

MODULE 1

Mathematics (Critical and Creative thinking)

Chapter 2 Topic: POLYNOMIALS

Revenue Collection

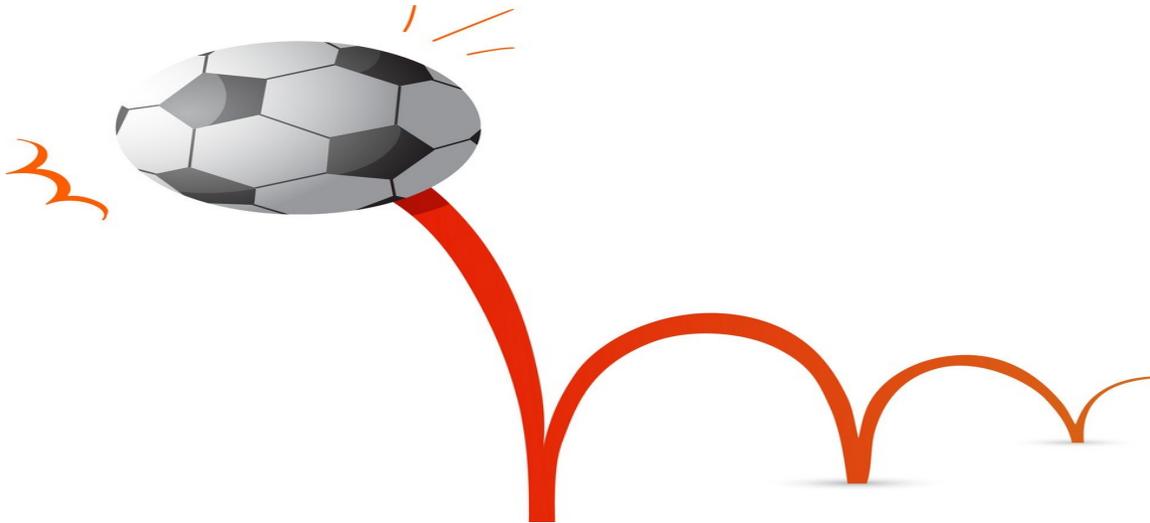


A shopkeeper decided to generate the total amount of revenue at the year for his shop. The number of tablets sold by a shop can be modeled by the expression $N(t) = 7t + 25$ and the price per tablet is modeled by an expression $P(t) = 3t^2 + 3t + 36$, where t is the number of months in a year.

Using the information given above answer the following questions:

- Q1. If Revenue collected = Number of tablets sold x Price per tablet then find the expression for the revenue collected.
- Q2. What is the degree of the expression obtained?
- Q3. Find the total revenue collected after one year

Dropping A Ball



If a ball is dropped from a height of 64 feet and its height above the ground is given by the expression $h(t) = -16t^2 + 64$, where t is the number of seconds after it is dropped.

- Q1. Find at what height the ball will be after 1 second.
- Q2. How long does it take the ball to fall on the earth?

MODULE 2

Critical and Creative thinking –Reading Literacy

Subject: English Class X

Chapter : A long Walk to Freedom

Reading passage

1. There have been many laws used during the history of the United States, but one set of laws which were very unfair and solely based on the race of an individual were the **Jim Crow Laws**. They were laws enforced in the South of the country which were mostly put in place during the late 1800s and early 1900s.
2. The laws used by individual states enforced segregation between white and black (African-Americans) people in public places, which included transportation, schools, restrooms, and restaurants. The laws made it difficult for African-Americans to vote too.
3. The name for the laws, 'Jim Crow', came from an 1832 African-American character in a song. As the song became popular, the term began to be used as a name for African-Americans, which led to the segregation laws becoming Jim Crow laws. The laws made African-Americans' life difficult.
4. There were many different examples of the laws used throughout the South. In Alabama, there was a law requiring train stations to have separate waiting rooms and ticket windows, one for whites and another for 'coloured' people. In Florida and other states, schools were separated by race, and in Georgia a law specifically stated, 'The officer in charge shall not bury any coloured persons upon the ground set apart for the burial of white persons.'
5. In addition, prisoners in Mississippi were segregated by race with different places used for eating and sleeping. Jim Crow laws also tried to prevent African-Americans from voting. Since many were ex-slaves who could not read or write, some states required voters to pass reading tests to vote, or pay money called a **poll tax** to vote. A law that helped a white person who could not read stated that if they had a relative who could vote before the Civil War, then they could vote. This law was called a 'grandfather clause'.
6. Some states also had laws worse than Jim Crow laws called **Black Codes**. The codes nearly kept slavery in the South alive, as they made it easy for the arrest of African-Americans for just about any reason, leading them to prison, where they were permitted to be treated as slaves.
7. During the **Great Migration**, many African-Americans from the South moved to the North to get away from the difficulty and harshness of the laws, which were not in effect in the North.
8. The African-Americans organized and protested the segregation and the Jim Crow laws in the 1900s. However, it was not until 1954 when the Supreme Court of the United States ruled that the segregation of schools was illegal during the **Brown v.**

