



Test for Scientific Taste : 2024

SET-A

Conducted by :

Organisation for the Cultivation of Science, EgraClass - III * Full Marks - 60 * Time - 1 $\frac{1}{2}$ hours

Marks obtained :	<input type="text"/>	NAME _____														
Sicence (30) -	<input type="text"/>	(In Block letters)														
Mathematics (20) -	<input type="text"/>	Institution _____														
ENVS / GK / MAT (10) -	<input type="text"/>	Roll No. <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="text-align: center;">1</td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="text-align: center;">III</td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> </tr> <tr> <td colspan="3" style="text-align: center;">Centre Code</td> <td style="text-align: center;">Class</td> <td colspan="3" style="text-align: center;">No.</td> </tr> </table>	1			III				Centre Code			Class	No.		
1			III													
Centre Code			Class	No.												
Total (60) -	<input type="text"/>	Verified by _____ Signature of invigilator _____														

General Instructions

1. Choose the correct answer and put mark inside the appropriate box. If you think that you have put mark in wrong answer, fill it (e.g.) and choose the right from other three. But take the chance once for one question.
2. **Each question carries 2 marks.**
3. No marks will be deducted for wrong answers. Calculator is not allowed.
4. Use back side of question paper or separate sheet to sum the mathematical problems if necessary.

Science

1. Identify the correct pair - 1. a) b) c) d)

(a) Grasshopper : Spiracles (b) Fish : Nose
(c) Earthworm : Gills (d) Dog : Moist Skin
2. A normal adult person breathes about _____ times in a minute. 2. a) b) c) d)

(a) 12 to 15 (b) 12 to 20 (c) 10 to 15 (d) 20 to 30
3. Which of the following organs does not help in digestion ? 3. a) b) c) d)

(a) Stomach (b) Kidney (c) Liver (d) Intenstine
4. Waggle dance performed by - 4. a) b) c) d)

(a) Honey bees (b) Ladybird bittle (c) Silkmoth
(d) Butterflies
5. Find odd one out : (i) Silver fish (ii) Termite (iii) Mosquito 5. a) b) c) d)
(iv) Ant
(a) (i) (b) (iii) (c) (iv) (d) (ii)
6. The life cycle of a butterfly has various stages. Stages are 6. a) b) c) d)
jumbled here. (A) PUPA (B) ADULT BUTTEFLY
(C) CATER PILLAR (D) EGG Rearrange the stages in
correct way as -
(a) D, C, A, B (b) C, D, A, B (c) A, B, C, D (d) D, B, A, C

7. Which one is not in same group ? 7. a) b) c) d)
 (i) Grass (ii) Pumpkin (iii) Mint (iv) Paddy
 (a) (ii) (b) (i) (c) (iii) (d) (iv)
8. Which of one stores extra food in their leaves ? 8. a) b) c) d)
 (a) Radish (b) Carrot (c) Onion (d) Spinach
9. Store food for the baby plant 9. a) b) c) d)
 (a) Seed Coat (b) Cotyledons (c) both (a) & (b)
 (d) Plumule
10. Which of the following plants has a fibrous root ? 10. a) b) c) d)
 (a) Mango Tree (b) Neem Tree (c) Tulsi Plant
 (d) Onion Plant
11. Sweet Potato is edible - 11. a) b) c) d)
 (a) Stem (b) Fruit (c) Root (d) Bud
12. Sponge changes its shape when it is squeezed. It is a – 12. a) b) c) d)
 (a) Solid (b) Liquid (c) Gel (d) Semi-Solid
13. Which of these soluble in water ? 13. a) b) c) d)
 (a) Chalk Powder (b) Termuric Powder (c) Glycerin
 (d) Peeper Powder
14. Which one is water borne disease ? 14. a) b) c) d)
 (a) Measles (b) Corona (c) Typhoid (d) TB
15. Unscramble the letters given in the box to get the name of gas 15. a) b) c) d)
 that is filled in the tyres of many vehicles. [IRGNONTE]
 Now select the property of gas which is responsible for it.
 (a) It can be compressed (b) It has fixed shape
 (c) It has fixed mass & volume (d) It has fixed weight

Mathematics

1. The face value of digit '9' in the number 9025 is - 1. a) b) c) d)
 (a) 9000 (b) 900 (c) 90 (d) 9
2. The expanded form of the number 3052 is - 2. a) b) c) d)
 (a) $3000 + 0 + 50 + 2$ (b) $300 + 50 + 2$ (c) $3 + 0 + 5 + 2$
 (d) $3000 + 500 + 2$
3. What is 2358 rounded to the nearest 100 ? 3. a) b) c) d)
 (a) 2300 (b) 2350 (c) 2400 (d) 2450
4. The difference between the smallest 4-digit number and the 4. a) b) c) d)
 greatest 4-digit number is -
 (a) 9899 (b) 9989 (c) 8990 (d) 8999

5. Multiplication fact of $437 \div 19 = 23$ is
 (a) $437 \times 19 = 23$ (b) $23 \times 437 = 19$ (c) $23 \times 19 = 437$
 (d) None of these
6. Which of the following 3D shapes has 12 edges ?
 (a) Cylinder (b) Cone (c) Cube (d) Hemi sphere
7. How many 'mL' are there in IL ?
 (a) 10 (b) 100 (c) 1000 (d) 10,000
8. Geeta earned ₹ 79 everyday during July. How much momey did she earn in the whole month ?
 (a) ₹ 2549 (b) ₹ 2449 (c) ₹ 2459 (d) ₹ 2494
9. The time 3 hours after 10 : 30 am is -
 (a) 13 : 30 am (b) 1 : 30 pm (c) 13 : 30 pm (d) 2 : 30 pm
10. A line that divides an object or a shape into two identical halves is called a -
 (a) horizontal line (b) vertical line (c) dotted line
 (d) line of symmetry

5. a) b) c) d)

6. a) b) c) d)

7. a) b) c) d)

8. a) b) c) d)

9. a) b) c) d)

10. a) b) c) d)

ENVS / GK / MAT

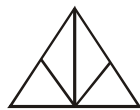
1. We can measure the temperature of human body by -
 (a) Clinical thermometer (b) Alcohol thermometer
 (c) Micrometer (d) Manometer
2. Vaccine for Tuberculosis is -
 (a) CBG (b) BCG (c) GBC (d) GCB
3. The gas which increases the atmospheric temperature is -
 (a) Nitrogen (b) Carbon-di-oxide (c) Oxygen
 (d) Hydrogen
4. From the given figure, find out the number of triangles -

1. a) b) c) d)

2. a) b) c) d)

3. a) b) c) d)

4. a) b) c) d)



