vi, 3.-i, 4.-v, 5.-ii  
 b) 1.-iii, 2.-ii, 3.-iv, 4.-v, 5.-i  
 c) 1.-iii, 2.-ii, 3.-vi, 4.-iv, 5.-i  
 d) 1.-iv, 2.-vi, 3.-i, 4.-iii, 5.-ii

### Question 2:

Match the following collective nouns with the animals and then tick the correct option

<b>1</b>		<b>2</b>	
<b>3</b>		<b>4</b>	

- i. murder    ii. clowder    iii. caravan    iv. school
- a) 1.-i, 2.-ii, 3.-iii, 4.-iv  
 b) 1.-i, 2.-ii, 3.-iv, 4.-iii

- c) 1.-iv, 2.-ii, 3.-i, 4.-iii  
 d) 1.-iv, 2.-iii, 3.-ii, 4.-i

**Question 3:**

Choose the option that completes the given paragraph by correctly using five of the seven given phrases from the text–

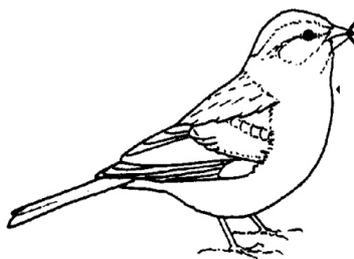
(i) crying need, (ii) here today, gone tomorrow, (iii) pegged the decrease, (iv) an unwitting prey, (v) the advent of, (vi) certain pockets (vii) lack of emotional connect.

The small artisans and crafts-persons of India have been ..... to industrialization. There are ..... in most regional communities that have, for generations, relied solely on weaving, handicrafts, etc. as a primary source of income. So, it is safe to say that there is a ..... to now support these artisans especially, in the face of a ready availability of machine-made products, imported items, and a general ..... with our own culture. If things continue this way, the future truly looks bleak for our local artisans – they could well be .....

- a) vi, vii, ii, i, iv  
 b) iv, vi, i, vii, ii  
 c) iii, vii, i, vi, ii  
 d) ii, vi, ii, vii, iv

**Question 4:**

Based on your reading of the passage, complete this sparrow's plea for survival.

**Help please humans!**

As you know, we don't like travelling long distances, but we have to because there's been a loss of habitat due to **(a) decrease in.....**, and **(b) loss of .....**

Moreover, **(c).....** has made it difficult for us to find food.

We request you to make **(d).....** for us to stay safe and also put out **(e).....** so that we don't go hungry and thirsty.

We promise to reward you with happy sounds and sights in return!

Answer here

(a) .....

(b) .....

(c) .....

(d) .....

(e) .....

**Question 5:**

The text states that the World Sparrow Day is celebrated all over the world (i) because .....(ii) in order to .....

**Question 6:**

The following is today's Delhite's response to the fact that the sparrow was adopted as the state bird of Delhi as far back as 2012.

*Rearrange the following words to make sense of the response.*

DELHI'S STATE BIRD, / A RARE SPECIES/ THAT DESPITE/ IS TODAY, / BEING/ IT IS/ IN THE/ THE HOUSE SPARROW/ IRONICAL, / CAPITAL

.....  
.....  
.....

**Question 7:**

Mohammed Dilawar is a conservationist. Such a person is one who

- a) manages natural habitats including parks, forests, and rangelands
- b) favors traditional views and values
- c) is driven by a set of over-arching beliefs and ideology
- d) advocates for the protection and preservation of the environment and wildlife.

**Question 8:**

Choose the option that is NOT true according to the text.

- a) Sparrows rarely undertake long flights
- b) The house sparrow is the state bird of Delhi
- c) Sparrows are often found perching on mobile towers
- d) Sparrows are now visible only in some pockets in the country

**Question 9:**

List the possible reasons for the decline in the sparrow population?

.....  
.....  
.....  
.....  
.....

**Question 10:**

Pesticides infect the egg **sheaths** of the sparrows. Based on your understanding of 'sheath', choose an option that lists which of the following uses a **sheath**.