Board of Education case. Other protests included boycotts of buses, which many relied on the African-American passengers, a March on Washington, and others which brought the laws to national attention.

9. Finally, in 1964 Jim Crow laws were made illegal with the passage of the Civil Rights Act and the Voting Rights Act of 1965. However, prior to the law's passage, in 1948, **President Harry Truman** had ordered the end of segregation in the armed forces.

Refer to the above article to answer the questions given below

- Q.1 Was Jim Crow a real person?
Q.2 The Jim Crow repressive laws and customs were practiced in which country?
Q.3 Choose the right answer from the options given for each statement.

1. Which of the following is the origin of the name "Jim Crow"?

- a. Character from an African-American story
- b. Character from an African-American song
- c. Character from an African-American poem
- d. Character from an African-American play

2. Which of the following best defines a poll tax?

- a. A test used as a requirement for voting
- b. A tax placed on African-Americans as a requirement for voting
- c. A payment for a test African-Americans had to pay as a requirement for voting
- d. A tax placed on all people as a requirement for voting

3. Which of the following states first had a law requiring separate waiting rooms and ticket windows at train stations for blacks and whites?

- a. Alabama
- b. Georgia
- c. Florida
- d. Mississippi

4. Which of the following states separated prisoners based on race?

- a. Georgia
- b. Florida
- c. Mississippi
- d. Alabama

5. Which of the following best defines the Great Migration?

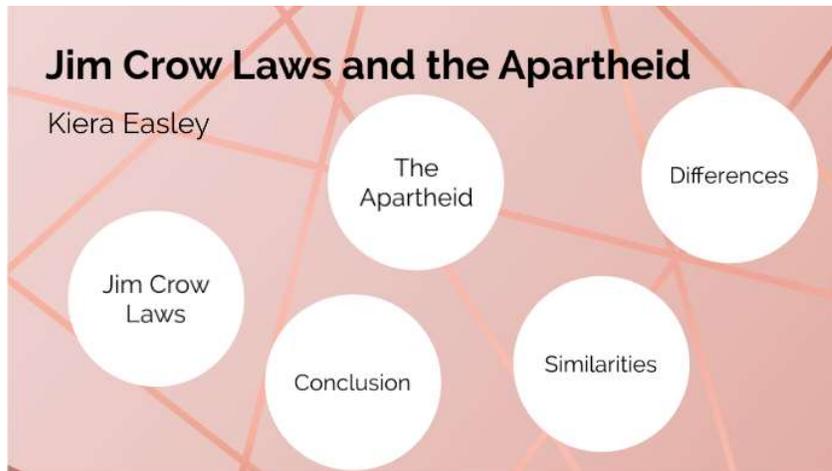
- a. The movement of whites to the South to assist African-Americans.
- b. The movement of whites and African-Americans to the North.
- c. The movement of African-Americans to the South.
- d. The movement of African-Americans to the North.

