Please make sure that the printed pages in this question paper are 16 in number and it contains 27 questions.

The Code No. and Set on the right side of the question paper should be written by the candidate on the front page of the answer-book.
Before beginning to answer a question, its Serial Number must be written.

Don’t leave blank page/pages in your answer-book.

Write to the point and do not strike the written answer.

Candidates must write their Roll Number on the question paper.

Before answering the question, ensure that you have been supplied the correct and complete question paper, no claim in this regard, will be entertained after examination.
General Instructions:

(i) सभी प्रश्न अनिवार्य हैं।

All questions are compulsory.

(ii) वस्तुविश्लेष प्रश्नों के सही विकल्प लिखें।

Write the correct option in objective type questions.

(iii) दौरे उत्तर वाले प्रश्नों में आंतरिक विकल्प का प्रावधान है।

Internal choice has been provided in long answer type questions.

(iv) प्रत्येक प्रश्न के अंक उसके सामने दर्शाये गये हैं।

Marks of each question are indicated against it.

SECTION – A

[ Marks : 20

(Physics)

1. आकाश का रंग नीला होता है, प्रकाश के : 1

(A) परावर्तन से

(B) प्रकीर्णन से

(C) विक्षेपण से

(D) अपवर्तन से

4205/(Set : A) P. T. O.
The blue colour of sky is due to:

(A) Reflection of light
(B) Scattering of light
(C) Dispersion of light
(D) Refraction of light

2. Which of the following is not an example of a biomass energy source?

(A) Wood
(B) Gobar gas
(C) Nuclear energy
(D) Coal
3. What type/nature of image is formed by the eye lens at retina?

4. On what factors the resistance of conductor depends?

5. What are the disadvantages of fossil fuel? Explain in brief.

6. How can three resistors of resistance 2 Ω, 3 Ω, and 6 Ω be connected to give a total resistance of 4 Ω?

7. What are the advantages of water stored in the ground?
8. (a) प्रकाश वायू से 1.50 अपवर्तनांक की कॉच की प्लेट में प्रवेश करता है। कॉच में प्रकाश की चाल कितनी है? निर्वात में प्रकाश की चाल $3 \times 10^8$ ms$^{-1}$ है।

Light enters from air to glass having refractive index 1.50. What is the speed of light in glass? The speed of light in vacuum is $3 \times 10^8$ ms$^{-1}$.

(b) कोई वस्तु उत्तर लेंस के मुख्य फोक्स (F) तथा 2 F के मध्य स्थित है। उस वस्तु के प्रतिवेण की स्थिति, साइज तथा प्रकृति का रेखाचित्र बनाइए।

An object is situated at a position in between the main focus (F) and 2 F of a Convex lens. Draw the ray diagram showing the position, size and nature of image formed.

9. नामांकित आरेख खंचकर किसी विद्युत जनित्र का मूल सिद्धांत तथा कार्यविधि स्पष्ट कीजिए। इसमें ब्रश का क्या कार्य है?

Explain the underlying principle and working of an electric generator by drawing a labelled diagram. What is the function of brushes?
4205/(Set : A)

अथवा

OR

(a) प्लेमिंग का बाम-हस्त नियम क्या है ? समझाइए।

What is the Fleming’s Left-Hand Rule ? Explain.

(b) वैद्युत चुंबकीय प्रेरण से आपका क्या अभिप्राय है ? चालक में प्रेरित वैद्युत धारा की दिशा जाती है जिसके निकट फ्लेमिंग के दक्षिण-हस्त नियम का क्या उपयोग है ? समझाइए।

What do you mean by electromagnetic induction ? Explain the use of Fleming's right-hand rule in finding the direction of current induced in the conductor.

खण्ड – ब

SECTION – B

[ Marks : 19

(रसायन विज्ञान)

(Chemistry)

10. निम्न रसायनिक अभिक्रिया में कौन-सा अभिकारक उपचरित हो रहा है ?

\[ CuO + H_2 \rightarrow Cu + H_2O \]

4205/(Set : A)  P. T. O.
Which reactant is Oxidized in the following chemical reaction?

\[ \text{CuO} + H_2 \rightarrow Cu + H_2O \]

11. You have three solutions A, B and C whose pH value is 4, 7 and 10 respectively. Out of above solutions, which solution is acidic?

