

GROW

# MATHEMATICS

## SECTION A

**Q1. The decimal expansion of  $\frac{22}{7}$  is**

- (a) Terminating (b) Non-terminating and repeating  
(c) Non-terminating and Non-repeating (d) None of the above

**Q2. Which of the following is not irrational?**

- (a)  $(3 + \sqrt{7})$  (b)  $(3 - \sqrt{7})$   
(c)  $(3 + \sqrt{7})(3 - \sqrt{7})$  d)  $3\sqrt{7}$

Q3. Using Euclid's division algorithm, the HCF of 231 and 396 is

- (a) 32 (b) 21  
(c) 13 (d) 33

Q4. The zeroes of  $x^2 - 2x - 8$  are:

- (a) (2,-4) (b) (4,-2)  
(c) (-2,-2) (d) (-4,-4)

Q5. If one zero of the quadratic polynomial  $x^2 + 3x + k$  is 2, then the value of k is

- (a) 10 (b) -10  
(c) 5 (d) -5

Q6. If the zeroes of the quadratic polynomial  $x^2 + (a + 1)x + b$  are 2 and -3, then

- (a)  $a = -7$ ,  $b = -1$   
(b)  $a = 5$ ,  $b = -1$   
(c)  $a = 2$ ,  $b = -6$   
(d)  $a = 0$ ,  $b = -6$

**Q7. If a pair of linear equations is consistent, then the lines are:**

- (a) Parallel  
(c) Always intersecting
- (b) Always coincident  
(d) Intersecting or coincident

**Q8. A fraction becomes  $\frac{1}{3}$  when 1 is subtracted from the numerator and it becomes  $\frac{1}{4}$  when 8 is added to its denominator. The fraction obtained is:**

- (a) 3/12                      (b) 4/12  
(c) 5/12                      (d) 7/12

Q9. The father's age is six times his son's age. Four years hence, the age of the father will be four times his son's age. The present ages, in years, of the son and the father are, respectively

- (a) 4 and 24                      (b) 5 and 30  
(c) 6 and 36                      (d) 3 and 24

Q10. Area of an equilateral triangle with side length  $s$  is equal to:

- (a)  $(\sqrt{3}/2)s$  (b)  $(\sqrt{3}/2)s^2$   
(c)  $(\sqrt{3}/4)s^2$  (d)  $(\sqrt{3}/4)s$

Q11. D and E are the midpoints of side AB and AC of a triangle ABC, respectively and BC = 6 cm. If  $DE \parallel BC$ , then the length (in cm) of DE is:

- (a) 2.5 (b) 3  
(c) 5 (d) 6

Q12. If triangles ABC and DEF are similar and AB=4 cm, DE=6 cm, EF=9 cm and FD=12 cm, the perimeter of triangle ABC is:

- (a) 22 cm (b) 20 cm  
(c) 21 cm (d) 18 cm

**Q13. The points  $(-1, -2)$ ,  $(1, 0)$ ,  $(-1, 2)$ ,  $(-3, 0)$  form a quadrilateral of type:**

- (a) Square (b) Rectangle  
(c) Parallelogram (d) Rhombus

**SURAJ SURAJ SURAJ SURAJ SURAJ SURAJ SURAJ SURAJ**

- (a)  $(-1, 3)$                       (b)  $(-1, -3)$   
(c)  $(1, -3)$                       (d)  $(1, 3)$

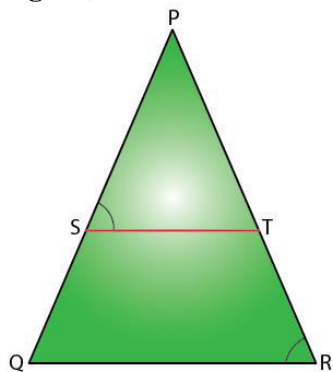
Q16. Express each number as a product of its prime factors:

- Q20. Solve by elimination:

$$3x = y + 5$$

$$5x - y = 11$$

- Q21. In the given figure,  $\frac{PS}{SQ} = \frac{PT}{TR}$  and  $\angle PST = \angle PRQ$ . Prove that PQR is an isosceles triangle.**



- Q25. To use the graphical method to obtain the conditions of consistency and hence to solve a given system of linear equations in two variables. (Activity Based).