(a) 7 (b) 9 (c) 10 (d) 11

5. If 'CLEAN' is coded as '3-12-5-1-14' then 'DIRTY' is coded in the same way as -
 (a) 14-1-5-12-3 (b) 4-9-18-20-25 (c) 4-18-20-25-9
 (d) 4-9-20-18-25

5. a) b) c) d)



Test for Scientific Taste : 2024

SET-A

Conducted by :

Organisation for the Cultivation of Science, Egra

Class - IV * Full Marks - 60 * Time - 1 $\frac{1}{2}$ hours

Marks obtained :	<input type="text"/>	NAME _____														
Sicence (30) -	<input type="text"/>	(In Block letters)														
Mathematics (20) -	<input type="text"/>	Institution _____														
ENVS / GK / MAT (10) -	<input type="text"/>	Roll No. <table border="1"><tr><td>1</td><td></td><td></td><td>IV</td><td></td><td></td><td></td></tr><tr><td colspan="3">Centre Code</td><td>Class</td><td colspan="3">No.</td></tr></table>	1			IV				Centre Code			Class	No.		
1			IV													
Centre Code			Class	No.												
Total (60) -	<input type="text"/>	Verified by _____ Signature of invigilator _____														

General Instructions

1. Choose the correct answer and put mark inside the appropriate box. If you think that you have put mark in wrong answer, fill it (e.g.) and choose the right from other three. But take the chance once for one question.
2. **Each question carries 2 marks.**
3. No marks will be deducted for wrong answers. Calculator is not allowed.
4. Use back side of question paper or separate sheet to sum the mathematical problems if necessary.

Science

1. Which one is not found in milk teeth of a baby ?
(a) Pre molar (b) Canine (c) Incisor (d) Molar
1. a) b) c) d)
2. The hardest known substance in our body is -
(a) Dentine (b) Femur (c) Enamel (d) Steps
2. a) b) c) d)
3. Study the given relationship based on organ and its excretory product. Select the option that satisfies as SKIN : SWEAT
(a) LUNGS : OXYGEN (b) KIDNEY : URINE
(c) LIVER : CARBON-DI-OXIDE (d) STOMACH : FAECES
3. a) b) c) d)
4. Arrange the letters given below in a meaningful word and identify the category of the word. **REBTUT**
(a) Vitamin (b) Protein (c) Fat (d) Roughage
4. a) b) c) d)
5. Read the given statements and identify the in correct statement.
(a) Raw carrot and radish are good for health
(b) There are eight molars in our mouth
(c) Enamel protects our teeth from wear and tear of chewing
(d) Pre-molars are used to chew or crush the food.
5. a) b) c) d)

6. 'Blubber' is found under the skin of - 6. a) b) c) d)
 (a) Whales (b) Camels (c) Leopard (d) Salamander
7. 'Flippers' is found in - 7. a) b) c) d)
 (a) Fish (b) Turtle (c) Frog (d) Salamander
8. Priya and her parents went Mandarmoni sea beach during summer vacation. Priya found so many red crabs at the sea beach. Now which of the following animals shows the habitat similar to red crab. 8. a) b) c) d)
 (a) Frog (b) Monkey (c) Turtle (d) Salamander
9. Breathing roots found in - 9. a) b) c) d)
 (a) Water hyacinth (b) Lotus (c) Betel nut tree
 (d) Sundari
10. Which one of the following is insectivorous plant ? 10. a) b) c) d)
 (a) Drosera (b) Indian pipe (c) Hental (d) Hydrilla
11. Starch gives blue-black colour with _____ solution. 11. a) b) c) d)
 (a) Bromine (b) Chlorine (c) Iodine (d) Sodium Chloride
12. The gas that helps in maintaing the temperature of the Earth is- 12. a) b) c) d)
 (a) Oxygen (b) Carbon di oxide (c) Neon (d) Nitrogen
13. The gas found in air insoluble in water is - 13. a) b) c) d)
 (a) Nitrogen (b) Carbon dioxide (c) Oxygen
 (d) Oxides of sulphur
14. Select the option that on unscrambling gives the name of a substance that can be separated by the separation method shown beside. 14. a) b) c) d)

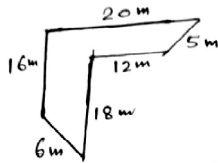


- (a) AGSRU (b) TWSDSUA (c) EHYON (d) ECFOEF
15. Which of the following is a non-contact force ? 15. a) b) c) d)
 (a) Friction (b) Mascular force (c) Tension (d) Gravitional

Mathematics

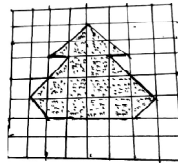
1. The sum of place value and face value of digit '7' in the number 179623 is - 1. a) b) c) d)
 (a) 7007 (b) 70007 (c) 707 (d) 77
2. The difference of two numbers is 27,395. If the smaller number is 32683 then greater number is - 2. a) b) c) d)
 (a) 60,078 (b) 60708 (c) 67008 (d) 60087

3. Form the smallest and the greatest 6-digit number using in the given digits if the digits can not be repeated and then find their difference. The digits are 3, 0, 9, 8, 1, 6 -
 (a) 882621 (b) 868221 (c) 886221 (d) 882261
4. $416 \div 13 \times 45 - 240 + 1800 = ?$
 (a) 2950 (b) 2990 (c) 2980 (d) 3000
5. Geeta wants to pack 31254 sweets equally in small packets. How many sweets should she pack in each packet, so that no sweet is left ?
 (a) 8 (b) 6 (c) 3 (d) both (b) & (c)
6. Ayushman walks a distance of 59 km 397 m in 13 days. If he walks the same distance everyday, find the distance covered by him in one day.
 (a) 4 km 956 m (b) 4 km 569 m (c) 4 km 659 m (d) 4 km 596 m
7. Hardik took leave of 15 days for her sister's marriage. If he joined the office on 8th December, then the last working day of Hardik before leave is - (a) 25th November (b) 26th November (c) 22nd November (d) 23rd November
8. The perimeter of the adjoining figure is -



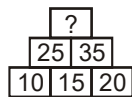
- (a) 77 m (b) 75 m (c) 87 m (d) 67 m

9. Find the area of the shaded region, if each small square = 1 cm^2



- (a) 20 cm^2 (b) 19 cm^2 (c) 18 cm^2 (d) 17 cm^2

10. Find the missing number in the following number tower ?



- (a) 70 (b) 65 (c) 60 (d) 55

ENVS / GK / MAT

1. In which district of West Bengal Santaldih Thermal Power Project is located ?
 (a) Hoogly (b) Birbhum (c) Purulia (d) Murshidabad