12. Element \( M \) forms a Chloride with formula \( MCl \). Element \( M \) would be most likely in the same group of Periodic table as:

A. Si  
B. Al  
C. Na  
D. Mg
13. What do you mean by displacement reactions? Give one example (Chemical equation).

14. What is chemical formula of baking soda? Give chemical equation used in its preparation.

15. In modern periodic table how does atomic size vary on moving down top to bottom in a group? Write its reason.

16. (i) What happens when metals are burnt in air? Give one example.
Write short note on electrolytic refining of metals.

17. (i) निम्नलिखित यौगिकों का नामकरण कीजिएः \(1 \times 3 = 3\)
(a) \(CH_3 - Cl\)
(b) \(CH_3 - CH_2 - C - OH\)
(c) \(CH_3 - CH_2 - CH_2 - OH\)

Write the names of following compounds:
(a) \(CH_3 - Cl\)
(b) \(CH_3 - CH_2 - C - OH\)
(c) \(CH_3 - CH_2 - CH_2 - OH\)

(ii) एथेनॉल के निम्नलिखित आयन से किस प्रकार अभिक्रिया करता है?
रासायनिक समीकरण दीजिएः \(1 \times 3 = 3\)
(a) \(Na_2CO_3\)
(b) \(NaOH\)
(c) \(CH_3CH_2OH\) अम्ल की उपस्थिति में
How ethanoic acid react with the following?
Give chemical equation:

(a) \( Na_2CO_3 \)
(b) \( NaOH \)
(c) \( CH_3CH_2OH \) in presence of acid

अथवा

OR

कार्बन यौगिकों के सिम्बलिस्टिक गुणों का उदाहरण सहित वर्णन कीजिए:

(i) ऑक्सीकरण अभिक्रिया
(ii) संकलन अभिक्रिया
(iii) प्रतिस्थापन अभिक्रिया

Explain the following Properties of Carbon compounds with example:

(i) Oxidation reaction
(ii) Addition reaction
(iii) Substitution reaction
18. Which of the following is group of only biodegradable substances?

(A) Plastic, Leather, Wood

(B) Grass, Plastic, Banana Peel

(C) Wood, Grass, Banana Peel

(D) Leather, Glass, Banana Peel
19. The growth of pollen tube towards ovule is an example of:
(A) Geotropism
(B) Chemotropism
(C) Phototropism
(D) Hydrotropism

20. Name the solar radiation from which the surface of earth is shielded by ozone layer.

4205/(Set : A)
21. What is the name of the process of formation of new individual in Amoeba?

22. What is the name of the gland secreting adrenaline hormone?

23. What is function of testis in man?

24. What are unisexual and bisexual flowers? Give examples.

25. What is the function of medulla and cerebellum in human brain?
26. Rounded seeds (dominant trait) were crossed with wrinkled seeds (recessive trait).

(i) What type of seeds will be produced in F<sub>1</sub> generation?

(ii) By self-pollination in F<sub>1</sub> seeds, what percentage of seeds will be rounded shape in F<sub>2</sub> generation?

27. Draw a well labelled diagram of excretory system and explain the process of urine formation in human being.
Describe excretion in plants.
CLASS : 10th (Secondary)  
SCIENCE  
(Physics, Chemistry and Life Science)  
(Academic/Open)  
[ Hindi and English Medium ]  
(Only for Fresh/Re-appear Candidates)  

Time allowed : 3 hours  
Maximum Marks : 60  

• कृपया जाँच कर लें कि इस प्रश्न-पत्र में मुद्रित पुष्ट 16 तथा प्रश्न 27 हैं।

Please make sure that the printed pages in this question paper are 16 in number and it contains 27 questions.

• प्रश्न-पत्र में दाखिले हाथ की ओर दिये गये कोड नम्बर तथा सेट को छात्र उत्तर-पुस्तिका के मुख्य-पुष्ट पर लिखें।

The Code No. and Set on the right side of the question paper should be written by the candidate on the front page of the answer-book.

4205/(Set : B)  
P. T. O.
• krupya prashan ka uttar likhna shuru karnay se phalke, prashan ka krmaak atvaya likhe.

Before beginning to answer a question, its Serial Number must be written.

• uttar-pustika ke beech me khali pannee/ pannen n chode.

Don't leave blank page/pages in your answer-book.

• uttar-pustika ke aatinikta kohei any sheet nahi milenge. aata: aavashyaktaanusar hi likhein aur likha uttar n karte.

Except answer-book, no extra sheet will be given. Write to the point and do not strike the written answer.