## Social Science

## Nationalism in Europe

**1) Who made the famous remark, 'When France sneezes, the rest of Europe catches a cold'?**

- a) Metternich
- b) Mazzini
- c) Garibaldi
- d) Louis Philippe

2) The Treaty of Constantinople was signed in \_\_\_\_\_.

- a) 1835  
b) 1735  
c) 1834  
d) 1832

3) The famous Italian Revolutionary Giuseppe Mazzini was born in \_\_\_\_\_ in 1807.

- a) Turin  
b) Rome  
c) Genoa  
d) Atlanta

4) Giuseppe Mazzini founded the secret underground society named 'Young Europe' in

- a) Marseilles
- b) Berne
- c) Vienna
- d) Brussels

5) \_\_\_\_\_ believed that established, traditional institutions of state and society should be preserved.

- a) Conservatives
- b) Liberals
- c) Democrats
- d) None of the above

6) The Bourbon dynasty, which had been deposed during the French Revolution, was restored to power after signing the Treaty of \_\_\_\_\_.

- a) Vienna
- b) Constantinople
- c) Marseilles
- d) Prussia

7) \_\_\_\_\_ regimes imposed censorship laws to control what was said in newspapers, books, plays and songs and reflected the ideas of liberty and freedom.

- a) Liberal
- b) Conservative
- c) Democratic
- d) Secular







- a) Federalism is a system of government in which the power is divided between a central authority and various constituent units of the country.
- b) In federalism, there is usually more than one level of government for the entire country.
- c) In federalism, there will be a government at the level of provinces or states that look after much of the day-to-day administering of their state.
- d) All of the above.

**3) How many of the world's 193 countries have federal political systems?**

- a) 25  
b) 100  
c) 145  
d) 70

4) \_\_\_\_\_ made the shift from a unitary to a federal system of government.

- a) Sri Lanka  
b) Belgium  
c) Both Belgium and Sri Lanka  
d) None of the above

5) Which of the following does not have a federal system of government?

- a) India  
b) USA  
c) Russia  
d) None of the above

**6) Which of the following does not have a federal political system?**

- a) China
- b) New Zealand
- c) Japan
- d) All of the above

7) Which of the following statements is true about the unitary system of government?

- a) Under the unitary system, either there is only one level of government, or the sub-units are subordinate to the central government.
- b) The central government can pass on orders to the provincial or local government.
- c) State government has powers of its own for which it is not answerable to the central government.
- d) All of the above.

8) As per the census, India has \_\_\_\_\_ major languages.

- a) 22  
b) 131  
c) 121  
d) 161

**9) The federal system of government has dual objectives to safeguard and promote the unity of the country while at the same time accommodating regional diversity.**

- a) True  
b) False

10) Which of the following is an example of 'holding together' federations?

- a) India
- b) USA
- c) Switzerland
- d) None of the above.

## Resource and Development

1) On the basis of origin, resources can be classified as \_\_\_\_\_ and \_\_\_\_\_.

- a) Biotic and Abiotic
- b) Renewable and Non-renewable
- c) Potential and Developed
- d) None of the above

2) On the basis of the status of development, resources can be classified as \_\_\_\_\_.

- a) Potential
- b) Developed Stock
- c) Reserves
- d) All of the above

3) Which of the following statements is true?

- a) Abiotic resources are obtained from the biosphere and have life, such as human beings, flora and fauna.
- b) Biotic resources are all those things which are composed of non-living things like rocks and metals.
- c) Both options (a) and (b) are false.
- d) Both options (a) and (b) are true.

4) Minerals and fossil fuels are examples of non-renewable resources which take \_\_\_\_\_ for their formation.

- a) Hundreds of years
- b) Thousands of years
- c) Millions of years
- d) Just a year

**5) All the minerals, water resources, forests, wildlife, land within the political boundaries and oceanic area up to \_\_\_\_\_ from the coast termed as territorial water and resources therein belong to the nation.**

- a) 20 nautical miles  
b) 25 nautical miles  
c) 15 nautical miles  
d) 12 nautical miles

6) The oceanic resources beyond \_\_\_\_\_ of the Exclusive Economic Zone belong to the open ocean, and no individual country can utilise these without the concurrence of international institutions.