2. Which pair is incorrect ? 2. a) b) c) d)
(a) Joyrambati - Bankura (b) Chilkigar Rajbari - Jhargram
(c) Tajpur - West Midnapure (d) Joychandi pahar - Purulia
3. National Space Science Day is celebrated in the month of - 3. a) b) c) d)
(a) August (b) September (c) June (d) February
4. Who has written the book 'Wings of Fire' ? 4. a) b) c) d)
(a) S. N. Bose (b) A.P.J. Kalam (c) A.P.C. Roy (d) J.C. Bose
5. If 'NATION' is coded with 14-1-20-9-15-14, then the word 5. a) b) c) d)
'ACTION' will be coded as -
(a) 1-3-20-9-15-14 (b) 1-3-9-14-15-20
(c) 1-3-9-15-20-14 (d) 1-14-20-15-9-3

Space for Rough



Test for Scientific Taste : 2024

SET-A

Conducted by :

Organisation for the Cultivation of Science, EgraClass - V * Full Marks - 60 * Time - 1 $\frac{1}{2}$ hours

Marks obtained :	<input type="text"/>	NAME _____														
Sicence (30) -	<input type="text"/>	(In Block letters)														
Mathematics (20) -	<input type="text"/>	Institution _____														
ENVS / GK / MAT (10) -	<input type="text"/>	Roll No. <table border="1"><tr><td>1</td><td></td><td></td><td>V</td><td></td><td></td><td></td></tr><tr><td colspan="3">Centre Code</td><td>Class</td><td colspan="3">No.</td></tr></table>	1			V				Centre Code			Class	No.		
1			V													
Centre Code			Class	No.												
Total (60) -	<input type="text"/>	Verified by _____ Signature of invigilator _____														

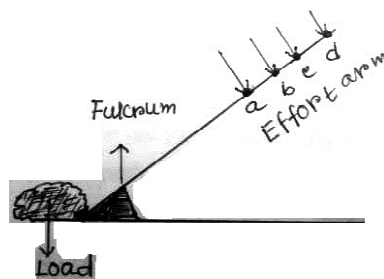
General Instructions

1. Choose the correct answer and put mark inside the appropriate box. If you think that you have put mark in wrong answer, fill it (e.g.) and choose the right from other three. But take the chance once for one question.
2. **Each question carries 2 marks.**
3. No marks will be deducted for wrong answers. Calculator is not allowed.
4. Use back side of question paper or separate sheet to sum the mathematical problems if necessary.

Science

1. Rohon, a student of class 5, has bleeding gums and wobbly teeth. He complains about swelling and pain in his joints. Select the disease Rohon is suffering from and its cause ?
(a) Scurvey, deficiency of Vitamin C (b) Anaemia, deficiency of iron (c) Night blindness, deficiency of Vitamin A (d) Goitre, deficiency of iodine
1. a) b) c) d)
2. Which one of the following is different than others ?
(a) Obesity (b) Diabetes (c) Kwashiorkar (d) Hypertension
2. a) b) c) d)
3. The standard heart beat rate in a minute for a healthy adult person is
(a) 62 - 65 times (b) 65 - 70 times (c) 60 - 69 times (d) 72 - 80 times
3. a) b) c) d)
4. Which of the following carries oxygen riched blood ?
(a) Pulmonary artery (b) Pulmonary Vein (c) inferior vena-cava (d) both (a) & (b)
4. a) b) c) d)
5. The joint found in our hip is -
(a) Hinge joint (b) Pivot joint (c) Sliding joint (d) Ball and socket
5. a) b) c) d)

6. The function of nectar in flower is - 6. a) b) c) d)
 (a) to make perfumes (b) to be food to the insects (c) to provide food to the flower (d) to help insects to disperse seeds.
7. Identify the incorrect pair : 7. a) b) c) d)
 (a) Turnip → Reproduces by root (b) Rose → Reproduces by stem cutting (c) Begonia → Reproduces by leaf (d) Ginger → Reproduces by spores.
8. Choose the correct steps for the separation of mixture of mud and water – 8. a) b) c) d)
 (a) Sedimentation → decantation → filtration
 (b) Sedimentation → filtration → decantation
 (c) Boiling → sedimentation → filtration
 (d) Sedimentation → decantation → Boiling
9. Which of the following helps in keeping the environment clean? 9. a) b) c) d)
 (a) Producers (b) Scavengers (c) Decomposers
 (d) both (b) & (c)
10. Which of the following is used to study the depth of water ? 10. a) b) c) d)
 (a) SONAR (b) RANOS (c) RADAR (d) MASER
11. Which of the following is an example of non-renewable energy? 11. a) b) c) d)
 (a) Wind energy (b) Nuclear energy (c) Hydro energy
 (d) Solar energy
12. Study the given figure and identify correct option – 12. a) b) c) d)








- (a) It will be easiest to lift the object when the force is applied at 'd' (b) It will be toughest to lift the object when the force is applied at fulcrum (c) It will be easiest to lift the object when the force is applied at 'a' (d) both (a) & (b) are correct.
13. The branch of science that deals with the study of sound is known as – 13. a) b) c) d)
 (a) acoustics (b) optics (c) kinematics (d) harmonics

14. To find the correct path in night, bats release –
 (a) Infrasonic sound (b) audible sound (c) ultrasonic sound
 (d) sonic sound
15. Highly compressible substance is –
 (a) diamond (b) sponge (c) talcompowder (d) oxygen

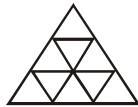
Mathematics

1. The Hindu - Arabic numeral for MMDCCLXVII is -
 (a) 2767 (b) 2667 (c) 2777 (d) 2687
2. The sum of two numbers is 384 and their H.C.F is 48. The numbers are –
 (a) 336, 48 (b) 240, 144 (c) both (a) & (b) (d) 288, 96
3. Saumya spent $\frac{1}{4}$ of his monthly salary on food, $\frac{1}{5}$ on education and $\frac{1}{10}$ on medicines. After that he deposits ₹ 5,600 to bank EMI and his cash in hand left ₹ 2500 only. What's the salary of Saumya ?
 (a) ₹ 10,800 (b) ₹ 18,000 (c) ₹ 81,000 (d) ₹ 80,100
4. $200 + 20 + 2 + \frac{2}{10} + \frac{2}{100} + \frac{2}{1000}$ is equal to –
 (a) 222.222 (b) 222.202 (c) 222.220 (d) 202.222
5. Which of the following is true ?
 (a) $-7 > 8$ (b) $-9 > -4$ (c) $-11 > -25$ (d) $5 < -10$
6. $33\frac{1}{3}\%$ of 2400 is equal to –
 (a) 80 (b) 800 (c) 8000 (d) 80,000
7. A fruit seller purchased 30 dozens of bananas at ₹ 1440 ; 48 bananas got rotton. At what price per dozen should be sell the bananas to get a profit of ₹ 120.
 (a) ₹ 60 (b) ₹ 58 (c) ₹ 50 (d) ₹ 54
8. Anil has $789\frac{3}{8}$ L of kerosene oil in his shop. He sold 356 L 750 mL of kerosene oil to A and 193.500 L of kerosene to B. How much kerosene oil is left with Anil now ?
 (a) 293.125 L (b) 239.125 L (c) 239.215 L (d) 239.152 L
9. When the clock shows time 10 o'clock, the angle between hour hand and minute hand of the clock is - (a) acute angle (b) straight angle (c) obtuse angle (d) right angle