• pariksharthi apnaa rolet no prashn-patna par atvaya likhe.

Candidates must write their Roll Number on the question paper.

• krupya prashno ke uttar dehene se purv vah suanishchit kar len ke prashn-patna purv v sahi hai, pariksha ke uparan ta sambandhe me kohei bhi vaha vyakchara nahi kicha jaayega.

Before answering the question, ensure that you have been supplied the correct and complete question paper, no claim in this regard, will be entertained after examination.
General Instructions:

(i) सभी प्रश्न अनिवार्य हैं।
All questions are compulsory.

(ii) वस्तुनिष्ठ प्रश्नों के सही विकल्प लिखें।
Write the correct option in objective type questions.

(iii) दोनों उत्तर वाले प्रश्नों में अंतरिक विकल्प का प्रावधान है।
Internal choice has been provided in long answer type questions.

(iv) प्रत्येक प्रश्न के अंक उसके सामने दशाई गये हैं।
Marks of each question are indicated against it.

खण्ड – अ

SECTION – A

[ Marks : 20

(भौतिक विज्ञान)
(Physics)

1. सूर्योदय के समय सूर्य का रंग लाल किस कारण से दिखाई देता है?
(A) प्रकीर्णन
(B) विक्षेपण
(C) अपवर्तन
(D) परावर्तन

4205/(Set : B)

P. T. O.
Colour of the sun at sunrise is red due to:

(A) Scattering  (B) Dispersion
(C) Refraction  (D) Reflection

2. Which of the following is not an example of biomass energy source?

(A) Wood  
(B) Gobar gas  
(C) Coal  
(D) Nuclear energy

3. What is the function of iris?
4. On what factors does the resistance of conductor depends ?

5. What are the properties of a good source of energy ?

6. An electric motor takes 5.0 A from 220 V line. Determine the power of the motor and energy consumed in 2 hour.

7. अपने पर्यावरण को बचाने के लिए तीन प्रकार के 'R' के विषय में तो अवश्य सुना होगा : 

कम उपयोग (Reduce), पुनः चक्र (Recycle) और पुनः 
उपयोग (Reuse). पुनः उपयोग का वर्णन विस्तार से करें।
You must have come across the three R's to save the environment:

Reduce, Recycle and Reuse. Explain Reuse in detail.

8. (a) An object is placed at the centre of curvature (C) of a concave mirror. Draw the ray diagram to depict the position, size and nature of image formed.

(b) Find the focal length of a lens of power 

\[-2.0 \, \text{D}\] What type of lens in this?
9. Explain the underlying principle and working of an electric generator by drawing a labelled diagram. What is the function of brushes?

अथवा

OR

(a) What is a solenoid? Draw the magnetic lines of force around the current carrying solenoid. Write the use of solenoid.

(b) What is the Fleming's Right-Hand Rule?

Explain.
10. In the chemical reaction given below, which reactant is reduced?

\[ CuO + H_2 \rightarrow Cu + H_2O \]

Which reactant is reduced in the following chemical reaction?

\[ CuO + H_2 \rightarrow Cu + H_2O \]

11. You have three solutions A, B and C, whose pH value is 3, 7 and 9 respectively. Out of above solutions, which solution is basic?
12. Element $M$, $MCl_2$ salt gives a chloride by reaction. In which column of the periodic table would this element $M$ most likely be found in?:

(A) Si  
(B) Al  
(C) Na  
(D) Mg

Element $M$ forms a Chloride with formula $MCl_2$. Element $M$ would be most likely in the same group of the periodic table as:

(A) Si  
(B) Al  
(C) Na  
(D) Mg

13. What do you mean by double displacement reactions? Give an example (chemical equation).
14. विरंजक चूर्ण का रासायनिक सूत्र क्या है ? इसकी निर्माण विधि का रासायनिक समीकरण दीजिए।

What is chemical formula of bleaching powder?
Give chemical equation used in its preparation.

15. आधुनिक आवर्त सारणी के आवर्त में बायीं से दायीं ओर जाने पर धातिक गुण किस प्रकार परिवर्तित होता है ? कारण लिखिए।

In modern periodic table, how does the metallic character vary in a period on moving from left to right in a period ? Write its reason.

16. (i) धातुओं के अंत तक अभिक्रिया करने से क्या होता है ?
एक उदाहरण दीजिए।

What happens when metals react with acids ? Give one example.