- a) 200 nautical miles
- b) 12 nautical miles
- c) 22.5 nautical miles
- d) 100 nautical miles

7) \_\_\_\_\_ are the resources which are surveyed, and their quality and quantity have been determined for utilisation.

- a) Developed resources
- b) Reserves
- c) Stock
- d) Abiotic

8) \_\_\_\_\_ are the subset of the \_\_\_\_\_, which can be put into use with the help of existing technical 'know-how', but their use has not been started.

- a) Reserves, developed resources  
b) Stocks, reserves





- 6) Countries with per capita income of US\$ 12616 per annum and above in 2012 are called \_\_\_\_\_.

- 7) India comes in the category of \_\_\_\_\_ countries because its per capita income in 2012 was just US\$ 1530 per annum.

- 8) Among the following states, \_\_\_\_\_ has the highest per capita income as per 2012-13 figures.

- 9) Infant Mortality Rate (IMR) indicates the number of children that die before the age of 5 as a proportion of 100 live children born in that particular year.

- 10) Literacy rate measures the proportion of the literate population in the \_\_\_\_\_ age group.

- a) 10 and above
- b) 21 and above
- c) 7 and above
- d) 18 and above

**1. Read the text carefully and answer the questions:**

Frederic Sorrieu prepared a series of four prints visualizing his dream of a world made up of **democratic and social Republics**, as he called them. The first print of the series shows the peoples of Europe and America – men and women of all ages and social classes – marching in a long train, and offering homage to the Statue of Liberty as they pass by it. Artists of the time of the French Revolution personified Liberty as a female figure. She bears the torch of Enlightenment in one hand and the Charter of the Rights of Man in the other. On the earth in the foreground of the image lie the shattered remains of the symbols of absolutist institutions. In Sorrieu's utopian vision, the peoples

- a) Italian Artist
- b) French artist
- c) British Artist
- d) German Artist

a) 1843  
b) 1841  
c) 1848  
d) 1845

- a) Monarchical Government
- b) Uncentralised Government
- c) Democratic Government
- d) Bureaucratic Government

a) Homogenous society  
b) All of these  
c) Monarchical society  
d) Ideal society

- a) The torch of Enlightenment
- b) The American Constitution
- c) Charter of the Citizen's Rights
- d) A bouquet

- a) As German-speaking principalities
- b) As a republic
- c) As a monarchy
- d) As a united nation

Another important feature of the Civil Disobedience Movement was the large scale participation of women. During Gandhiji's Salt March, thousands of women came out of their homes to listen to him. They participated in protest-marches, manufactured salt and picketed foreign cloth and liquor shops. Many went to jail. In urban areas, these women were from high caste families. In rural areas, they came from rich peasant households. Moved by Gandhiji's call, they began to see service to the nation as a

During Gandhiji's Salt March, thousands of women participated in

- a) widespread resentment
- b) doing protest marches
- c) providing service to the nation
- d) fighting for struggle

The women from rural areas mainly belonged to

- a) rich peasant households
- b) dalit societies
- c) high caste families
- d) low caste families

Which of the following assertions about women's involvement is incorrect?

- Thousands of women came out of their houses to listen to Gandhiji during his Salt March.
- Gandhiji believed that it was women's responsibility to care for their homes and hearth, as well as to be excellent mothers and wives.
- Women were allowed to hold positions of authority inside the Congress.
- All are correct

Women thought this as a sacred duty moved by Gandhiji's call

- a) service to the nation
- b) looking after home and hearth
- c) participating in the movement
- d) holding position of authority

**1. 3. Read the text carefully and answer the questions:**

India has varied relief features, landforms, climatic realms and vegetation types. These have contributed to the development of various types of soils.

**Alluvial Soils:** This is the most widely spread and important soil. The entire northern plains are made of alluvial soil. The Alluvial Soil is deposited by 3 important Himalayan river systems – the Indus, the Ganga and the Brahmaputra. The alluvial soil consists of various proportions of sand, silt and clay. These soils contain an adequate proportion of potash, phosphoric acid and lime, which are ideal for the growth of sugarcane, paddy, wheat and other cereal and pulse crops.

**Laterite Soil:** The laterite soil develops under tropical and subtropical climate with the alternate wet and dry season. This soil is the result of intense leaching due to heavy rain. Lateritic soils are acidic in nature and generally deficient in plant nutrients. The soil supports deciduous and evergreen forests but humus poor. This soil is very useful for growing tea and coffee.