10. Which of the following shapes is obtained by turning  through 270° ?
- (a)  (b)  (c)  (d) 

GK / ENVS / MAT

1. Acid rain is effect of – (a) air pollution (b) water pollution (c) noise pollution (d) None of these. 1. a) b) c) d)
2. Longest railway platform in India is – (a) Gorakhpur ; Uttar Pradesh (b) Hubballi ; Karnataka (c) Kharagpur ; West Bengal (d) Anand vihar ; Delhi 2. a) b) c) d)
3. Black foot disease is associated with - (a) Fluorene in drinking water (b) Mercury in drinking water (c) Arsenic in drinking water (d) Inorganic iron in drinking water 3. a) b) c) d)
4. Study the given figure and find out the number of triangles - 4. a) b) c) d)



- (a) 13 (b) 14 (c) 15 (d) 16
5. In a certain way 'CODE' is 31545 and in the same way 'LOTUS' is coded with - 5. a) b) c) d)
- (a) 1215192021 (b) 2120191512 (c) 1215212019 (d) 1215202119

Space for Rough



Test for Scientific Taste : 2024

SET-A

Conducted by :

Organisation for the Cultivation of Science, Egra

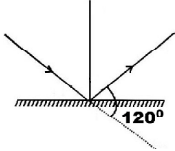
Class - VI * Full Marks - 80 * Time - 1½ hours

Marks obtained	:	<input type="text"/>	NAME _____														
Physics (16)	-	<input type="text"/>	(In Block letters)														
Chemistry (14)	-	<input type="text"/>	Institution _____														
Life Science (20)	-	<input type="text"/>	Roll No. <table border="1"><tr><td>1</td><td></td><td></td><td>VI</td><td></td><td></td><td></td></tr><tr><td colspan="3">Centre Code</td><td>Class</td><td colspan="3">No.</td></tr></table>	1			VI				Centre Code			Class	No.		
1				VI													
Centre Code			Class	No.													
Mathematics (20)	-	<input type="text"/>															
ENVS / GK / MAT (10)	-	<input type="text"/>															
Total (80)	-	<input type="text"/>	Verified by _____ Signature of invigilator _____														

General Instructions

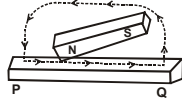
1. Choose the correct answer and put mark inside the appropriate box. If you think that you have put mark in wrong answer, fill it (e.g.) and choose the right from other three. But take the chance once for one question.
2. **Each question carries 2 marks.**
3. No marks will be deducted for wrong answers. Calculator is not allowed.
4. Use back side of question paper or separate sheet to sum the mathematical problems if necessary.

Physics

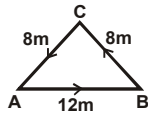
1. When balanced forces are applied on a rubber ball, what effect of force is observed ? 1. a) b) c) d)
(a) Change in mass (b) Change in speed (c) Change in shape only (d) Change in size and also shape
2. A steam engine converts – 2. a) b) c) d)
(a) Chemical energy to potential energy (b) heat energy to kinetic energy (c) Chemical energy to heat energy (d) Chemical energy to Mechanical energy.
3. Two bodies of equal masses move with uniform velocities 'u' and '2u', respectively. Ration of their Kinetic Energy is – 3. a) b) c) d)
(a) 1 : 2 (b) 2 : 1 (c) 1 : 4 (d) 4 : 1
4. From the given figure find the angle of reflection ? 4. a) b) c) d)

(a) 60° (b) 45° (c) 30° (d) 90°
5. If 200mA of electric current passes through the conductor for 20 minutes, then the amount of charge flowing through the conductor is – 5. a) b) c) d)
(a) 240 C (b) 4000 C (c) 400 C (d) 2400 C

6. Ravi made a magnet using the “stroking” method as shown in the figure. What poles do ‘P’ & ‘Q’ represent ?

- P Q
- (a) N pole S pole
 (b) N pole N pole
 (c) S pole N pole
 (d) S pole S pole



7. ‘Maglev’ train works on the principle that –
- (a) Two unlike poles of magnet repel each other
 (b) Two like poles of magnet repel each other
 (c) Two unlike poles of magnet attract each other
 (d) Two like charges of electric field repel each other.
8. Sonu starts from the point ‘A’ then followed the path BC, CA to reach at A in 14s. The speed and the velocity of sonu are –



- (a) Equal (b) 2m/s and zero respectively (c) Zero ; 2m/s respectively (d) None of these.

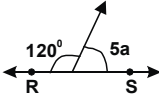
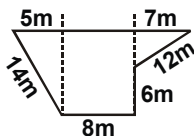
Chemistry

1. Which one of the following is metalloids ?
- (a) Sodium (b) Manganese (c) Germanium (d) Iodine
2. Choose the correct statement from the following –
- (i) Mixture of salt and water is separated by filtration
 (ii) Sediment is the mud that settles at the bottom of the container. (iii) Filtration is the process of separating insoluble solid particle from a solid-solid mixture.
- (a) - (i), (ii) ; (b) - (ii) ; (c) - (i), (iii) ; (d) - (i), (ii) & (iii)
3. Number of atoms are present in sulphur molecule is –
- (a) 4 (b) 6 (c) 8 (d) 10
4. The molecular formula of compound that formed by Al^{3+} and SO_4^{2-} is –
- (a) $Al_2(SO_4)_3$ (b) Al_2SO_4 (c) $AlSO_4$ (d) $(SO_4)_2 Al_3$
5. Heating of solid ammonium chloride involves change in the –
- (a) Physical state only (b) Colour only (c) Physical state as well as Chemical Composition (d) Chemical change only
6. Lactic acid found in –
- (a) Vinegar (b) Nail polish remover (c) Curd (d) Tomato
7. In protium nucleus ; how many neutrons are there ?
- (a) 3 (b) 2 (c) 1 (d) 0