(ii) सक्रियता श्रेणी का उदाहरण सहित वर्णन कीजिए।

Explain the reactivity series with example.
17. (i) Write the names of following compounds:

(a) \[ CH_3 - C - OH \]
(b) \[ CH_3 - CH_2 - Cl \]
(c) \[ CH_3 - CH_2 - OH \]

(ii) What is homologous series? Explain with example.

अथवा

OR

साबुन की सफाई प्रक्रिया की क्रियाविधि का वर्णन कीजिए।

Explain the mechanism of cleaning action of soap.
18. Which of the following is a group of only non-biodegradable substances?

(A) Aluminium, Plastic, Leaves

(B) Plastic, Grass, Wood

(C) Aluminium Can, Plastic, Glass Bottle

(D) Leaves, Grass, Plastic
19. Wilting of leaves in plants is due to effect of which of the following?
(A) Cytokinin
(B) Auxin
(C) Gibberellin
(D) Abscissic Acid

20. Which synthetic chemical is responsible for depletion of ozone layer?

21. What is Regeneration?
22. Iodine is necessary for the synthesis of which hormone?

23. What is the function of ovary in human beings?

24. What is vegetative propagation? How is it useful?

25. What is reflex arc? What is the function of sensory neuron in reflex arc?

26. As per Mendel’s Law, describe the independent assortment of two separate traits (rounded and green seeds) with (wrinkled and yellow seeds) along with diagram.
27. (i) By which part of plant translocation of food takes place? Where is the food translocated?

(ii) Explain the process of translocation of food in plants.

OR

(i) How does transport of oxygen and carbon dioxide takes place in human beings? Describe in detail.
(ii) श्वसन के लिए ऑक्सीजन प्राप्त करने की दिशा में जलीय जीवों की अपेक्षा अधिकांश जीव अपने लाभ प्रदान हैं?

Why terrestrial organisms have advantage over aquatic organisms with regard to obtaining oxygen for respiration?
विज्ञान

SCIENCE

(Physics, Chemistry and Life Science)

(Academic/Open)

[ हिन्दी एवं अंग्रेजी माध्यम ]

[ Hindi and English Medium ]

(Only for Fresh/Re-appear Candidates)

Time allowed: 3 hours [ Maximum Marks: 60 ]

• कृपया जाँच कर लें कि इस प्रश्न-पत्र में मुद्रित पृष्ठ 16 तथा प्रश्न 27 है।

Please make sure that the printed pages in this question paper are 16 in number and it contains 27 questions.

• प्रश्न-पत्र में दाहिने हाथ की ओर लिखे गए कोड नब्बर तथा सेट को छात्र उत्तर-पुस्तिका के मुख्य-पृष्ठ पर लिखें।

The Code No. and Set on the right side of the question paper should be written by the candidate on the front page of the answer-book.

4205/(Set : C)

P. T. O.
(2) 4205/(Set : C)

• कृपया प्रश्न का उत्तर लिखना शुरू करने से पहले, प्रश्न का क्रमांक अवश्य लिखें।

Before beginning to answer a question, its Serial Number must be written.

• उत्तर-पुस्तिका के बीच में खाली पन्ना/ पन्ने न छोड़ें।

Don’t leave blank page/pages in your answer-book.

• उत्तर-पुस्तिका के अंतरिक्ष कोई अन्य शीट नहीं मिलेगी। अतः आवश्यकतानुसार ही लिखें और लिखा उत्तर न काटें।

Except answer-book, no extra sheet will be given. Write to the point and do not strike the written answer.

• परीक्षार्थी अपना रोल नं. प्रश्न-पत्र पर अवश्य लिखें।

Candidates must write their Roll Number on the question paper.

• कृपया प्रश्नों के उत्तर देने से पूर्व वह सुनिश्चित कर लें कि प्रश्न-पत्र पूर्ण व सही है; परीक्षा के उपरान्त इस सम्बन्ध में कोई भी बात स्वीकार नहीं किया जायेगा।

Before answering the question, ensure that you have been supplied the correct and complete question paper, no claim in this regard, will be entertained after examination.

4205/(Set : C)
General Instructions:

(i) All questions are compulsory.

(ii) Write the correct option in objective type questions.

(iii) Internal choice has been provided in long answer type questions.

(iv) Marks of each question are indicated against it.