**Black Soil:** This soil is black in colour and is also known as regur soil. Climatic conditions along with the parent rock material are the important factors for the formation of black soil. The soil is ideal for growing cotton. This type of soil is typical of the

Black soil is synonymous with which crop?

- Match the following list of soil in Column I with the crops cultivated in Column II:

a) A-2, B-3, C-4

- Which type of soil covers nearly half of the total area of India?

- Black soil is sticky and clayey because .

- \_\_\_\_\_ soil is acidic in nature as it is formed due to intense leaching caused by heavy rain.

- These soils are generally poor in phosphoric contents and they also develop deep cracks during hot weather:

- a) Red and Yellow Soils  
b) Alluvial Soils  
c) Black Soils  
d) Arid Soils

Sustained uses of land without compatible techno-institutional changes have hindered the pace of agricultural development. In spite of the development of sources of irrigation, most of the farmers in large parts of the country still depend upon monsoon and natural fertility in order to carry on their agriculture. For a growing population, this poses a serious challenge. Agriculture which provides a livelihood for more than 60 percent of its population, needs some serious technical and institutional reforms. Thus, collectivization, consolidation of holdings, cooperation and abolition of zamindari, etc. were given priority to bring about institutional reforms in the country after Independence. 'Land reform' was the main focus of our First Five Year Plan. The right of inheritance had already lead to fragmentation of land holdings necessitating consolidation of holdings. The laws of land reforms were enacted but the implementation was lacking or lukewarm. The Government of India embarked upon introducing agricultural reforms to improve Indian agriculture in the 1960s and 1970s. The Green Revolution based on the use of package technology and the White Revolution were some of the strategies initiated to improve a lot of Indian agriculture. But, this too led to the concentration of development in a few selected areas. Therefore, in the 1980s and 1990s, a comprehensive land development programme was initiated, which included both institutional and technical reforms. Provision for crop insurance against drought, flood, cyclone, fire and disease, the establishment of Grameen banks, cooperative societies and banks for providing loan facilities to the farmers at lower rates of interest were some important steps in this direction. Kissan Credit Card (KCC), Personal Accident Insurance Scheme (PAIS) are some other schemes introduced by the Government of India for the benefit of the farmers. Moreover, special weather bulletins and agricultural programmes for farmers were introduced on the radio and television. The government also announces minimum support price, remunerative and procurement prices for important crops to check the exploitation of farmers by speculators and middlemen.

i. In order to tackle the various problems faced by Indian agriculture especially the pressure of the growing population, various \_\_\_\_\_ and \_\_\_\_\_ reforms have been initiated.

- a) Political, Institutional
- b) Technological, Institutional
- c) Administrative, Judicial
- d) Executive, Organisational

ii. Which of the following is associated with Operation Flood?

- a) Green Revolution
- b) Gene Revolution
- c) White Revolution
- d) Blood-less Revolution

iii. What was the main objective of the Green Revolution?

- a) Improvement in the condition of farmers



- a) Both A and R are true and R is the correct explanation of A.  
b) Both A and R are true but R is not the correct explanation of A.  
c) A is true but R is false.  
d) A is false but R is true.

4. **Assertion (A):** Hindi is identified as the only official language of India.

**Reason (R):** It helped in creating supremacy in Hindi-speaking people over others.

- a) Both A and R are true and R is the correct explanation of A.  
b) Both A and R are true but R is not the correct explanation of A.  
c) A is true but R is false.  
d) A is false but R is true.

**5. Assertion (A):** Equal treatment, freedom, security, and respect can be some important goals.

**Reason (R):** What cannot be measured is not important for development.

- a) Both A and R are true and R is the correct explanation of A.  
b) Both A and R are true but R is not the correct explanation of A.  
c) A is true but R is false.  
d) A is false but R is true

6. **Assertion (A):** FrédéricSorrieu's print of 1848 shows shattered symbols of absolutist institutions on the ground.

**Reason (R):** Sorrieu imagined a world where monarchy would be strengthened through national unity.

- a) Both A and R are true, and R is the correct explanation of A.  
b) Both A and R are true, but R is not the correct explanation of A.  
c) A is true, but R is false.  
d) A is false, but R is true.