6. In which of the following years did all Jim Crow laws become illegal in the United States?

- a. 1964
- b. 1965
- c. 1954
- d. 1932

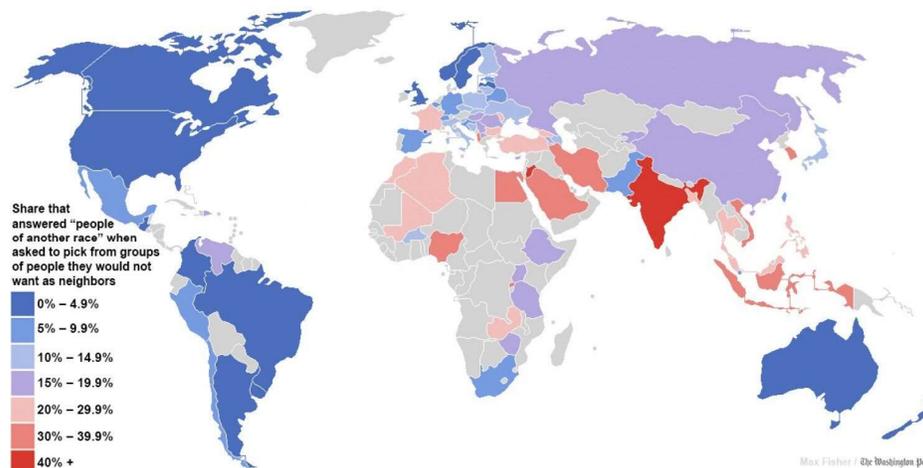
Q.4 Find the similarities and differences between Apartheid and Jim Crow?

Use the below given graphic organizer to record it.



We all think racism is a thing of the past, but the truth is 'It Still Exists'. There is a world map given below that will expose the "Racial Bias"

Q.5 Look at the map below and answer the related questions:



- If we treat this data as indicative of racial tolerance, then people in the bluer countries are _____, while the people in red countries are _____.
- _____ by far is the least tolerant country in the world
- _____ appeared to be one of the least racially tolerant countries on the European continent.
- The continents that show more racial tolerance are _____.

MODULE 3

Science(CCT) BIOLOGY

Our Environment

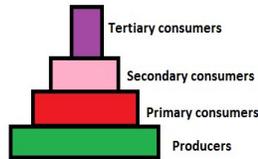
Read the following passage and answer the following questions-

An ecological pyramid is a graphical representation of the relationship between the different living organisms at different trophic levels. It was given by G.Evlyen Hutchinson and Raymond Lindeman.It can be observed that these pyramids are in the shape of actual pyramids with the base being the broadest, which is covered by the lowest trophic level, i.e., producers. The next level is occupied by the next trophic level, i.e., the primary consumers and so on.

Types of Ecological Pyramid

Three types of ecological pyramid exist. They are as follows:

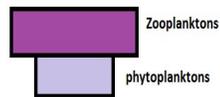
a) Pyramid of Numbers



Pyramid of numbers

In this type of ecological pyramid, the number of organisms in each trophic level is considered as a level in the pyramid. The pyramid of numbers is usually upright except for some situations like that of the detritus food chain, where many organisms feed on one dead plant or animal.

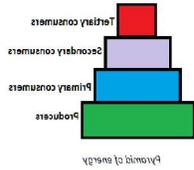
b) Pyramid of Biomass



Pyramid of biomass in oceans

In this particular type of ecological pyramid, each level takes into account the amount of [biomass](#) produced by each trophic level. The pyramid of biomass is also upright except for that observed in oceans where large numbers of zooplanktons depend on a relatively smaller number of phytoplanktons

c) Pyramid of Energy



Pyramid of energy is the only type of ecological pyramid, which is always upright as the energy flow in a food chain is always unidirectional. Also, with every increasing trophic level, some energy is lost into the environment. The pyramid of energy follows ten percent law. So only 10% of energy entering a trophic level is transferred to the next level.

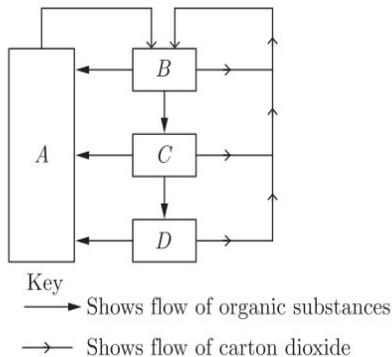
Importance of Ecological Pyramid

The importance of ecological pyramid can be explained in the following points:

- a. They show the feeding of different organisms in different ecosystems.
- b. It shows the efficiency of energy transfer.
- c. The condition of the ecosystem can be monitored, and any further damage can be prevented.

QUESTIONS

- 1) A graphic representation of number of individuals of different species belonging to each trophic level in an ecosystem is known as
 - a) ecological pyramid
 - b) pyramid of biomass
 - c) pyramid of number
 - d) pyramid of energy
- 2) In pond ecosystem, the pyramid of biomass is
 - a) upright
 - b) inverted
 - c) spindle shaped
 - d) none of these
- 3) The diagram represents the flow of substances within a balanced ecosystem. The boxes are the various trophic levels. Which box represents the producers?



