THE ICONIC SCHOOL

Learn Today. Lead Tomorrow. **Homework**

SUMMER HOLIDAY HOMEWORK

GRADE: X

INSTRUCTIONS:

- *The holiday homework has to be done in notebook/scrapbook/A4 size sheets.*
- *The work should be creatively and neatly done.*
- *Make a front page mentioning your basic details "name, class"*

ENGLISH

Listen to any one podcast from the list given below or any good TV documentary and write an essay in 800-100 words.

1. Dead Eyes, "Tom" (Head gum)
2. The Torjan Horse Affair (Serial Productions and the New York Times)
3. Mother Country Radicals (Crooked Media)
4. The 11th, "His Saturn Return" (Pineapple Street Studios)
5. Imaginary Advice, "The True Crime of your Frozen Death" (Independent)

Project work to be submitted properly in a file with an innovative cover page.

HINDI

1. एक भारत श्रेष्ठ भारत'के अंतर्गत मध्यप्रदेशके जोड़ीदार राज्य बिहार आधिकारिक भाषा बिहारीऔर हिंदी का प्रयोग करते हुए एक सचित्र पोस्टर बनाइए।
2. अलंकार अथवा पदपरिचय विषय के मुख्य बिंदुओं का उल्लेख करते हुए अवधारणा मानचित्र बनाइए।

SANSKRIT

1. मम-परिचयः दशवाक्येषु , सचित्र-घटिका वादनम् , सपाद , सार्ध , पादोन इति शब्दान् प्रयोगं कृत्वा समयलेखनम् ।
2. पर्यटनस्थलस्य दशवाक्येषु चित्रवर्णनम् च लिखत ।

MATH

CHAPTER 1
REAL NUMBERS

Q01. The smallest prime number is:
(a) 0 (b) 1 (c) 2 (d) 3

Q02. The sum of first five prime numbers is:
(a) 26 (b) 15 (c) 39 (d) 28

Q03. Total prime numbers between 1 and 100 are:
(a) 31 (b) 25 (c) 22 (d) 20

Q04. The unit's digit obtained on simplifying $207\times781\times39\times94$ is:
(a) 9 (b) 1 (c) 7 (d) 2

Q05. The number $\sqrt{3}$ is a/an:
(a) integer (b) rational number
(c) irrational number (d) None of these

Q06. The HCF and LCM of 6, 72 and 120 is, respectively:
(a) 8, 360 (b) 6, 340 (c) 6, 360 (d) None of these

Q07. The total number of even prime numbers is:
(a) 0 (b) 1 (c) 2 (d) None of these

Q08. $\frac{22}{7}$ is a:
(a) prime number (b) an integer
(c) a rational number (d) an irrational number

Q09. The sum of two numbers is 37 and their product is 342. The numbers are:
(a) 18, 19 (b) 23, 14 (c) 24, 13 (d) 28, 9

Q10. A number is as bigger than 22 as much it is smaller than 72. The number is:
(a) 92 (b) 47 (c) 24 (d) None of these

Q11. If HCF and LCM of two numbers are 4 and 9696, then the product of two numbers is:

(a) 9696 (b) 24242 (c) 38784 (d) 4848

Q12. $5+\sqrt{2}+\sqrt{3}$ is:

(a) a natural number (b) an integer

(c) a rational number (d) an irrational number

Q13. If $\left(\frac{9}{7}\right)^3 \times \left(\frac{49}{81}\right)^{2x-6} = \left(\frac{7}{9}\right)^9$ then, the value of x is:

(a) 12 (b) 9 (c) 8 (d) 6

Q14. The number .211 2111 21111 211111... is a:

(a) terminating decimal

(b) non-terminating repeating decimal

(c) non-terminating decimal which is non-repeating

(d) None of these

Q15. If $m^n = 32$, where m and n are positive integers, then the value of $n^{m\,n}$ is:

(a) 32 (b) 25 (c) 5^{10} (d) 5^{25}

CHAPTER 2
POLYNOMIALS

Q01. The quadratic polynomials with the sum and the products of its zeroes as $\frac{1}{4}$ and -1 respectively, is:

(a) $4x^2+x+1$ (b) $4x^2+x+4$ (c) $4x^2+x-1$ (d) $4x^2-x-4$

Q02. If $x^2+\frac{1}{x^2}=102$, then the value of $x-\frac{1}{x}$ is:

(a) 8 (b) 10 (c) 12 (d) 13

Q03. If $p(x)=3x^3+x^2+2x+5$ is divided by $g(x)=x^2+2x+1$, then the remainder will be:

(a) $8x+10$ (b) $9x+10$ (c) $10x+10$ (d) $11x+10$

Q04. The quadratic polynomial, the sum and product of whose zeroes are -3 and 2 respectively, is:

(a) x^2+3x+2 (b) x^2-3x+2 (c) x^2+3x-2 (d) $-x^2+3x+2$

Q05. The zeroes of quadratic polynomial t^2-15 are:

(a) $-\sqrt{15},\sqrt{15}$ (b) $\sqrt{15},\sqrt{12}$ (c) $\sqrt{15},-\sqrt{12}$ (d) $\sqrt{15},-15$

Q06. A quadratic polynomials, the sum and product of whose zeroes are $-\frac{1}{4}$ and $\frac{1}{4}$ respectively, is:

(a) $4x^2+x+1$ (b) x^2-3x+2 (c) x^2+3x-2 (d) None of these

Q07. If $\left(x+\frac{1}{x}\right)=3$, then $x^2+\frac{1}{x^2}$ is equal to:

(a) $\frac{82}{9}$ (b) $\frac{10}{3}$ (c) 7 (d) 11

Q08. If $x^{1/3}+y^{1/3}+z^{1/3}=0$, then:

(a) $x+y+z=0$ (b) $x+y+z=3xyz$

(c) $(x+y+z)^3=27xyz$ (d) $x^3+y^3+z^3=0$

Q09. If $p(x)=3x^2-5x$, then $p(2)=$_____:

(a) 2 (b) 3 (c) 0 (d) None of these

Q10. The quadratic polynomials whose zeroes are $\frac{3}{5}$ and $-\frac{1}{2}$, is:

(a) $10x^2 - x - 3$ (b) $10x^2 + x - 3$ (c) $10x^2 - x + 3$ (d) None of these

Q11. If α and β are the zeroes of $2x^2 + 5x - 10$, then the value of $\alpha\beta$ is:

(a) $-\frac{5}{2}$ (b) 5 (c) -5 (d) $\frac{2}{5}$

Q12. A real number α is a zero of the polynomial $f(x)$ if:

(a) $f(\alpha) > 0$ (b) $f(\alpha) < 0$ (c) $f(\alpha) = 0$ (d) $f(\alpha) \geq 0$

Q13. The zeroes of a polynomial $f(x)$ are the coordinates of the points where the graph of $y = f(x)$ intersects:

(a) X-axis (b) Y-axis (c) Origin (d) None

Q14. If β is a zero of $f(x)$ then, _____ is one of the factors of $f(x)$.

(a) $(x - 2\beta)$ (b) $(x - \beta)$ (c) $(x + \beta)$ (d) $(2x - \beta)$

Q15. If $(y - a)$ is factor of $f(y)$ then, _____ is a zero of $f(y)$.

(a) y (b) $-a$ (c) $2y$ (d) a

Q16. Out of the followings, the incorrect statement for a quadratic polynomial is:

(a) no real zeroes (b) two equal real zeroes

(c) two distinct zeroes (d) three real zeroes

Q17. A cubic polynomial $x = f(y)$ cuts Y-axis at atmost:

(a) one point (b) two points (c) three points (d) four points

Q18. Graph of $ax^2 + bx + c$ intersects X-axis at two distinct points if:

(a) $b^2 - 4ac \leq 0$ (b) $b^2 - 4ac < 0$ (c) $b^2 - 4ac > 0$ (d) $b^2 - 4ac \geq 0$

Q19. Polynomial $f(x) = x^2 + 1$ has _____ zeroes.

(a) only one real (b) no real

(c) only two real (d) one real and one non-real

Q20. If P is the sum of zeroes and S is product then, the corresponding quadratic polynomial may be:

(a) $x^2 - Sx + P$ (b) $x^2 - Sx - P$

(c) $x^2 - Px + S$ (d) $x^2 + Sx - P$

CHAPTER 3

PAIR OF LINEAR EQUATIONS IN ONE VARIABLE

Q01. The solutions of the equation $2x - y - 5 = 0$ are:

(a) $x = 2, y = -1$ (b) $x = 2, y = 1$ (c) $x = 1, y = -1$ (d) $x = -2, y = 1$

Q02. The sum of digits of a two digit number is 9. Also, 9 times this number is twice the number obtained by reversing the order of the digits. The number is:

(a) 20 (b) 16 (c) 18 (d) None of these

Q03. The system of equations $kx - y = 2$ and $6x - 2y = 3$ has a unique solution when:

(a) $k = 0$ (b) $k \neq 0$ (c) $k = 3$ (d) $k \neq 3$

Q04. A boat can row 1 km with stream in 10 minutes and 1 km against the stream in 20 minutes. The speed of the boat in still water is:

(a) 1.5 km/hr (b) 3 km/hr (c) 3.4 km/hr (d) 4.5 km/hr

Q05. A boat goes 24 km upstream and 28 km downstream in 6 hours. It goes 30 km upstream and 21 km downstream in 6 hours and 30 minutes. The speed of the boat in still water is:

(a) 4 km/hr (b) 6 km/hr (c) 10 km/hr (d) 14 km/hr

Q06. Point (4, 3) lies on the line:

(a) $3x + 7y = 27$ (b) $7x + 2y = 47$ (c) $3x + 4y = 24$ (d) $5x - 4y = 1$

Q07. The speed of train 150 m long is 50 km/hr. The time it will take to cross a platform 600 m long is:

(a) 50 sec (b) 54 sec (c) 60 sec (d) None of these

Q08. The graph of an equation $y = -3$ is a line which will be:

(a) parallel to x-axis (b) parallel to y-axis

(c) passing through origin (d) on x-axis

Q09. The value of k for which $kx + 2y = 5$ and $3x + y = 1$ have unique solution, is:

(a) $k = -1$ (b) $k \neq 6$ (c) $k = 6$ (d) $k = 2$

Q10. The graph of the equation $x - y = 0$ is:

(a) parallel to x-axis (b) parallel to y-axis

(c) passing through origin (d) None of these

Q11. Five years hence, father's age will be three times the age of his daughter. Five years ago, father was seven times as old as his daughter. Their present ages are:

(a) 20 years, 10 years (b) 40 years, 20 years

(c) 40 years, 10 years (d) 30 years, 10 years

Q12. In a two digit number, the unit's digit is twice the ten's digit. If 27 is added to the number, the digits interchange their places. The number is:

(a) 22 (b) 46 (c) 36 (d) 63

Q13. The pair of equations $3x + 4y = 18$, $4x + \frac{16}{3}y = 24$ has:

(a) no solution (b) unique solution

(c) infinitely many solutions (d) can't say

Q14. The pair of equations $3x + 2y = 5$, $2x - 3y = 7$ has:

(a) no solution (b) one solution (c) many solutions (d) two solutions

Q15. If the pair of equations $2x + 3y = 7$, $kx + \frac{9}{2}y = 12$ have no solution, then value of k is:

(a) $\frac{2}{3}$ (b) $\frac{3}{2}$ (c) 3 (d) -3

Q16. The equations $x - y = 0.9$ and $\frac{11}{x + y} = 2$ have the solution:

(a) $x = 5, y = 1$ (b) $x = 2.3, y = 3.2$ (c) $x = 3.2, y = 2.3$ (d) $x = 3, y = 2$

Q17. If $bx + ay = a^2 + b^2$ and $ax - by = 0$ then, the value of $x - y$ is:

(a) $b - a$ (b) $a - b$ (c) $a^2 - b^2$ (d) $b^2 + a^2$

Q18. If $2x+3y=0,\ 4x-3y=0$ then, $x+y$ equals:

(a) 0 (b) -1 (c) 1 (d) 2

Q19. If $\sqrt{a}x-\sqrt{b}y=b-a$ and $\sqrt{b}x-\sqrt{a}y=0$ then, value of $x-y$ is:

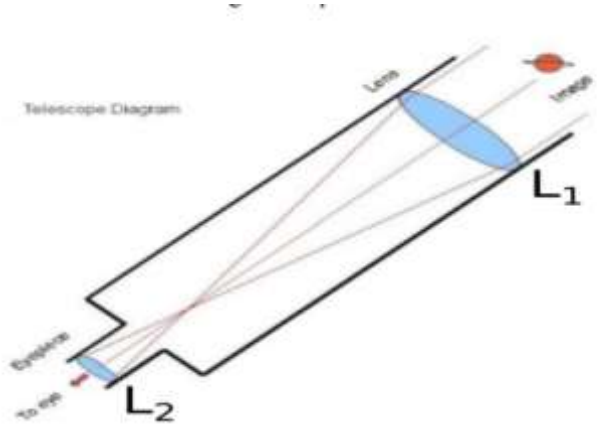
(a) $a+b$ (b) $a-b$ (c) $\sqrt{a}-\sqrt{b}$ (d) $\sqrt{b}-\sqrt{a}$

SCIENCE

PHYSICS

Case Study based question:

Q1.Sumati wanted to see the stars of the night sky. She knows that she needs a telescope to see those distant stars. She finds out that the telescopes, which are made of lenses, are called refracting telescopes and the ones which are made of mirrors are called reflecting telescopes.