(i)



(ii)



(iii)



(iv)

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

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Cont . . .

**UNIT 2: EQUABLE SHAPES**

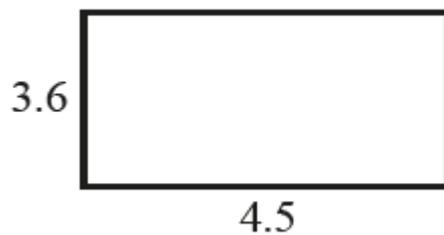
An equable shape is a shape that has the same numerical perimeter and area.

**NOTE:** (i) The figures are NOT TO SCALE. (ii) Lengths in figures are given in centimeters.

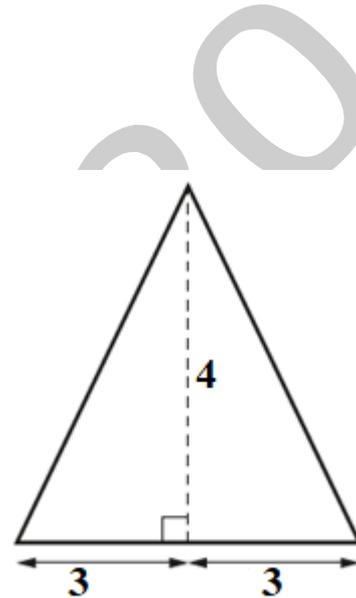
**Question 11:**

Which one of the following is an equable shape? Choose the correct option

- a) Figure A
- b) Figure B
- c) Both Figure A and B
- d) Neither Figure A and B



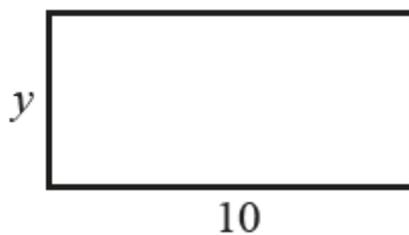
(A)



(B)

**Question 12:**

If the given rectangle is an equable shape, then the value of  $y$  is



- a) 1.1 centimeters
- b) 10 centimeters
- c) 2.5 centimeters
- d) 4.5 centimeters

**UNIT 3: PARCEL BY COURIER**

In Zedland, couriating a parcel costs (i) 3.25 zeds per kg and (ii) a fixed pick-up service charge of 5 zeds.

Shyleja sends some books weighing 'w' kg.

**Question 13**

Which of the following equation below show the correct relationship between courier charge, 'C' and the weight, 'w'?

- a)  $C + 5 = 3.25 \times w$
- b)  $C = 5 + 3.25 \times w$
- c)  $C \times 5 = 3.25 \times w$
- d)  $C = 3.25 \times 5 \times w$

**Question 14**

If Shyleja paid 57 zeds, the weight of her parcel was

- a) 10.75 kg
- b) 15 kg
- c) 16 kg
- d) 12.5 kg

**Question 15**

Iqbal, Cherian and Rahul are close friends. On Rahul's birthday, Iqbal sent him a photo frame, and Cherian sent him a chess set. The weight of the photo frame was 4 kg more than that of the chess set. How much more did Iqbal pay for couriating his parcel?

- a) 10 zeds
- b) 11 zeds
- c) 12 zeds
- d) 13 zeds

## **UNIT 4: ENTERTAINMENT FAIR**

Malavika visits an entertainment fair in Zedland where various gaming companies have set up their stalls with lots of games. Guidelines at the entertainment fair are as follows:



- I. There is only one cash counter, which is located near the entrance to the fair.
- II. No cash transaction is allowed at any stall. Players can pay for the games using Gold cards (worth 20 zeds) or Silver cards (worth 10 zeds).
- III. Players can purchase the cards (as many as they want) only from the cash counter.
- IV. A player can use either a Silver card or a Gold card to play any game once.
- V. If a player wins a game played using a Silver card, the Silver card will be replaced with a Gold card.
- VI. If a player wins a game played using a Gold card, the Gold card will be returned to the player and a new Silver card will be given as a reward. Both the Gold and Silver cards can be used for further games.
- VII. However, if the player loses a game, the card used for the game will be forfeited.
- VIII. Players can obtain cash refund for their cards at the cash counter. The refund value of a Silver card is 8 zeds and that of a Gold card is 18 zeds.