- a) B
- b) D
- c) A
- D) C

4. Assertion- The concentration of harmful chemicals is more in human beings.

Reason- Man is at apex of the food chain

Read the Assertion and Reason statements carefully and mark the correct option out of the following option:

- a) If both assertion and reason are true and the reason is the correct explanation of the assertion.
 - b) If both the assertion and reason are true but the reason is not the correct explanation of the assertion.
 - c) If assertion is true but reason is false
 - d) If both assertion and reason are false.
5. What limits the number of trophic levels in a food chain? Why food chains consist of three or four steps only?

6. Observe the given food chain and answer the following questions:

Grass → Grasshopper → Frog → Eagle

- i) If 1000J energy is available at the first trophic level, find the energy available at the second, third and fourth trophic level.
- ii) Name the primary consumer and tertiary consumer in this food chain.

MODULE 4

Social Science
Geography
Chapter-1
CCT (Critical and Creative thinking)



RESOURCES

SUSTAINABLE DEVELOPMENT

- An equitable distribution of resources has become essential for a sustained quality of life and global peace.
- Resource planning is essential for sustainable existence of all forms of life. Sustainable existence is a component of sustainable development.



Sustainable economic development means 'development should take place without damaging the environment, and development in the present should not compromise with the needs of the future generations.'

The Role of Transportation in Sustainable Development



There is a broad agreement that present trends in world transportation system are not sustainable. Many have concluded that fundamental changes in technology, operation, design, and financing are needed. In all societies, including developed and developing, regardless of their development in various fields. Concerns about environmental quality, social equity, economic vitality, and treatment of climate change due to increasing CO₂ have converged to produce a growing interest in the alternative approach to sustainable development.

Development for sustainability is very important in every pattern especially in this century. Sustainable development at the transportation sector can be divided into three major sections: **society, economy, and environment**. Transportation sustainable development requires balancing to achieve the minimum expectations in these three sectors. For increasing the role of transportation in sustainable development, we need to use some strategies for increasing sustainability. These strategies include **promoting public transportation**, demand management, improving road management, pricing policies, vehicle technology improvement, using clean fuels, cultural enhancement, and transportation planning.

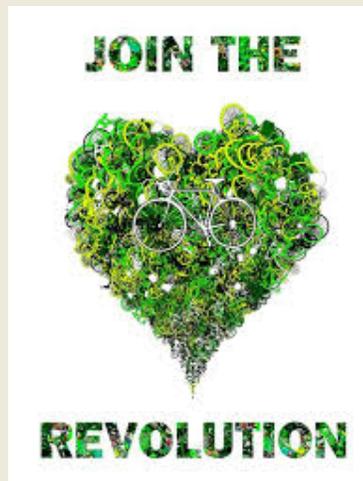
Mobilizing Sustainable Transport for development



Sustainable transport can save you money, improve your health and reduce your environmental footprint.



1. Walk for short trips. Walking helps reduce body fat, lower blood pressure and is free. It may also take less time than you think. Studies have shown that most people will underestimate time related to car journeys and overestimate the time it will take to walk. The average walking pace is six kilometres per hour and if you walk you don't need to find a car bay when you arrive.



2. Cycle instead. Switching a ten kilometre journey per week from your car to your bike will burn around 300 calories each way and can save over 300 kilograms of greenhouse gas emissions each year.



Did you know?

Peak hour city trips up to ten kilometres in length are generally faster by bike than any other form of transport, door to door. A five to ten kilometre ride will take about 15 to 30 minutes.



3. Consider car-pooling. Car-pooling is a great way to share costs of fuel and parking and to break the monotony of your daily commute.

4. Check your ticket. Tickets for many major sporting and cultural events include free public transport to and from the event. Skip the hassle of traffic and parking.

5. Think ahead. Bundle a number of small errands into one trip to save time and fuel. Consider if a phone call, email or letter would do instead.

6. Have a local adventure. Next time you are planning an outing or holiday, consider having some fun close to home.

7. Enjoy the sunshine. We have an ideal climate for active transport, with on average 3,200 hours of sunlight per year – get out there and enjoy it.