Life Science

- | | |
|---|--|
| <p>1. Identify the pair of nutrients that are mismatched with their sources –
 (a) Carbohydrates – Potatoes (b) Fats – Tomatoes
 (c) Proteins – Pulses (d) Vitamins – Carrots</p> <p>2. Night blindness is the cause of deficiency of –
 (a) Vitamin B₁₂ (b) Vitamin B₃ (c) Vitamin A (d) Iodine</p> <p>3. Parallel veins found in the leave of –
 (a) mango tree (b) Potato plants (c) bengal gram plants
 (d) sugar cane plants</p> <p>4. Identify the odd one among the following –
 (a) Figs (b) Eucalyptus (c) Hibiscus (d) Tulips</p> <p>5. In the given options select the correct pair –
 (a) Arthropoda – Silver fish (b) Pisces – Jelly fish
 (c) Amphibian – Star fish (d) Ectino dermatata – Cuttle fish</p> <p>6. Breathing roots are found in –
 (a) Neem tree (b) Mango tree (c) Banyan tree (d) Hental tree</p> <p>7. Example of succulent leaves is –
 (a) Aloe vera plant (b) Pitcher plant (c) Banana plant
 (d) Mint plant</p> <p>8. Where do blood cells originate ?
 (a) bones (b) bone marrow (c) cartilage (d) cranium</p> <p>9. Which of the following is the biggest bone in our body ?
 (a) Femur (b) Cranium (c) Sternum (d) Pelvis</p> <p>10. Which of the following is an adptation of animals in tundra region ?
 (a) Streamlined bodies (b) Gills for breathing
 (c) Development of hump (d) Blubber (Thick layer of fat)</p> | <p>1. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> <p>2. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> <p>3. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> <p>4. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> <p>5. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> <p>6. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> <p>7. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> <p>8. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> <p>9. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> <p>10. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> |
|---|--|

Mathematics

- | | |
|---|---|
| <p>1. Find the value of 'a' in the given figure, given that RS is straight line –</p> <div style="text-align: center;">  </div> <p style="text-align: center;">(a) 12° (b) 40° (c) 50° (d) 30°</p> <p>2. A wheel has radius 35 cm. How many times will it turn on a car that travels 22 m (Take $\pi = \frac{22}{7}$)
 (a) 9 (b) 10 (c) 11 (d) 12</p> <p>3. Find the perimeter of the given figure –</p> <div style="text-align: center;">  </div> <p style="text-align: center;">(a) 70 m (b) 65 m (c) 60 m (d) 52 m</p> | <p>1. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> <p>2. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> <p>3. a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/></p> |
|---|---|

4. A tradesman bought 15 kg of one variety of rice at ₹ 80 per kg and 15 kg of another variety at ₹ 60 per kg. He mixed the two varieties and sold the mixture at ₹ 63 per kg. Find the gain or loss percent in whole transaction.
 (a) 10% gain (b) 20% gain (c) 20% loss (d) 10% loss
4. a) b) c) d)
5. If $p : q : r = 1 : 2 : 3$ and the difference between 'q' & 'r' is 5, find the sum of p, q and r :
 (a) 30 (b) 28 (c) 26 (d) 32
5. a) b) c) d)
6. LCM of two number is 1488. The numbers are in ratio 3 : 4 ; then find the number.
 (a) 732, 496 (b) 372, 496 (c) 327, 694 (d) 372, 946
6. a) b) c) d)
7. How much is $a + 2b$ greater than $b - a$:
 (a) $a + 2b$ (b) $2a + b$ (c) $2a - b$ (d) b
7. a) b) c) d)
8. Calculate the value of $1 + [1 - \{-1 + (1 - \overline{1+1})\}]$
 (a) 4 (b) - 4 (c) 3 (d) - 3
8. a) b) c) d)
9. After travelling 33 km, Rahim found that $\frac{2}{5}$ of his journey was still left. Find the length of his whole journey –
 (a) 65 km (b) 55 km (c) 45 km (d) 49 km
9. a) b) c) d)
10. If the sum of two number is 55 and the HCF and LCM of these numbers are 5 and 120 respectively, then the sum of the reciprocals of the numbers is equal to –
 (a) $\frac{120}{11}$ (b) $\frac{111}{120}$ (c) $\frac{11}{120}$ (d) $\frac{120}{111}$
10. a) b) c) d)

ENVS / GK / MAT

1. National Science Day observed in India on –
 (a) 28th February (b) 23rd August (c) 14th November
 (d) 1st July
1. a) b) c) d)
2. Which is not green house gas ?
 (a) CFC (b) CH_4 (c) CO_2 (d) N_2
2. a) b) c) d)
3. Sulphur dioxide in air –
 (a) prevents photosynthesis (b) produces acid rain
 (c) damages ozone layer (d) leads to food toxicity
3. a) b) c) d)
4. She was the first Indian woman to become the president of the Indian National Congress in 1925 and the first woman to become the governor of an Indian State. Who is she ?
 (a) Indira Gandhi (b) Lakshmi Sehgal (c) Sarojini Naidu
 (d) Vijaya Lakshmi Pandit
4. a) b) c) d)
5. If 'M' denotes '+', 'N' denotes '-', 'Q' denotes \div and 'P' denotes 'X' ; then find the value of $350 Q 25 M 8 P 12 N 9$
 (a) 101 (b) 90 (c) 98 (d) 141
5. a) b) c) d)



Test for Scientific Taste : 2024

SET-A

Conducted by :

Organisation for the Cultivation of Science, Egra

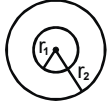
Class - VII * Full Marks - 80 * Time - 1 $\frac{1}{2}$ hours

Marks obtained	:	<input type="text"/>	NAME _____														
Physics (16)	-	<input type="text"/>	(In Block letters)														
Chemistry (14)	-	<input type="text"/>	Institution _____														
Life Science (20)	-	<input type="text"/>	Roll No. <table border="1"><tr><td>1</td><td><input type="text"/></td><td><input type="text"/></td><td>VII</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr><tr><td colspan="3">Centre Code</td><td>Class</td><td colspan="3">No.</td></tr></table>	1	<input type="text"/>	<input type="text"/>	VII	<input type="text"/>	<input type="text"/>	<input type="text"/>	Centre Code			Class	No.		
1	<input type="text"/>	<input type="text"/>		VII	<input type="text"/>	<input type="text"/>	<input type="text"/>										
Centre Code				Class	No.												
Mathematics (20)	-	<input type="text"/>															
ENVS / GK / MAT (10)	-	<input type="text"/>															
Total (80)	-	<input type="text"/>	Verified by _____ Signature of invigilator _____														

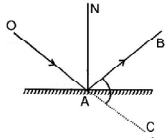
General Instructions

1. Choose the correct answer and put mark inside the appropriate box. If you think that you have put mark in wrong answer, fill it (e.g.) and choose the right from other three. But take the chance once for one question.
2. **Each question carries 2 marks.**
3. No marks will be deducted for wrong answers. Calculator is not allowed.
4. Use back side of question paper or separate sheet to sum the mathematical problems if necessary.