**7. Assertion (A):** Resources are not free gifts of nature.

**Reason (R):** Resources are created through the interaction of human beings with nature using technology.

- a.** Both A and R are true, and R is the correct explanation of A  
**b.** Both A and R are true, but R is not the correct explanation of A  
**c.** A is true, but R is false  
**d.** A is false, but R is true

**8. Assertion (A):** Indiscriminate use of resources has led to environmental problems.

**Reason (R):** Overuse of resources has caused issues like land degradation, global warming, and ozone depletion.

- a.** Both A and R are true, and R is the correct explanation of A  
**b.** Both A and R are true, but R is not the correct explanation of A  
**c.** A is true, but R is false  
**d.** A is false, but R is true

10. **Assertion (A):** Biodiversity ensures natural sustainability for all life forms.

**Reason (R):** All organisms are interdependent and play a role in maintaining ecological balance.

- a.** Both A and R are true, and R is the correct explanation of A  
**b.** Both A and R are true, but R is not the correct explanation of A  
**c.** A is true, but R is false  
**d.** A is false, but R is true

1. on the same map of India locate and label the following items with appropriate symbols:

- i. A state having protected forest
- ii. A state having largest area under protected forest
- iii. A place where Congress Session of Sep 1920 was held
- iv. A place where Congress Session of 1927 was held.
- v. A place where Congress Session of Dec 1920 was held
- vi. A place where Gandhiji Organised Satyagraha for Indigo planters.
- vii. A place where Gandhiji Organised Satyagraha for mill workers.



## Project Work

1. Make a Project on any one of the following Topics
  1. Consumer Awareness
  2. Sustainable Development
  3. Social Evils

Q. Make a Working Model on Hydroelectricity generation.

## Long Answer Questions

- 1 What were the steps taken by the French revolutionaries to create a collective identity among French people?
- 2 Briefly explain the process of German unification.
- 3 What was Civil Code of 1804 popularly known as Napoleonic Code?
- 4 How did the First World War help in the growth of nationalism in India?
- 5 Why did Gandhiji decide to withdraw Non Cooperation movement?
- 6 Write a short note on a) Salt March b) JallianwallaBagh Massacre
- 7 What is meant by the idea of Satyagraha?
- 8 What is the Ethnic Composition of Belgium and Srilanka?
- 9 What was the Belgium model of Power sharing?



**विषय- हिंदी**

**नोट:-** ग्रीष्मकालीन गृह कार्य को साफ एवं सुंदर करें ।

**प्रत्येक गतिविधि रचनात्मक एवं रंगीन बनाये ।**

**कार्य समय पर एवं स्वयं करे ।**

1. अपने आस-पास के वातावरण को ध्यान से देखिए — आपकी गली, मोहल्ला, गाँव या शहर में कोई एक समस्या जो आपको सबसे ज़्यादा परेशान करती हो, जैसे — टूटी सड़कें, गंदगी, पानी की कमी, बिजली की समस्या आदि।

अब कल्पना कीजिए कि **आप उस क्षेत्र के नेता हैं**। उस समस्या को सामने रखते हुए अपने मोहल्ले या गाँव वालों को संबोधित करते हुए एक **प्रभावशाली भाषण** हिंदी में लिखिए।

2. आजकल हर कोई सोशल मीडिया पर अपनी जिंदगी की **सबसे खूबसूरत तस्वीरें** दिखाता है — शानदार खाना, महंगी जगहों की यात्राएँ, हँसते हुए चेहरे, बड़ी-बड़ी उपलब्धियाँ।

लेकिन क्या सोशल मीडिया पर दिखाई जाने वाली ज़िंदगी सच में वैसी ही होती है?