8. Green Driving. If you can't avoid using a car reduce your impact by employing these green driving techniques:

- Regularly check your tyre pressure. Under-inflated tyres can increase fuel consumption by three per cent and take 10,000 kilometres off the tyre's life.
- Service your car regularly. A well-tuned car can use 15 per cent less fuel.
- Slow down. Driving at 90 kilometres per hour uses 25 per cent less fuel than travelling at 110 kilometres per hour.
- Don't idle. If you are stopping for more than ten seconds, turn your car off.
- Drive smoothly. Stopping and starting uses more fuel.
- Open your window rather than using your air conditioner when travelling at under 70 kilometres per hour. Air conditioning can increase fuel consumption by ten per cent. At speeds above this, the drag caused by having your window down will use more fuel than the air conditioning.
- Screw on your fuel cap firmly to avoid evaporation and leaks when turning corners.
- Travel light. Don't use your car to store heavy equipment for long periods of time, an extra 50 kilograms of weight increases fuel consumption by two per cent.
- Remove roof racks and anything fixed to the outside of your car when they are not in use to minimise wind resistance.



Copyright

On the basis of your study, attempt the following questions

- a) Walking to our work place has many advantages for the body, enlist few.
- b) What do you understand by the term **car pool?**
- c) What are the other benefits of car pool besides being body and pocket friendly?
- d) Pick up example to prove that corona crisis is improving the air quality index
- e) Suggest few ways by which you can increase the efficiency of your vehicle and can make it environmentally safe

MODULE 5

रचनात्मक और गहन सोच

विषय—हिन्दी

पाठ—बड़े भाई साहब

- प्र.1 अधोलिखित गद्यांश को पढ़ कर पूछे गए प्रश्नों के उत्तर लिखिए।
- सालाना इम्तहान हुआ और बड़े भाई साहब फेल हो गए। छोटा भाई पास हो गया। इसके बाद बड़े भाई को लगा कि छोटा भाई घमंड के कारण बिल्कुल भी पढ़ना लिखना न छोड़ दे इसलिए उसके सामने नवीं कक्षा की पढ़ाई का भयंकर चित्र प्रस्तुत करते हुए उन्होंने कहा—किमेरे फेल होने पर मत जाओ। मेरे दरजे में आओगे तो दाँतों पसीना आ जाएगा, अलजबरा और जामेट्री के लोहे के चने चबाने पड़ेंगे। बादशाहों के नाम याद रखना आसान नहीं। कौन—सा कांड किस हेनरी के समय हुआ, क्या यह याद करना आसान समझते हो, दरजनों तो जेम्स हुए हैं, दरजनों चार्ल्स। दिमाग चक्कर खाने लगता है। जामेट्री तो बस, खुदा ही पनाह। अ ब ज की जगह अ ज ब लिख दिया और सारे नंबर कट गए। अ ब ज और अ ज ब में क्या फर्क है? और व्यर्थ की बात के लिए क्यों छात्रों का खून करते हो। मगर इन परीक्षकों को क्या परवाह। वह तो वही देखते हैं जो पुस्तक में लिखा है। वे चाहते हैं कि छात्र अक्षर—अक्षर रट डालें और इसी रटंत का नाम शिक्षा रख छोड़ा है।
- कह दिया—‘समय की पाबंदी’ पर एक निबंध लिखो, जो चार पन्नों से कम न हो। जो बात एक वाक्य में कही जा सके, उसे चार पन्नों में लिखने की क्या जरूरत? यह तो समय की किफ़ायत नहीं, बल्कि उसका दुरुपयोग है। यह छात्रों पर अत्याचार नहीं, तो और क्या है?
- “इस तरह अंग्रेज़ी पढ़ोगे, तो जिंदगी भर पढ़ते रहोगे और एक हर्फ़ न आएगा। अंग्रेज़ी पढ़ना कोई हँसी खेल नहीं कि जो चाहे पढ़ ले, नहीं तो ऐरा—गैरा नत्थू खैरा सभी अंग्रेज़ी के विद्वान हो जाते। यहाँ रात—दिन आँखें फोड़नी पड़ती हैं, और खून जलाना पड़ता है। मैं कहता हूँ, तुम कितने घोंघा हो कि मुझे देखकर भी सबक नहीं लेते। मैं कितनी मेहनत करता हूँ, यह तुम अपनी आँखों से देखते हो, अगर देखते तो यह तुम्हारी आँखों का कसूर है, तुम्हारी बुद्धि का कसूर है। रोज़ ही क्रिकेट और हॉकी मैच होते हैं। मैं पास नहीं फटकता। हमेशा पढ़ता रहता हूँ। उस पर भी एक—एक दरजे में दो—दो, तीन—तीन साल पड़ा रहता हूँ, फिर भी तुम कैसे आशा करते हो कि खेल—कूद में वक्त गँवाकर पास हो जाओगे? मुझे तो दो ही तीन साल लगते हैं, तुम उम्र भर इसी दरजे में पड़े