Physics

1. Sound travels the fastest in - 1. a) b) c) d)
(a) carbon di-sulphide (b) Nitrogen gas (c) air (d) solid copper tube.
2. The density of aluminium is 2.7 g cm^{-3} and of brass is 8.4 g cm^{-3} . For the same mass the volume of - 2. a) b) c) d)
(a) both will be same (b) aluminium will be less than that of brass (c) aluminium will be more than that of brass (d) nothing can be said.
3. A body covers half of its journey with a speed 60 m s^{-1} and the other half with a speed 40 m s^{-1} . Then average speed during whole journey is - 3. a) b) c) d)
(a) 0 (b) 50 m s^{-1} (c) 48 m s^{-1} (d) 52 m s^{-1}
4. At room temperature the internal and external radii of a metal ring are r_1 & r_2 as shown in the figure. When the ring is heated at 180°C then - 4. a) b) c) d)

(a) both r_1 & r_2 decrease (b) both r_1 & r_2 increase
(c) r_1 increases but r_2 decreases (d) r_2 increases but r_1 decrease
5. Which of the following actions will decrease the strength of the magnetic field of an electromagnet ? 5. a) b) c) d)
(a) removing the iron core (b) increasing the current in wire
(c) increasing loops per meter in the coil (d) both (a) & (b)

6. For the reflection of light on a smooth plane : Find the angle of $\angle BAC$ if the glancing angle of the ray OA is 30°



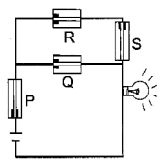
- (a) 60° (b) 30° (c) 90° (d) 100°

6. a) b) c) d)

7. A copper piece of mass 88 g when immersed completely into water contained in a measuring cylinder, raises the level of water from 15 mL to 25 mL. Then the density of copper -
(a) 880 kgm^{-3} (b) 8800 kgm^{-3} (c) 8000 kgm^{-3} (d) 8808 kgm^{-3}

7. a) b) c) d)

8. Study the circuit shown here. Which switch if opened will cause the light bulb to stop glowing ?



- (a) P (b) Q (c) R (d) S

8. a) b) c) d)

Chemistry

1. Which of the following can not be separated by distillation -
(a) salt and water (b) crude oil (Petroleum) (c) copper sulphate and water (d) ferrous sulphate and water

1. a) b) c) d)

2. Which of the following is molecular formula of Zinc Phosphate?
(a) ZnPO_4 (b) ZnP_2O_4 (c) $\text{Zn}_2(\text{PO}_4)_3$ (d) $\text{Zn}_3(\text{PO}_4)_2$

2. a) b) c) d)

3. When aqueous solutions of lead acetate added to aqueous solution of potassium iodide produces precipitate. The precipitate is -

3. a) b) c) d)

- (a) yellow, PbI_2 (b) Pink, PbI_2 (c) Black, PbI_2
(d) White PbI_2

4. Which of the following is endothermic chemical reaction ?

4. a) b) c) d)

- (a) water is added to concentrated sulphuric acid
(b) concentrated sulphuric acid added to the sugar
(c) water is added to quick lime (d) none of these

5. Which of the following metalloids is used for making artificial implants for the body ?

5. a) b) c) d)

- (a) Boron (b) Arsenic (c) Silicon (d) Germanium

6. Thin films of which metal are used on satellites to control temperature ? (a) Copper (b) Silver (c) Gold (d) Aluminium

6. a) b) c) d)

7. When dilute hydrochloric acid is added to baking soda, produces - (a) $\text{O}_2(\text{g})$ (b) $\text{CO}_2(\text{g})$ (c) $\text{O}_3(\text{g})$ (d) $\text{CO}(\text{g})$

7. a) b) c) d)

Life Science

1. Which of the following is a mode of nutrition ? (a) Autotrophs (b) Heterotrophs (c) Saprophytic (d) All of these

1. a) b) c) d)

2. Given below are the four food components and their corresponding sources. Select the incorrect statement regarding them.

P → meat, fish, eggs ; F → butter, ghee

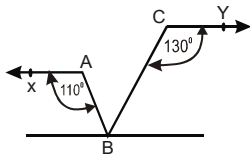
C → bread, potatoes ; H → amla, orange

- (a) Deficiency of P causes Marasmus in children
(b) Amongst of P, F, C & H, 1 gram of F produces maximum energy (c) Excess of 'C' gets stored in body cells and is used for the production of energy in future.
(d) Deficiency of H leads to disease related to gums
2. a) b) c) d)
3. Select an animal whose body is not streamlined, however when they move in water they make the body shape streamlined -
(a) Shark (b) Octopus (c) Whale (d) All of these
3. a) b) c) d)
4. Select incorrect match :
(a) Stick insect → Mimicry (b) Snail → Aestivation
(c) Polar Bear → Hibernation
(d) Lion-tailed-macaque → Mimicry
4. a) b) c) d)
5. Migration of birds takes place because -
(a) They can't survive in cold place (b) They have to stay warm (c) Both (a) & (b) (d) None of the above
5. a) b) c) d)
6. Which of the following is correct path of urine ?
(a) Kidney → Urethra → Ureter → Urinary bladder
(b) Kidney → ureter → urinary bladder → urethra
(c) Kidney → urethra → urinary bladder → ureter
(d) Ureter → urethra → urinary bladder → kidney
6. a) b) c) d)
7. In which of the following groups of animals the excretion is in the form of semi solid, white coloured compound ?
(a) Fish, dog, monkey and birds (b) Sponges, lizard, snake and frog (c) Lizard, cockroach, snake and birds (d) Monkey, man, cow and dog
7. a) b) c) d)
8. Herbivores do not produce enzymes that digest cellulose. How does the cellulose in their food get digested ?
(a) Algae in their gut convert cellulose into simple sugars
(b) Viruses in their gut convert the cellulose into simple sugars
(c) Fungi in their gut convert the cellulose into simple sugar
(d) Bacteria in their gut convert the cellulose into glucose.
8. a) b) c) d)
9. The outer membrane of human heart is called -
(a) pericardium (b) pleura (c) meninges (d) enamel
9. a) b) c) d)
10. Which of the following blood cells in human do not possess nuclei : (a) RBC (b) WBC (c) Platelets (d) Eosinophils
10. a) b) c) d)

Mathematics

1. Find the value of $(-1)^{27} \times (-1)^{53} \times (-1)^{54}$ is -
(a) -1 (b) 1 (c) 2 (d) ± 1
1. a) b) c) d)
2. The value of $\frac{96.56 - 89.63}{96.54 + 89.63} \div \frac{965.4 - 896.3}{9.654 + 8.963}$
(a) 10 (b) 10^2 (c) 10^{-2} (d) 10^{-1}
2. a) b) c) d)