इस विषय पर एक **विचारपूर्ण निबंध** हिंदी में लिखिए जिसमें —

- सोशल मीडिया पर लोग क्या दिखाते हैं और असली ज़िंदगी में क्या होता है, इसका अंतर स्पष्ट करें
- अपने खुद के या अपने आस-पास के **एक उदाहरण** का ज़िक्र करें
- यह भी लिखें कि इस "दिखावे की संस्कृति" का युवाओं पर क्या असर पड़ रहा है
- अंत में अपना **निजी मत** लिखें — आप इस बारे में क्या सोचते हैं

3. अपने दादा-दादी/ बुजुर्गों से उनके बचपन की कोई रोचक घटना सुनकर उसे कहानी के रूप में 150 शब्दों में लिखे।

4. नीचे दी गई फ़िल्मों की सूची में से अपनी पसंद की कोई **एक फ़िल्म** गर्मियों की छुट्टियों में देखिए। ये सभी फ़िल्में आपको जीवन के बारे में कुछ नया सोचने पर मजबूर करेंगी —

**अनुशंसित फ़िल्में (Recommended Films) :**

- तारे ज़मीन पर
- 3 Idiots
- Super 30
- चक दे इंडिया
- 12th Fail

फ़िल्म देखने के बाद उसकी एक **सार्थक समीक्षा (Meaningful Review)** हिंदी में लिखिए जिसमें निम्नलिखित बिंदु शामिल हों —

- फ़िल्म का नाम और उसके मुख्य पात्र



10. क्षितिज में पढाई गयी कविताओं से 5-5 प्रश्न बनाकर 30 शब्दों में उत्तर दीजिये।





- c) Only oxidation
- d) Displacement and combination

### *Section B: Assertion and Reasoning (5 Marks)*

1. Assertion: Copper cannot displace zinc from zinc sulphate solution.

Reason: Copper is more reactive than zinc.

- a) Both A and R are true, and R is the correct explanation.
- b) Both A and R are true, but R is not the correct explanation.
- c) A is true, R is false.
- d) A is false, R is true.

2. Assertion: Magnesium ribbon is cleaned before burning in air.

Reason: Cleaning removes the oxide layer for proper reaction.

- a) Both A and R are true, and R is the correct explanation.
- b) Both A and R are true, but R is not the correct explanation.
- c) A is true, R is false.
- d) A is false, R is true.

3. Assertion: Lead nitrate decomposes on heating.

Reason: It forms lead oxide and releases oxygen.

- a) Both A and R are true, and R is the correct explanation.
- b) Both A and R are true, but R is not the correct explanation.
- c) A is true, R is false.
- d) A is false, R is true.

4. Assertion: A chemical equation must be balanced.

Reason: Law of conservation of mass is followed in a chemical reaction.

- a) Both A and R are true, and R is the correct explanation.
- b) Both A and R are true, but R is not the correct explanation.
- c) A is true, R is false.
- d) A is false, R is true.

5. Assertion: Photosynthesis is an example of a chemical reaction.

Reason: Energy is absorbed during the process.

- a) Both A and R are true, and R is the correct explanation.
- b) Both A and R are true, but R is not the correct explanation.
- c) A is true, R is false.
- d) A is false, R is true.

### *Section C: Case Study Based Questions (3 x 3 = 9 Marks)*

Case Study 1:

Ravi heated a small amount of ferrous sulphate crystals in a dry boiling tube. He observed that the crystals turned brown and a gas with a pungent smell was released.

Questions:

- a) What type of reaction is this?





- c)  $\text{Ca}(\text{OH})_2$   
d)  $\text{NaCl}$

15. A basic oxide is:

- a)  $\text{SO}_2$   
b)  $\text{CO}_2$   
c)  $\text{MgO}$   
d)  $\text{N}_2\text{O}_5$

Section B: Assertion and Reasoning (1 mark each)

**Directions:** Choose the correct option from the following:

- (A) Both A and R are true, and R is the correct explanation of A.
- (B) Both A and R are true, but R is not the correct explanation of A.
- (C) A is true, but R is false.
- (D) A is false, but R is true.

1. **Assertion (A):** Tooth enamel gets corroded when the pH of the mouth falls below 5.5.

**Reason (R):** Acidic substances produced by bacterial action dissolve calcium phosphate.

2. **Assertion (A):** Acids turn blue litmus red.

**Reason (R):** Acids increase the concentration of  $\text{OH}^-$  ions in a solution.

3. **Assertion (A):**  $\text{NaOH}$  is used in the manufacture of soap.

**Reason (R):**  $\text{NaOH}$  is a strong acid.

4. **Assertion (A):** Baking soda is used in fire extinguishers.

**Reason (R):** It releases  $\text{CO}_2$  gas on heating or reacting with acid.

5. **Assertion (A):** Phenolphthalein is colourless in acid and pink in base.