So she decided to make a refracting telescope. She bought two lenses, L1 and L2. Out of which L1 was bigger and L2 was smaller. The larger lens gathers and bends the light, while the smaller lens magnifies the image. Big, thick lenses are more powerful. So to see far away, she needed a big powerful lens. Unfortunately, she realized that a big lens is very heavy. Heavy lenses are hard to make and difficult to hold in the right place. Also since the light is passing through the lens, the surface of the lens has to be extremely smooth. Any flaws in the lens will change the image. It would be like looking through a dirty window

i). Based on the diagram shown, what kind of lenses would Sumati need to make the telescope?

ii). If the powers of the lenses L1 and L2 are in the ratio of 4:1, what would be the ratio of the focal length of L1 and L2?

iii). What is the formula for magnification obtained with a lens?

iv). Sumati did some preliminary experiment with the lenses and found out that the magnification of the eyepiece (L2) is 3. If in her experiment with L2 she found an image at 24 cm from the lens, at what distance did she put the object?

v). Sumati bought not-so-thick lenses for the telescope and polished them. What advantages, if any, would she have with her choice of lenses?

Case Study based question:

Q2.The lenses form different types of images when object placed at different locations. When a ray is incident parallel to the principal axis, then after refraction, it passes through the focus or appears to come from the focus. When a ray goes through the optical centre of the lens, it passes without any deviation. If the object is placed between focus and optical centre of the convex lens, erect and magnified image is formed.

As the object is brought closer to the convex lens from infinity to focus, the image moves away from the convex lens from focus to infinity. Also, the size of image goes on increasing and the image is always real and inverted.

A concave lens always gives a virtual, erect and diminished image irrespective to the position of the object. Draw ray diagram and write nature of the image.

i)When the object is placed at infinity.

ii) When the object is placed at the focus of concave lens.

iii) When the object is placed at the focus of convex lens is

iv) When the object is placed at 2F in front of convex lens.

Q3.Each of these questions contains two statements, Assertion and Reason. Each of these questions also has four alternative choices, only one of which is the correct answer. You have to select one of the codes (a), (b), (c) and (d) given below.

(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct.

i).Assertion (A): Concave mirrors are used as make-up mirrors.

Reason (R): When the face is held within the focus of a concave mirror, then a diminished image of the face is seen in the concave mirror.

ii). Assertion (A) : Refractive index has no units.

Reason (R) : The refractive index is a ratio of two similar quantities

iii). Assertion (A) : The emergent ray is parallel to the direction of the incident ray.

Reason (R) : The extent of bending of the ray of light at the opposite parallel faces (airglass interface and glass-air interface) of the rectangular glass slab is equal and opposite.

iv). Assertion (A) : A ray of light travelling from a rarer medium to a denser medium slows down and bends away from the normal. When it travels from a denser medium to a rarer medium, it speeds up and bends towards the normal.

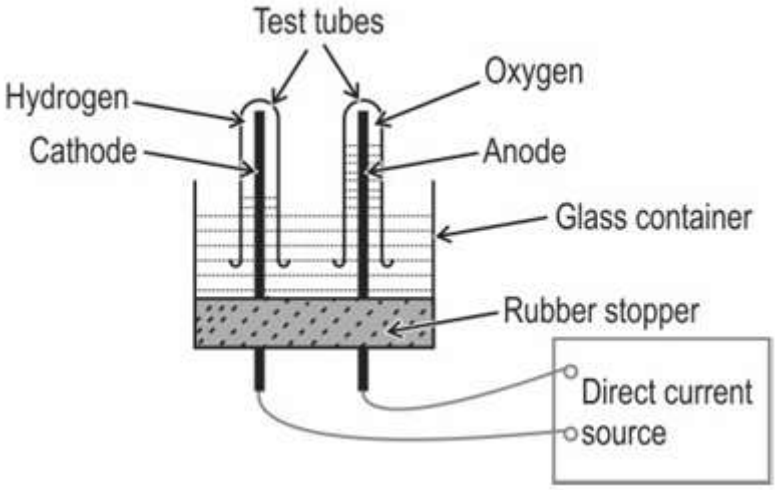
Reason (R) : The speed of light is higher in a rarer medium than a denser medium.

v). Assertion (A) : The mirrors used in search lights are concave spherical.