SECTION – A

[ Marks : 20 ]

(Physics)

1. मानव नेत्र जिस भाग पर किसी वस्तु का प्रतिबिंब बनाते हैं, वह है : 1
   
   (A) कौंरिया  
   (B) दृष्टिपट्टल
   
   (C) परितारिका  
   (D) पुतली
The human eye forms the image of an object at its:

(A) Cornea  (B) Retina  
(C) Iris  (D) Pupil

2. Which of the following gas is found maximum in biogas?

(A) Methane  
(B) Carbon dioxide  
(C) Hydrogen sulphide  
(D) Hydrogen

4205/(Set : C)
3. Which phenomenon of light is responsible for twinkling of stars?

4. Why are coils of an electric toaster and electric irons made of an alloy rather than a pure metal?

5. What are the disadvantages of fossil fuel? Explain in brief.

6. Show how you would connect three resistors, each of resistance $6 \, \Omega$. So that the combination has a resistance of $4 \, \Omega$. 

P. T. O.
7. How the constructions of large dams cause social and environmental problems?

8. (a) What is the power of a lens? Define one Diopter (1D) power of a lens.

(b) An object is placed between the main focus (F) and the optical centre (O) of a convex lens. Draw a ray diagram showing the position, size and nature of the image formed.
9. Describe an electric motor. Explain its principle and working. What is the function of a split ring in a motor?

OR

(a) Explain the concept of earthing? Why should electrical appliances be earthed?

(b) Explain the concept of a solenoid? Draw the magnetic field around a current carrying solenoid. Write down the use of a solenoid.
10. Which reactant is oxidized in the following chemical reaction?

\[ \text{ZnO} + \text{CO} \rightarrow \text{Zn} + \text{CO} \]

Which reactant is oxidized in the following chemical reaction?

\[ \text{ZnO} + \text{C} \rightarrow \text{Zn} + \text{CO} \]

11. You have three solutions A, B and C whose pH value is 2, 7 and 11 respectively. Out of above solutions, which solution is neutral?
12. तत्व $M$, $MCl_4$ सूत्र वाला एक क्लोराइड बनाता है। आर्क्टिक सारणी में यह तत्व $M$ संभवतः किस समूह के अंतर्गत होगा?

(A) Si  
(B) Al  
(C) Na  
(D) Mg

Element $M$ forms a Chloride with formula $MCl_4$. Element $M$ would be most likely in the same group of periodic table as:

(A) Si  
(B) Al  
(C) Na  
(D) Mg

13. संयोजन अभिक्रियाओं से आप क्या समझते हैं? एक उदाहरण (रासायनिक समीकरण) दीजिए।

What do you mean by combination reactions? Give one example (chemical equation).

14. बोने का सोडा का रासायनिक सूत्र क्या है? इसकी निर्माण विधि का रासायनिक समीकरण दीजिए।

What is the chemical formula of washing soda? Give chemical equation used in its preparation.
15. In modern periodic table, how does metallic character vary on moving down top to bottom in a group? Write its reasons.

16. (i) What happens when metals react with water? Give one example.

(ii) What is thermit process? Give chemical equation of this process.

17. (i) \(1 \times 3 = 3\)

(a) \(CH_3 - CH = CH_2\)

(b) \(CH_3 - CH_2 - Br\)

(c) \(CH_3 - CH_2 - C\equiv H\)
Write the names of following compounds:

(a) $CH_3 - CH = CH_2$
(b) $CH_3 - CH_2 - Br$
(c) $CH_3 - CH_2 - O - H$

(ii) How ethanol reacts with the following?
Give chemical reactions.

(a) अम्लीकृत पोटेशियम डाइक्रोमेट
Acidified potassium dichromate

(b) गर्म साँद्र $H_2SO_4$
Hot concentrated $H_2SO_4$

(c) सोडियम (Na)
Sodium (Na)

OR

Explain in detail the nomenclature of Carbon compounds.

4205/(Set : C) P. T. O.
SECTION – C  
(Marks : 21  
(Life Science)

18. The organisms which make organic compounds from inorganic substances using energy of sun and in the presence of chlorophyll are called:

(A) Decomposers  
(B) Producers  
(C) Herbivores  
(D) Carnivores
19. ‘लाल आना’ कौन-सी क्रिया है?
   (A) ऐच्छिक
   (B) अनैच्छिक
   (C) प्रतिबंध
   (D) प्रतिबंध एवं अनैच्छिक दोनों

'Salivation' is a type of process:
   (A) Voluntary
   (B) Involuntary
   (C) Reflex Action
   (D) Reflex Action and Involuntary Both

20. एक स्थलीय पारिस्थितिक में हरे पौधों, प्राप्त और कारण का कितना प्रतिशत खाद्य ऊर्जा में परिवर्तित करते हैं?