सड़ते रहोगे? अगर तुम्हें इस तरह उम्र गँवानी है, तो बेहतर है, घर चले जाओ और मजे से गुल्ली डंडा खेलो। मैं यह लताड़ सुनकर आँसू बहाने लगता। मैं इरादा करता कि आगे से खूब मन लगाकर पढ़ूँगा। चटपट एक टाइम-टेबिल बना डालता। मगर टाइम-टेबिल बनाना एक बात है, उस पर अमल करना दूसरी बात। पहले ही दिन उसकी अवहेलना शुरू हो जाती। फुटबाल की वह उछल-कूद, कबड्डी के वह दाँव-घात, वॉलीबाल की वह तेजी और फुर्ती मुझे अज्ञात और अनिवार्य रूप से खींच ले जाती और वहाँ जाते ही मैं सब कुछ भूल जाता।

प्र.1 आपके अनुसार शिक्षा पद्धति कैसी होनी चाहिए? रटंत या जीवन के साथ

जुड़ी व्यावहारिक ज्ञान वाली। अपने विचार संक्षेप में दीजिए।

प्र.2 प्रस्तुत गद्यांश में शिक्षा व्यवस्था के किन तौर-तरीकों पर व्यंग्य किया गया है?

किन्हीं दो का वर्णन कीजिए।

प्र.3 बालकों के सर्वांगीण विकास के लिए पढ़ाई के साथ-साथ खेलकूद भी अनिवार्य है

इस पर संक्षिप्त टिप्पणी दीजिए।

प्र.4 समय-सारिणी (टाइम-टेबल) की उपयोगिता पर प्रकाश डालते हुए लॉक डाउन

के दौरान अपनी दिन चर्या की समय सारिणी बनाइए।

प्र.5 क निम्नलिखित विकल्पों में से "लोहे के चने चबाना" का समानार्थक मुहावरा

छाँटिए।

क. घर-घाट एक करना

ख. घुटने टेकना

ग. नाकों चने चबवाना

घ. राई का पहाड़ बनाना

ख. निम्नलिखित विकल्पों में से "खून जलाना" का विपरीतार्थक मुहावरा

छाँटिए।

क. नाक पर मक्खी न बैठने देना

ख. बाल की खाल उधेड़ना

ग. हाथ पर हाथ धरे बैठना

घ. एड़ी चोटी का जोर लगाना

प्र.6 छोटा भाई दूसरी कक्षा में है और बड़ा भाई पाँचवीं कक्षा में है। छोटा भाई हर कक्षा को 1 साल में पास कर लेता है जबकि बड़ा भाई एक ही कक्षा को दो साल में पास करता है तो बताइए कि वह कौन सी कक्षा होगी जब दोनों भाई एक ही कक्षा में बैठेंगे।

Mathematics CCT(Answer Key)

Polynomials

Solutions

Ans1. Revenue = no of items in price per tablet

$$= (7t + 25) \times (3t^2 + 3t + 36)$$

$$= 21t^3 + 96t^2 + 327t + 900$$

Ans2. It is a cubic polynomial.