**Reason (R):** It is an acid-base indicator.

### Section C: Case Study Questions (4 marks each)

#### Case Study 1:

The sour taste of lemon is due to the presence of citric acid. Acids are sour in taste and bases are bitter. Indicators like litmus, methyl orange, and phenolphthalein are used to distinguish between acids and bases.

**Questions:** a) Name two natural indicators.

b) Which color does methyl orange turn in an acidic solution?

c) Why are bases slippery to touch?

d) What is the pH range of acids?

#### Case Study 2:

A student added dilute  $\text{HCl}$  to sodium carbonate  $\text{Na}_2\text{CO}_3$ . A gas was evolved which turned lime water milky.

**Questions:** a) Name the gas evolved during this reaction.

b) Write the balanced chemical equation for the reaction.

c) What change was observed in the lime water?

d) Why does the lime water turn milky?

#### Case Study 3:

When electricity is passed through brine (an aqueous solution of  $\text{NaCl}$ ), chlorine gas is given off at the anode, and hydrogen gas is evolved at the cathode. The remaining solution becomes alkaline due to the formation of  $\text{NaOH}$ .

**Questions:** a) What is brine?

b) Name the three main products formed during the electrolysis of brine.

c) Which gas is evolved at the cathode?











**Q4. Assertion(A) :** A rainbow is sometimes seen in the sky in rainy season only when observer's back is Towards the Sun.

**Reason (R) :** Internal reflection in the water droplets cause dispersion and the final rays are in backward direction.

**Q5. Assertion(A) :** Myopia is the defect of the eye in which only nearer objects are seen by the eye.

**Reason (R) :** The eye ball is elongated.

**Q6. Assertion(A):** Hypermetropia is the defect of the eye in which only farther objects are seen.

**Reason (R) :** Hypermetropia is corrected by using converging lens.

**Q7. Assertion(A) :** Sky appears blue in the day time.

**Reason (R) :** White light is composed of seven colours.

**Q8. Assertion(A):** The sky looks dark and black instead of blue in outer space.

**Reason (R) :** No atmosphere containing air in the outer space to scatter sunlight.

**Q9. Assertion(A):** The stars twinkle, while the planets do not.

**Reason (R) :** The stars are much bigger in size than the planets.

## SHORT QUESTIONS

**Q1.** Define the term power of accommodation. Write the modification in the curvature of the eye lens which enables us to see the nearby objects clearly?

**Q2.** Trace the sequence of events which occur when a bright light is focused on your eyes.

**Q3.** State the function of each of the following parts of human eye:

(i) Cornea              (ii) Iris              (iii) Pupil

**Q4.** Draw a ray diagram to show the formation of a rainbow in the sky. Mark on the diagram three points A, B and C as given below:

A - Where dispersion of light occurs

B - Where internal reflection of dispersed light occurs

C - Where refraction of dispersed light

**Q5. (a)** A person is suffering from both myopia and hypermetropia.

**(i)** What kind of lenses can correct this defect?

**(ii)** How are these lenses prepared?



## BIOLOGY

**ALL QUESTIONS ARE COMPULSORY**

## MULTIPLE CHOICE QUESTIONS

**1. In amoeba, food is digested in the:**

- (a) Food vacuole
- (b) Mitochondria
- (c) Pseudopodia
- (d) Chloroplast

**2. The process by which green plants convert carbon dioxide and water into glucose using sunlight is called:**

- (a) Respiration
- (b) Photosynthesis
- (c) Fermentation
- (d) Transpiration

**3. Which organ in the human body is responsible for filtering waste products from the blood and producing urine?**

- (a) Liver
- (b) Lungs
- (c) Kidneys
- (d) Stomach

**4. The breakdown of glucose to release energy in the absence of oxygen is known as:**

- (a) Photosynthesis
- (b) Fermentation
- (c) Transpiration
- (d) Excretion

**5. The process of taking in oxygen and giving out carbon dioxide is known as:**

- (a) Digestion
- (b) Respiration
- (c) Excretion
- (d) Circulation

**6. Which of the following is the primary site of photosynthesis in a plant cell?**

- (a) Mitochondria
- (b) Nucleus
- (c) Chloroplast
- (d) Golgi apparatus

**7. Out of the following choices, select the option that is not a raw material required for photosynthesis:**

- (a) Carbon dioxide





5. Write the chemical equation for aerobic respiration.

### PICTURE BASED QUESTION:

1) Following is a picture of stomata.