What percentage of solar energy captured by green plants is converted into food energy in a terrestrial ecosystem?
21. Which organism divides into many daughter cells through multiple fission?

22. Name the hormone responsible for limiting the sugar level in blood in human beings.

23. Write those changes of puberty that are common to girls and boys.

24. What is difference between pollination and fertilization?
25. Explain the process of response to touch in sensitive plant.

26. What are different ways in which individuals with a particular trait may increase in population?

27. What part of plant transports water? Explain the movement of water and minerals in plants.

अथवा

OR

(i) What is difference between lymph and blood?
Explain the process of double circulation with the help of schematic representation of oxygen and carbon dioxide transport in human beings.
विज्ञान

SCIENCE

(Physics, Chemistry and Life Science)
(Academic/Open)
[ हिन्दी एवं अंग्रेजी माध्यम ]
[ Hindi and English Medium ]
(Only for Fresh/Re-appear Candidates)

तारीख़: 3 घंटे ] [ पूर्णांक: 60
Time allowed: 3 hours ] [ Maximum Marks: 60

• कृपया जाँच करें कि इस प्रश्न-पत्र में मुद्रित प्रश्न 16 तथा प्रश्न 27 हैं।

Please make sure that the printed pages in this question paper are 16 in number and it contains 27 questions.

• प्रश्न-पत्र में दाहिने हाथ की ओर बिचे गये कोड नंबर तथा सेट को छात्र उत्तर-पुस्तिका के मुख्य-पुष्ठ पर लिखें।

The Code No. and Set on the right side of the question paper should be written by the candidate on the front page of the answer-book.

4205/(Set : D) 

P. T. O.
Before beginning to answer a question, its Serial Number must be written.

Don’t leave blank page/pages in your answer-book.

Write to the point and do not strike the written answer.

Candidates must write their Roll Number on the question paper.

Before answering the question, ensure that you have been supplied the correct and complete question paper, no claim in this regard, will be entertained after examination.
General Instructions:

(i) सभी प्रश्न आवश्यक हैं।

All questions are compulsory.

(ii) वस्तुविश्लेष प्रश्नों के सही विकल्प लिखें।

Write the correct option in objective type questions.

(iii) दौरे उत्तर दाले प्रश्नों में आंतरिक विकल्प का प्रावधान है।

Internal choice has been provided in long answer type questions.

(iv) प्रत्येक प्रश्न के अंक उसके सामने दशायी गये हैं।

Marks of each question are indicated against it.

क्षेत्र – अ

SECTION – A

(_marks : 20)

(Physics)

1. अधिम सूर्योदय तथा विलंबित सूर्यास्त का मुख्य कारण है, प्रकाश का : 

(A) परवर्तन

(B) अपवर्तन

(C) विचलन

(D) प्रकीर्णन

4205/(Set : D) P. T. O.
The main reason behind the advanced sunrise and delayed sunset is ............... of light.

(A) Reflection
(B) Refraction
(C) Deviation
(D) Scattering

2. Which of the following is not an example of biomass energy source?

(A) Wood
(B) Gobar gas
(C) Nuclear energy
(D) Coal
3. The prism split the incident white light into a band of colours. Write these colours name in sequence.

4. On what factors, the resistance of a conductor depends?

5. What are the properties of a good source of energy?

6. How can three resistors of resistances $2\,\Omega$, $3\,\Omega$ and $6\,\Omega$ be connected to give a total resistance of $1\,\Omega$?
7. आपने पर्यावरण को बचाने के लिये तीन प्रकार के ‘R’ के विषय में
तो अवश्य सुना होगा : 2

कम उपयोग (Reduce), पुन: चक्रण (Recycle) और पुन: उपयोग (Reuse)। कम उपयोग का विस्तार से वर्णन करें।

You must have come across the three R's to save the environment :

Reduce, Recycle and Reuse. Explain Reduce in detail.

8. (a) कोई वस्तु अवलंब दर्पण के बिंदु केंद्र (C) तथा फोकस (F)
के मध्य स्थित है। उस वस्तु के प्रतिबिंब की स्थिति, साइज
तथा प्रकृति का चित्र बनाए। 2

An object is situated between the centre of
curvature (C) and focus (F) of a concave
mirror. Draw a ray diagram of the position,
size and nature of image.