Reason (R) : In concave spherical mirror the image formed is always virtual.

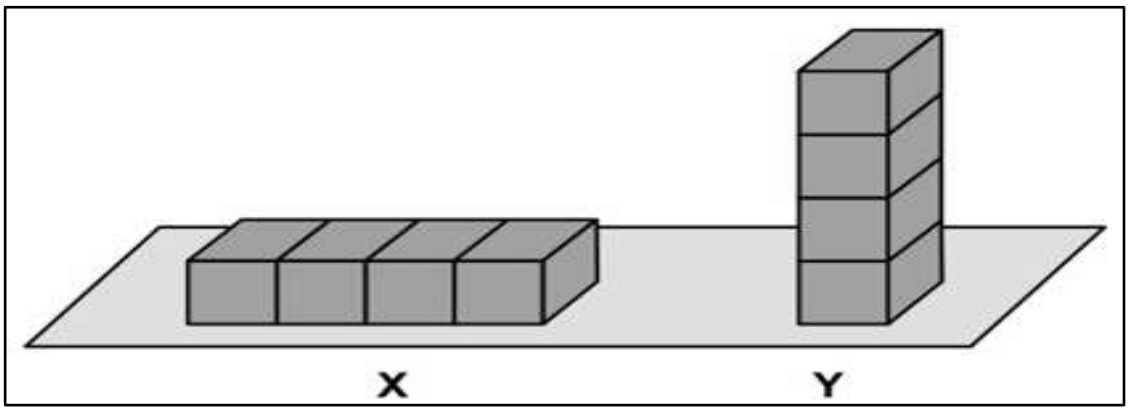
CHEMISTRY
(COMPETENCY BASED QUESTIONS)

1. The diagram below shows the set – up in which electrolysis of water takes place :



(a) What type of reactions takes place?
(b) Explain why this is an example of an endothermic reaction?
(c) The test tube containing hydrogen is removed carefully from the apparatus. A lit matchstick is brought near the mouth of test tube. The gas burns with an explosive 'pop' sound.

2. Eight iron blocks are arranged on the ground in the two arrangements X & Y as shown below. The block arrangements are kept moist by sprinkling water every few hours.



Which of the arrangements is likely to gather more rust after 10 days. Justify your answer.

3. Trupti mixes an aqueous solution of sodium sulphate (Na_2SO_4) and an aqueous solution of copper chloride ($CuCl_2$) .Will this lead to double displacement reaction? Justify your answer.

4. Write the balanced chemical equation of any one reaction that cannot be classified as combination, decomposition, double decomposition or displacement reaction.

5. Tina finds a paper covered with a white substance in Chemistry Lab. She keeps the paper near the window of lab, and comes back to pick it up after five hours to take it home. She noticed that the white substance has turned grey.
(a) What could be the substance in the paper that Tina found?
(b) The substance changed from white to grey. Write the chemical reaction for this.
(c) State one application of this property of the substance in daily life.

SCIENCE PORTFOLIO WORK

Management of natural resources:

1. Conservation and judicious use of natural resources.
2. Forest and wild life;
3. Coal and Petroleum conservation.
4. Examples of people's participation for conservation of natural resources.
5. Big dams: advantages and limitations; alternatives, if any. Water harvesting.
6. Sustainability of natural resources.

A detailed write up is to be prepared on any one of topic listed above. The work should be original. The write up has to be supported with proper data, news paper articles and photographs.

BIOLOGY

CASE STUDY: 1

Carbon and energy requirements of the autotrophic organism are fulfilled by photosynthesis. It is the process by which autotrophs take in substances from the outside and convert them into stored forms of energy. This material is taken in the form of carbon dioxide and water which is converted into carbohydrates in the presence of sunlight and chlorophyll. Carbohydrates are utilised for providing energy to the plant.

(i) Write a chemical reaction which occurs during photosynthesis?

(ii) In which form of carbohydrates does the plant stored in them?

(iii) What is stomata?