Ans3. Revenue in 1 year

$$t = 12$$

Therefore

$$21(12)^3 + 96(12)^2 + 327(12) + 900 = 54936$$

Ans1. $h(t) = -16t^2 + 64$

$$h(1) = -16(1)^2 + 64$$

$$= 48 \text{ feet}$$

Ans2. Simply to reach ground ht will be 0

$$0 = -16t^2 + 64$$

$$-64 = -16t^2$$

$$t^2 = 4$$

$$t = 2 \text{ secs}$$

Answer Key

English CCT – Long walk to Freedom

1. No, a fictitious character.
2. United States of America (only America is wrong answer)
3.
 1. b)Character from an African-American song
 2. b) A tax placed on African-Americans as a requirement for voting
 3. a) Alabama
 4. c) Mississippi
 5. d) The movement of African-Americans to the North.
 6. a) The movement of African-Americans to the North.
4. Graphic organizer
Jim Crow laws (United States of America)**and** Apartheid (South Africa)

Similarities

- restricted rights of black population
- Prevented contact between the races –separate townships, washrooms, buses schools and even prison.
- Blacks no voting rights.
- Inhuman treatment -could be arrested on any pretext and sent to jails .
- No allowed to enter White areas.
- Both limited opportunities for blacks to get education, prosper or advance.

Differences

- Jim Crow laws –regional (only in Southern part of USA)
- Apartheid – the entire country

Conclusion

Both laws oppressed the blacks. The blacks were considered inferior to whites. All their right and freedoms –political,social and human were taken away from them.

5. Answer the questions based on the given map
 - a. more tolerant, less tolerant
 - b. India
 - c. France
 - d. North America, South America, Australia

Science (Answer key)

Our environment CCT

1.C pyramid number

2.B inverted

3. (a) B

4. a. i) A

5. There is 90% loss of energy as we go from one trophic level to the next. This limits the number of trophic levels in a food chain. As only 10% energy is available for the next level of consumers, food chain generally consists of only three-four steps. The loss of energy at each step is so high that very little usable energy remains after four trophic level.

6. i) Second level-100J Third level -10J Fourth level -1J

ii) Primary Consumer-Grasshopper Tertiary consumer- Eagle



- a) Walking can definitely prove to be the best form of physical activity, it not only makes us agile but also reduces body fat and lowers blood pressure.
- b) Car pool refers to a system where people living in the same locality chooses to travel together instead of using their personal vehicle. This is not only economical but environmentally safe as well.
- c) Car pool is definitely a great way to share cost of fuel and parking but above all it makes the travelling interesting as it breaks the monotony.
- d) Children can quote any examples of their choice.
- e) The efficiency of the vehicles can be increased by;
 - 1) Regularly checking the tyre pressure.
 - 2) Driving at an optimum speed
 - 3) By minimizing the use of air conditioner
 - 4) By not using the car to carry heavy equipment

रचनात्मक और गहन सोच

विषय—हिन्दी

ANSWER- KEY

पाठ—बड़े भाई साहब

- उ0.1 हमारे अनुसार शिक्षा पद्धति विद्यार्थियों का उचित मार्ग दर्शन करने वाली हो।
आत्मनिर्भर बनाने वाली व्यावहारिक ज्ञान वाली हो। विषयों का सही चुनाव करने वाली हो। ऐसी शिक्षा जो अनुभव ज्ञान पर बल देती हो। रटंत शिक्षा प्रणाली से यह संभव नहीं।
- उ.2 1. रटंत शिक्षा प्रणाली पर व्यंग्य किया गया है। इस शिक्षा पद्धति में रट—रट कर प्रश्नों के उत्तर, आँकड़ों, विवरणों, घटनाओं आदि को प्रस्तुत करने पर बल दिया जाता है।
2. परीक्षक पुस्तकों में लिखे हुए को ही उचित मानते हैं।
- उ.3 बालकों के सर्वांगीण विकास के लिए पढ़ाई के साथ—साथ खेलकूद भी अनिवार्य है क्योंकि स्वस्थ शरीर में ही स्वस्थ मन निवास करता है। बिना खेल—कूद किए जब विद्यार्थी का शरीर ही स्वस्थ नहीं होगा तो विद्यार्थी किस प्रकार पढ़ सकेगा। खेलकूद से शारीरिक, मानसिक, सामाजिक, नैतिक एवं अनुशासनिक विकास भी होता है।
- उ.4 समय का सदुपयोग, समय का महत्त्व समझाने, समय प्रबंधन करने में आसानी, तनाव कम करता है। दिनचर्या की समय सारिणी छात्रों के अनुसार होगी।
- उ5 “लोहे के चने चबाना” का समानार्थक मुहावरा
- क. घर—घाट एक करना
- ख. “खून जलाना” का विपरीतार्थक मुहावरा
- ग. हाथ पर हाथ धरे बैठना
- उ6. आठवीं कक्षा