Malavika paid 30 zeds and bought one Gold card and one Silver card. She used both the cards in the first stall and won both the games. She did not want to repeat playing in the same stall. She took all the cards she got from the first stall and used them in the second stall. She won all the games in the second stall too. She again took all the cards she got from there and used all of them in the third stall. She continued this in the subsequent stalls.

### **Question 16**

If Malavika won every game she played, the number of cards of each type she will have with her when she comes out from the third stall are

- a) 5 Gold and 3 Silver cards
- b) 3 Gold and 3 Silver cards
- c) 5 Gold and 2 Silver cards
- d) 3 Gold and 5 Silver cards

**Question 17**

The amount of money she will get if she redeems all the cards she has after visiting the fourth stall is (she wins all the games in the fourth stall as well)

- a) 166 zeds
- b) 176 zeds
- c) 184 zeds
- d) 192 zeds

**UNIT 5: GARMENT STORE**

Leela went to a small garment store with her son. She wanted to buy an outfit for him. In the garment store, she found two types of shirts: Formal and Denim. There were 3 choices for formals and 4 choices for denims. There were two types of pants: Jeans and Formal, with 2 choices for each of them.

**Question 18**

If any shirt can be worn with any pair of pants, the number of ways Leela can select an outfit for her son are

- a) 20
- b) 24
- c) 26
- d) 28

**Question 19**

Leela decides to select either a formal shirt with a pair of formal pants (not with jeans) or a denim shirt with a pair of jeans (not with formal pants). The number of ways she can select the outfit now are

- a) 12
- b) 14
- c) 16
- d) 20

**UNIT 6: SMART DEAL**

A shopkeeper sells pizzas by the slices charging Rs. 50 per slice. He has two types of pizzas one round with 30 cm diameter, divided into 10 pieces. Another pizza square in shape with side 30 cm divided in to 12 pieces.

**Question 20**

Anjana bought the slice of round pizza and Sanjana opted for square slice. Who got a better deal? And by what quantity?

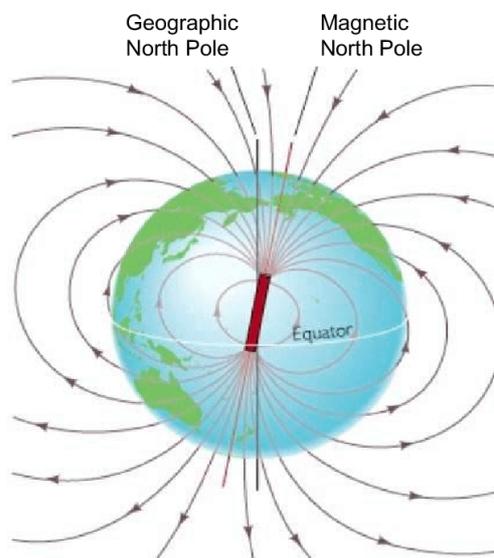
- a) Sanjana, approximately  $4 \text{ cm}^2$
- b) Anjana, approximately  $4 \text{ cm}^2$
- c) Sanjana, approximately  $5 \text{ cm}^2$
- d) Anjana, approximately  $5 \text{ cm}^2$

Cont . . .

## **UNIT 7: FINDING THE WAY**

By the 15th century, people on ships and boats solved the problem of finding out what direction they were sailing in and, perhaps even more importantly, what direction they needed to go to get back home. Before that time, sailors rarely ventured out of sight of land and instead relied on visible landmarks to get from place to place. This limited traders and navies to routes close to shore, but the invention of the compass changed all that.

The magnetic compass contains a magnetic element that aligns itself with the earth's magnetic field. Think of the earth as a big magnet. It has two magnetic poles, oriented north and south that are very close to the geographic North and South Poles. When a magnet or a magnetic element (such as the mineral lodestone or a ferrous metal that has been magnetized) is allowed to float freely, it will effectively point north and south, thus showing you which direction you are going in relation to that axis.