4205/(Set : D)
(7) 4205/(Set : D)

(b) Find the focal length of a lens of power
–2.0 D. What type of lens is this?

9. Explain the underlying principle and working of
an electric generator by drawing a labelled
diagram. What are the advantages of ac over
dc?

अथवा

OR

(a) What do you mean by earthing? Why
should the electrical appliances be
earthed?
(8) 4205/(Set : D)

(b) What do you mean by a solenoid? Draw the magnetic field lines around a current carrying solenoid. Write down the use of a solenoid.

What do you mean by a solenoid? Draw the magnetic field lines around a current carrying solenoid. Write down the use of a solenoid.

SECTION – B

(Chemistry)

10. Which reactant is reduced in the following chemical reaction?

\[ \text{ZnO} + \text{C} \rightarrow \text{Zn} + \text{CO} \]

Which reactant is reduced in the following chemical reaction?

\[ \text{ZnO} + \text{C} \rightarrow \text{Zn} + \text{CO} \]
11. You have three solutions A, B and C, whose pH value is 3, 7 and 9 respectively. Out of above solutions, which solution is acidic?

12. Element \( M \) forms a chloride with formula \( MCl_3 \). Element \( M \) would be most likely in the same group of periodic table as:

(A) Si  
(B) Al  
(C) Na  
(D) Mg
13. What do you mean by decomposition reactions? Give one example (chemical equation).

14. What is Chlor-alkali process? Give chemical reaction for the process.

15. In modern periodic table, how does the atomic size vary in a period on moving from left to right? Write its reason.

16. What happens when water soluble metal oxides are dissolved in water? Give one example.
(11) 4205/(Set : D)

(ii) आयनिक यौगिकों का गलनांक उच्च क्यों होता है ?  

Why do ionic compounds have high melting point ?

17. (i) निम्न यौगिकों का नामकरण कीजिए :  

(a) $CH_3 - C \equiv CH$
(b) $CH_3 - OH$
(c) $CH_3 - C - CH_3$

Write the names of following compounds :

(a) $CH_3 - C \equiv CH$
(b) $CH_3 - OH$
(c) $CH_3 - C - CH_3$

(ii) पेंटेन ($C_5H_{12}$) के सभी संरचनात्मक समावयों का विवरण कीजिए।

Draw all the structural isomers of pentane ($C_5H_{12}$).

4205/(Set : D)  

P. T. O.
Explain the following processes with help of chemical reactions:

(i) Esterification

(ii) Saponification

(iii) Hydrogenation

SECTION – C

SECTION – C [ Marks : 21

(Life Science)

18. वे जीव जो जटिल कार्बनिक पदार्थों को सरल अकार्बनिक पदार्थों में बदल कर मिठी में मिला देते हैं : 1

(A) उत्पादक (B) अपमार्जक

(C) शाकाहारी (D) मांसाहारी
The organisms which break down complex organic substances into simple inorganic substances and mix them in the soil:

(A) Producers (B) Decomposers
(C) Herbivores (D) Carnivores

19. तंत्रिका कोशिका का कौन-सा भाग झांचनियों से सूचना को उपार्जित करता है?

(A) कोशिका काय
(B) द्वंद्विका
(C) तंत्रिकास्त
(D) तंत्रिका का अंतिम सिरा

Which part of neuron acquires information from sensory organs?

(A) Cell body
(B) Dendrite
(C) Axon
(D) Nerve ending
20. In how many directions the energy flows in any ecosystem?  

21. Growth of facial hair and deepening of voice are symptoms of puberty in boys. Which hormone is responsible for it?  

22. In a flower, pollen tube enters through pistil into ovule. Name that part of pistil.  

23. What is difference between binary fission and multiple fission? Explain with example.  

24. What are different contraceptive methods? How are they important for reproductive health?
25. How are brain and spinal cord protected in human body?

26. A blue coloured flowering plant (BB) was crossed with white coloured flowering plant (bb).

(i) What will be the colour of flowers in $F_1$ generation?

(ii) What percentage of white flowered plants will be in $F_2$ generation through self-pollination of $F_1$ plants.

27. What is autotrophic nutrition? Explain the process of photosynthesis in plants.
What is heterotrophic nutrition? Explain the process of nutrition in Amoeba with diagram.