3. If $\frac{9}{5}$ of a number is 45 ; what is $\frac{1}{5}$ of the same number ?
 (a) 5 (b) 25 (c) 30 (d) 81
4. 50% of 150 + 70% of 300 = ?
 (a) 295 (b) 285 (c) 265 (d) 275
5. If $x + \frac{1}{x} = a$ and $x - \frac{1}{x} = b$ then $a^2 - b^2 = ?$
 (a) 4 (b) 3 (c) 2 (d) 1
6. The sum of two number is 384 and their HCF is 48. Find the numbers.
 (a) 240, 144 (b) 48, 336 (c) 316, 68 (d) both (a) & (c)
7. A sum of ₹ 782 has been divide among P, Q and R in the ratio of $\frac{1}{2} : \frac{2}{3} : \frac{3}{4}$. Find the share of R
 (a) ₹ 456 (b) ₹ 395 (c) ₹ 306 (d) ₹ 286
8. A circle is inscribed in a square of side 14 m. The ratio of the area of the circle and that of the square is -
 (a) $\pi : 3$ (b) $\pi : 4$ (c) $\pi : 2$ (d) $\pi : 1$
9. In the given figure ; $AX \parallel CY$, then find $\angle ABC$

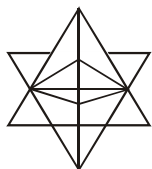


- (a) 45^0 (b) 60^0 (c) 75^0 (d) 90^0

10. In what time does a sum of money becomes four times at the simple interest rate of 10% per annum ?
 (a) 20 years (b) 30 years (c) 35 years (d) 45 years

ENVS / GK / GA

1. Which of the following is not green house gas ?
 (a) methane (b) CFC (c) water vapour (d) Nitrogen
2. In a certain code, 'VALUE' is written as XCNWG, then how will 'MONEY' be written in that code ?
 (a) OPGQA (b) NPQGA (c) OQPGA (d) OPQGA
3. Count the number of triangles in the given figure :



- (a) 36 (b) 38 (c) 34 (d) None of these

4. In which place of West Bengal ; IIT (An Educational & Research Academy) is located ?
 (a) Kolkata (b) Durgapur (c) Kharagpur (d) Haldia
5. 'Blue Baby Syndrome' related to -
 (a) Nitrate salts (b) Sulphate salts (c) Carbonate salts (d) Zincate salts



Test for Scientific Taste : 2024

SET-A

Conducted by :

Organisation for the Cultivation of Science, EgraClass - VIII * Full Marks - 80 * Time - 1 $\frac{1}{2}$ hours

Marks obtained :	<input type="text"/>	NAME _____												
Physics (16) -	<input type="text"/>	(In Block letters)												
Chemistry (14) -	<input type="text"/>	Institution _____												
Life Science (20) -	<input type="text"/>	<table border="1"> <tr> <td>1</td> <td></td> <td>VIII</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">Centre Code</td> <td>Class</td> <td colspan="3">No.</td> </tr> </table>	1		VIII				Centre Code		Class	No.		
1			VIII											
Centre Code		Class	No.											
Mathematics (20) -	<input type="text"/>	Roll No.												
ENVS / GK / MAT (10) -	<input type="text"/>													
Total (80) -	<input type="text"/>	Verified by _____ Signature of invigilator _____												

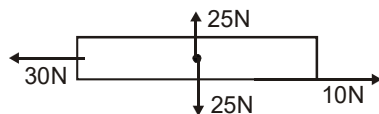
General Instructions

1. Choose the correct answer and put mark inside the appropriate box. If you think that you have put mark in wrong answer, fill it (e.g.) and choose the right from other three. But take the chance once for one question.
2. **Each question carries 2 marks.**
3. No marks will be deducted for wrong answers. Calculator is not allowed.
4. Use back side of question paper or separate sheet to sum the mathematical problems if necessary.

Physics

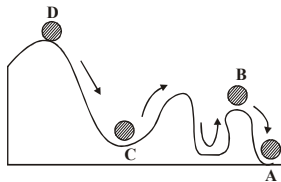
1. A cuboid having mass 10 kg and its dimensions are 10 cm, 8cm & 5cm. The maximum pressure exerted by the cuboid when it kept on a plane smooth surface (if 1 kgf = 10 N) is -
 1. a) b) c) d)
 (a) 2.5×10^4 Pa (b) 2.5×10^3 Pa (c) 2.5×10^5 Pa
 (d) 2.5×10^6 Pa

2. A block is kept on a horizontal surface and the forces act on the block that are given in figure along side. The net force along vertical and horizontal on the block respectively are -
 2. a) b) c) d)



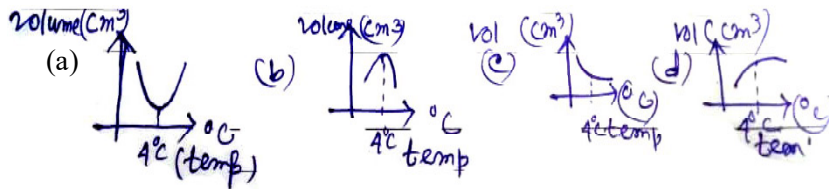
3. The density of two liquids are 1.1 g/cm^3 & 1.3 g/cm^3 . If the liquids are mixed with same volume and there is no contraction of volume then what is the density of mixture of liquids.
 3. a) b) c) d)
 (a) 2.0 g/cm^3 (b) 2.2 g/cm^3 (c) 2.4 g/cm^3 (d) 1.2 g/cm^3

4. In the given figure, a body of mass 2kg is rest at D. If the body starts moving from D and reaches at A followed by the path as given in figure, then at which position the body possess maximum kinetic energy (assuming there is no dissipation of energy due to friction) ?
 4. a) b) c) d)



(a) at D (b) at B (c) at A (d) at C

5. Red colour of the sun during sun rise and sun set due to -
 (a) reflection of light (b) refraction of light (c) dispersion of light
 (d) scattering of light
6. The international colour code for live wire in house hold wiring system is - (a) Black (b) Brown (c) Red (d) Orange
7. At what temperature all motions of the molecules be ceased?
 (a) 273°C (b) -273 K (c) 0°C (d) OK
8. Which of the following represents the anomalous behaviour of water?