### **Question 21**

The compass always point towards the north. Which one of the following is the correct explanation for this?

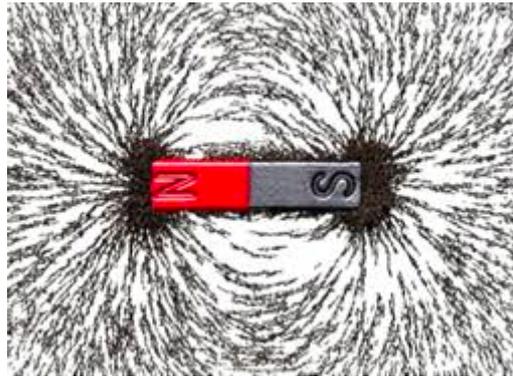
- The Earth is a magnet and therefore it attracts the metallic needle of the compass.
- The magnetic needle of the compass aligns itself with the Earth's magnetic field.
- The Earth's south pole does not have a magnetic pull hence the compass points towards the north.
- The needle of the compass always points in the upward direction.

### **Question 22**

From the image above what can you say about the direction of the magnetic field of the earth. The answer has been started for you; complete it in terms of geographical north and south poles.

The magnetic lines of force of the earth emerge .....

## Question 23

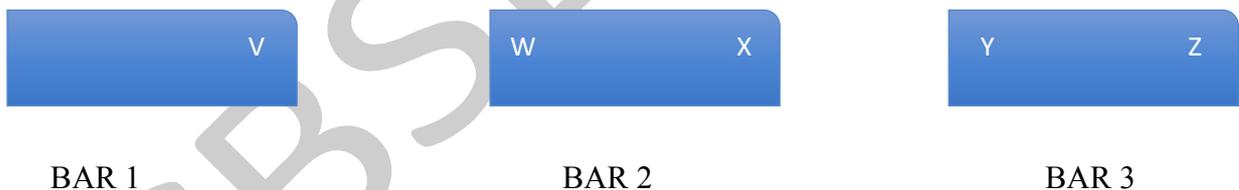


The image above shows how iron fillings arrange themselves around a magnet. **Based on the arrangement and density of the iron fillings** which portion(s) of the magnet have the maximum strength?

- center of the magnet.
- North pole.
- South pole.
- North and South poles.

## Question 24

Saba has 3 metal bars. To understand if they are magnets or not, she undertakes a small experiment and holds the ends of the bars close to one another. The results of this experiment are plotted below.



Results:

End V (of Bar 1)	End W (of Bar 2)	Attracts
End V (of Bar 1)	End X (of Bar 2)	Repels
End V (of Bar 1)	End Y (of Bar 3)	Attracts
End V (of Bar 1)	End Z (of Bar 3)	Attracts

From the result above, conclude which bar(s) is/are magnetic? Give reason for your response.

.....

.....

**Question 25**

Yogesh takes a magnetic compass in the lab and tries to show how it works to his friends. But, it does not work well in the laboratory. It just swings to and forth. He then takes it out in the field and it started working. What do you think could be the possible reasons for this?

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.....

**UNIT 8: GREEN INVADERS**

The residents of Nanganallur and Adambakkam wanted to revive an environment park on Adambakkam Eri. The lake needs to be desilted and deepened and a bund is to be formed for a walkers' path. Moreover, steps are to be taken to prevent the discharge of sewage through storm water drains and the dumping of garbage on the lake bunds. The environmentalists say that invasive species like water hyacinth have clogged this water body. Also, the discharge of sewage in to the lake has resulted in the growth of unwanted plants. This is blocking the air-water interface, thereby reducing the dissolved oxygen in the water killing a lot of fish. The water bodies clogged by the invasive species also become a breeding ground for mosquitoes. The State Government has been requested to expedite the works for this at the earliest.