(iv) What are the functions of stomata?

(v) What is Chloroplast?

CASE STUDY: 2

The food material taken in during the process of nutrition is used in cells to provide energy for various life processes. Diverse organisms do this in different ways – some use oxygen to break-down glucose completely into carbon dioxide and water; some use other pathways that do not involve oxygen. In all cases, the first step is the break-down of glucose, a six-carbon molecule, into a three-carbon molecule called pyruvate. This process takes place in the cytoplasm.

(i) What is anaerobic respiration?

(ii) Explain the process which happens in our muscle cells?

(iii) In which form our body used the energy?

(iv) Why there is a faster breathing rate of aquatic animals then the terrestrial

(v) Write the name of organ used for respiration by different organism- fish, frog?

CASE STUDY: 3

The excretory system of human beings includes a pair of kidneys, a pair of ureters, a urinary bladder and a urethra. Kidneys are located in the abdomen, one on either side of the backbone. Urine produced in the kidneys passes through the ureters into the urinary bladder where it is stored until it is released through the urethra.

(i) What is the purpose of making urine?

(ii) What is Bowman's capsule?

(iii) What is dialysis?

(iv) What is the function of urinary bladder?

(v) What are the different parts of nephrons?

CASE STUDY: 4

The heart is a muscular organ which is as big as our fist. Because both oxygen and carbon dioxide have to be transported by the blood, the heart has different chambers to prevent the oxygen-rich blood from mixing with the blood containing carbon dioxide. The carbon dioxide-rich blood has to reach the lungs for the carbon dioxide to be removed, and the oxygenated blood from the lungs has to be brought back to the heart. This oxygen-rich blood is then pumped to the rest of the body.

(i) How many chambers are present in the heart of mammals and reptiles?

(ii) Who carry deoxygenated blood from body to heart?

(iii) What do you meant by the term double circulation?

(iv) What is hypertension?

(v) Which device measured blood pressure?

IT

Design a portfolio and submit

1. Portfolio should contain printouts of the Practical done using Writer (Microsoft word).

2. The work to be done in A4 size sheet.

3. The project must be creative and innovative.

4. Students must reuse waste material to decorate the project cover page.

SOCIAL SCIENCE

ECONOMICS

Students are supposed to prepare a project on CONSUMER AWARENESS.

- The project should be made on black pages/file
- The project must be creative and innovative.
- The project should be of about 15-18 pages.
- Students must reuse waste material to decorate the project.

HISTORY

Case Study Question:
Analyze the role of nationalism in the unification of Germany and Italy.
Competency-Based Questions:
1. Evaluate the significance of cultural and linguistic differences in the rise of nationalism in Europe.
2. Assess the challenges faced by nationalist movements in achieving political power and forming stable governments.

POLITICAL SCIENCE

Case study: In India, power is shared among the central government, state governments, and local governments. Analyze the benefits and drawbacks of such a system of power sharing. What steps could be taken to improve power sharing in India?
Competency Based: Discuss the importance of power sharing in promoting social harmony and preventing conflict in diverse societies.
Note: These questions are meant to encourage analytical thinking and research-based learning. Students may need to use primary and secondary sources to answer these questions thoroughly.

GEOGRAPHY

Read the source given below and answer the questions that follow:
Irrigation has also changed the cropping pattern of many regions with farmers shifting to water intensive and commercial crops. This has great ecological consequences like Stalinization of soil.
At the same time, it has transformed the social landscape for e.g.; increasing the social gap between the richer land owners and landless poor. As a result, we can see, the dams did create conflicts between people wanting different uses and benefits from the same water resources. In Gujarat, the Sabarmati basin farmers were agitated and almost caused a riot over the higher priority given to water supply in Urban areas, particularly during droughts. Inter-state water disputes were also becoming common with regard to sharing the costs and benefits of multi-purpose projects.
(i) How did cropping pattern change by irrigation?
(ii) Analyse the statement "Dams created conflict between people."
(iii) What are the consequences of irrigation on Soil and social landscape?

Competency Based:

1. Resource consumption is greater than resource generation resulting in crisis of resources."Discuss.

2. Imagine yourself as one of the head of states attending international EARTH SUMMIT AT RIO-DE-JANERIO, BRAZIL. Discuss some measures taken by your country to combat environmental damage?

3. The Earth has enough resources to meet the needs of all but not enough to satisfy the greed of even one person. How is this statement relevant to the discussion of development? Discuss.