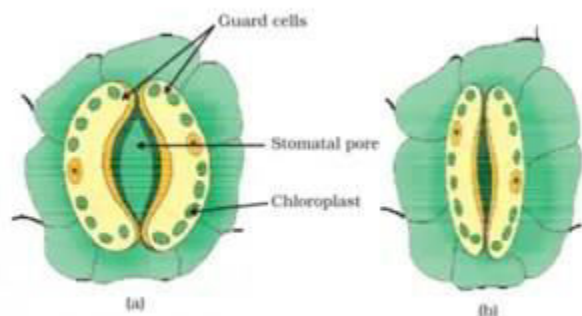


Figure 5.3 (a) Open and (b) closed stomatal pore

- A.) What is the function of stomata, guard cells and chloroplast?
- B.) During which condition does stomata open and close?
- C.) How is the functioning of stomata regulated?
- D.) Why is stomata green in colour?

### PROJECTS 3D MODEL / WORKING MODEL

ROLL NO. – 1-5 – 3D MODEL OF AMOEBA

<https://youtu.be/jlvG0uFAtho?si=AiBaX8Trp6C6fed6>

ROLL NO. – 5-10 – 3D / WORKING MODEL OF DIGESTIVE SYSTEM IN HUMANS

<https://youtube.com/shorts/qtKzK2fu8Sg?si=EhDT2Y-MAq-vTZaz>

<https://youtu.be/Zv5nvY9kuD4?si=FK1yAZS9t7F3MiDn>

ROLL NO. – 11-15 – 3D/WORKING MODEL OF HUMAN CIRCULATION

[https://youtube.com/shorts/vlaXov\\_UXBk?si=uo5HPMUdsJXEMQhW](https://youtube.com/shorts/vlaXov_UXBk?si=uo5HPMUdsJXEMQhW)

<https://youtube.com/shorts/Fxvsej64uD4?si=QHKKhKOmea0cydSD>

<https://youtube.com/shorts/mgLukrmXvdk?si=gHt10J3Hqj0YNYjH>

[https://youtube.com/shorts/8M0sbe\\_vlg?si=MoIPOEY0nQoEEJAK](https://youtube.com/shorts/8M0sbe_vlg?si=MoIPOEY0nQoEEJAK)

ROLL NO. – 16-20 – 3D/WORKING MODEL OF EXCRETORY SYSTEM IN HUMANS

[https://youtube.com/shorts/1\\_7q9xdpOFA?si=TNRryjqpTtDtXoIQ](https://youtube.com/shorts/1_7q9xdpOFA?si=TNRryjqpTtDtXoIQ)

[https://youtube.com/shorts/00d2EbKbvsc?si=qpMaaMdwFwBD0g\\_i](https://youtube.com/shorts/00d2EbKbvsc?si=qpMaaMdwFwBD0g_i)

<https://youtu.be/3vEBHgQ3VcM?si=YVAnv00oZP261FUj>

ROLL NO. – 21-25 – 3D/WORKING MODEL OF PHOTOSYNTHESIS

[https://youtube.com/shorts/TQBy6v-PXiE?si=e2\\_0PYVEOYBgTFPo](https://youtube.com/shorts/TQBy6v-PXiE?si=e2_0PYVEOYBgTFPo)

<https://youtu.be/WpMWyDWfq98?si=WcJUttTefS3r0dBd>

ROLL NO. – 26-32 – 3D WORKING MODEL OF HUMAN RESPIRATORY SYSTEM

<https://youtu.be/zLW45KLaoSA?si=tj-CY29uBpaVwwGp>

<https://youtu.be/3vtQTeF9jhl?si=liB8Qbl3sZbx3kaJ>

<https://youtube.com/shorts/VT4gRlrYxKM?si=xhai0TtaTa8v3iFL>

<https://youtube.com/shorts/vaHFESIfu7Q?si=Td0lazvoi4ujVNwJ>

[https://youtu.be/txFVAotw1SU?si=G4ttOxHKc\\_qTSqJz](https://youtu.be/txFVAotw1SU?si=G4ttOxHKc_qTSqJz)