**Question 26:**

*When an alien species (plant or animal) that does not belong to an ecosystem is introduced, it spreads and competes with the native plants for space and nutrients and becomes problematic in the absence of natural enemies. These intruders are called invasive alien species.*

What are the ill effects of an invasive species like water hyacinth?

- i. Blockage of sunlight from reaching native aquatic plants.
- ii. Starving the water of carbon dioxide
- iii. Domination and phasing out of fish and other native species.
- iv. Change in the water quality with respect to the dissolved oxygen and the water pH due to release of CO<sub>2</sub>.
- v. Starving the water of oxygen.
- vi. Desilting of the water body
- vii. An increase in algae blooms, mosquito infestation due to dense matting and decreased water flow.

- a) i , ii, iii, iv, v
- b) i, iii, v, vii, iv
- c) iii, v, vi, vii
- d) iii, iv, v, vi

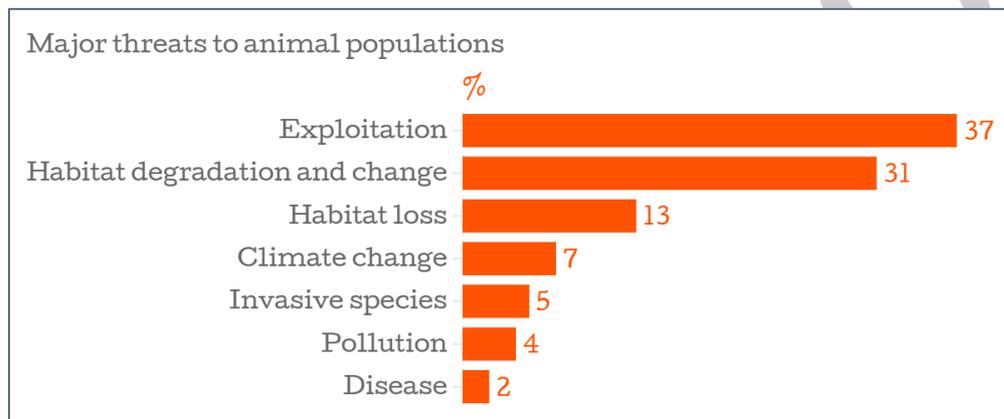
**Question 27:**

Which one of the following is NOT an indicator of the degradation of a water body?

- a) Increased transparency
- b) Decreased species diversity
- c) Increased sedimentation
- d) Decreased oxygen concentration

**Question 28:**

There was a news headline in the local newspaper which said “*Invasive species are the largest threat to the animal population*”.



Based on the data given above, complete the conclusion stated below:

Conclusion:

As per the data, the headline is ..... because, the two major threats to animal population are .....

**Question 29:**

Which characteristics of a species would make it more likely to become invasive?

	Characteristics	Yes	No
i.	Fast Growth.		
ii.	Slow Growth.		
iii.	Rapid Reproduction.		
iv.	High Adaptability.		
v.	Slow Reproduction.		
vi.	Sensitivity to changes in available food and nutrients in the habitat.		
vii.	Tolerance of a wide range of environmental conditions.		

**Question 30:**

Raghav wants to undertake a survey to support the hypothesis “*Non-native invasive plants make it difficult for native plants to grow.*” The steps that are required are listed below, but in a jumbled order.

- i. As per your observation, make a note of the numbers of species that are suspected to be invasive in this area.
- ii. If possible, compare with spaces that do not have any invasive species.
- iii. Identify or earmark an area for study.
- iv. Note the time for the growth (in size as well as numbers) of invasive species which grow very rapidly over the other species.
- v. Read about invasive species from books, newspapers and online resources.
- vi. Take careful tour of the area to locate invasive plants by using images from books and newspapers.
- vii. Observe the death/ diminishing of some native species.
- viii. Identify native and invasive plants of the locality/ surrounding area.

- a) i, iv, vii, ii, v, iii, vi, viii
- b) ii, iii, v, viii, i, iv, vi, vii
- c) v, viii, iii, vi, i, iv, vii, ii
- d) v, viii, i, vii, ii, iv, iii, vi

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