Chemistry

1. Components of petroleum can be separated by -
 (a) Distillation (b) Centrifugation (c) Crystallisation
 (d) Fractional distillation
2. Ca^{2+} and PO_4^{3-} will form the compound as -
 (a) CaPO_4 (b) $\text{Ca}_3(\text{PO}_4)_2$ (c) $\text{Ca}_2(\text{PO}_4)_3$ (d) $\text{Ca}_3\text{PO}_{42}$
3. Which pair of species are iso-electronic ?
 (a) Al^{3+} , Cl^- (b) Mg^{2+} , Na^+ (c) F^- , Cl^- (d) O^{2-} , Cl^-
4. Which of the following chemical reaction is not exo-thermic ?
 (a) $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \longrightarrow 2\text{SO}_3(\text{g})$
 (b) $\text{C}(\text{g}) + \text{O}_2(\text{g}) \longrightarrow \text{CO}_2(\text{g})$
 (c) $\text{CaCO}_3(\text{s}) \longrightarrow \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$
 (d) $\text{CaO}(\text{s}) + \text{H}_2\text{O}(\text{l}) \longrightarrow \text{Ca}(\text{OH})_2(\text{aq})$
5. Which reaction does not take place ?
 (a) $\text{Cu} + \text{FeSO}_4 \longrightarrow \text{CuSO}_4 + \text{Fe}$
 (b) $\text{Zn} + 2\text{HCl} \longrightarrow \text{ZnCl}_2 + \text{H}_2$
 (c) $\text{Mg} + \text{Pb}(\text{NO}_3)_2 \longrightarrow \text{Mg}(\text{NO}_3)_2 + \text{Pb}$
 (d) $\text{Mg} + \text{ZnSO}_4 \longrightarrow \text{MgSO}_4 + \text{Zn}$
6. Which metalloid is used in photo-voltaic cell ?
 (a) boron (b) arsenic (c) silicon (d) antimony
7. When a substance in gaseous state is cooled, then the inter-molecular force of attraction will
 (a) decrease (b) increase (c) at instant decrease then increase
 (d) does not depend on change in temperature

Life Science

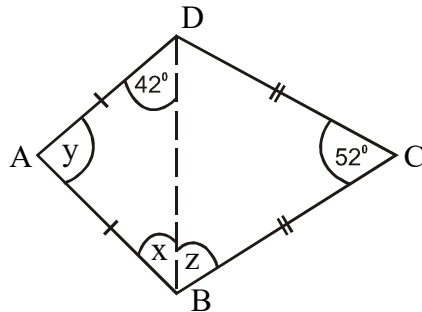
1. The plant disease chlorosis is caused by deficiency of -
 (a) magnesium (b) copper (c) potassium (d) molybdenum

2. Pollination in plants by insects is known as -
(a) Anemophilly (b) Entomophilly (c) Hydrophilly
(d) None of these
3. After just fertilization of ovum the cell formed is called -
(a) gamete (b) embryo (c) zygote (d) foetus
4. A natural food web :
(a) contains only grazing food chains (b) contains several trophic levels
(c) is usually unstable (d) all of these
5. Which type of blood cells are involved in blood clotting ?
(a) erythrocytes (b) leucocytes (c) thrombocytes (d) basophils
6. A spinal nerve takes nerve impulses -
(a) to the CNS (b) away from the CNS (c) both to and away from the CNS
(d) Only inside the CNS
7. Which of the following disease results from endocrine disorder?
(a) Jaundice (b) Typhoid (c) Pneumonia (d) Goitre
8. Blood travels from heart to lungs by way of the
(a) pulmonary artery (b) pulmonary vein (c) anterior venacava
(d) posterior venacava
9. Which of the following is not a function of skin ?
(a) Calcium production (b) Vitamin D Synthesis
(c) Protection (d) Immunity
10. The vaccine for tuberculosis is -
(a) DPT (b) OPV (c) BCG (d) TAB

Mathematics

1. Find the value of $(8x)^x$ if $9^{x+2} = 240 + 9^x$
(a) 2 (b) 4 (c) $\frac{1}{2}$ (d) 5
2. If $\sqrt{2025} + \sqrt{0.0612+x} = 45.25$ then the value of x will be -
(a) 0.0013 (b) 0.013 (c) 0.13 (d) 1.3
3. If A and B are two sets such that $n(A) = 22$, $n(B) = 18$ and $n(A \cup B) = 35$ then $n(A \cap B)$
(a) 4 (b) 5 (c) 15 (d) 75
4. Find a single discount equivalent to two successive discounts of 25% and 8% -
(a) 33% (b) 31% (c) 30% (d) 27%
5. How much will ₹ 25,000 amount is 2 years, at compound interest, if the rates for the successive years are 4% and 5% per year ?
(a) ₹ 26,300 (b) ₹ 27,000 (c) ₹ 27,300 (d) ₹ 27,800
6. A and B together can do a piece of work in 12 days. B and C together can do it in 15 days. If 'A' is twice as good a workman as C, in how many days 'A' alone will do the same work ?
(a) 18 (b) 20 (c) 25 (d) 30
7. The value of $\frac{(7.4)^2 - (6.4)^2}{(8.9)^2 + (8.9) \times (2.2) + (1.1)^2}$ is
(a) 13.8 (b) 0.138 (c) 1.38 (d) 138

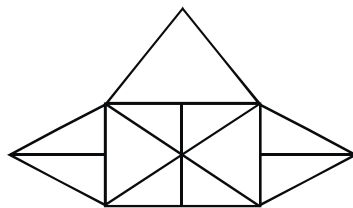
8. If the angles of a triangle are in the ratio 5 : 6 : 7, then the type of triangle is -
 (a) isosceles (b) equilateral (c) right angle (d) acute
9. If $x + \frac{1}{x} = 2$, then $x^{25} + \frac{1}{x^{24}} = ?$
 (a) 0 (b) -2 (c) ± 1 (d) +2
10. In the adjoining figure, ABCD is a kite. If $\angle BCD = 52^\circ$ and $\angle ADB = 42^\circ$, the values of 'x', 'y' and 'z' respectively are -



- (a) $x = 42^\circ$, $y = 96^\circ$, $z = 48^\circ$ (b) $x = 42^\circ$, $y = 96^\circ$, $z = 64^\circ$
 (c) $x = 42^\circ$, $y = 48^\circ$, $z = 64^\circ$ (d) $x = 42^\circ$, $y = 64^\circ$, $z = 96^\circ$

ENVS/GK/GA

1. 'Wings of Fire' is written by -
 (a) A.P.J. Kalam (b) S.N. Bose (c) S. Naidu (d) Ruskin Bond
2. Which of the following is not a green house gas -
 (a) CH_4 (b) CO_2 (c) N_2 (d) CFC
3. Which of the following is responsible for black foot disease ?
 (a) Salt of boron (b) Salt of Potassium (c) Salt of Aluminium
 (d) Salt of Arsenic
4. In a certain code language, 'TRAINER' is written as PC LKDUW. How will EDITION be written in the same code language ?
 (a) FFLTJPR (b) HGLUGMV (c) LMGVLGH
 (d) FFLTJQQ
5. How many triangles are there in the given figure ?



- (a) 16 (b) 19 (c) 18 (d) 17



Test for Scientific Taste : 2024

SET-A

Conducted by :

Organisation for the Cultivation of Science, Egra

Class - IX * Full Marks - 100 * Time - 1½ hours

Marks obtained	:	<input type="text"/>	NAME _____														
Physics (22)	-	<input type="text"/>	(In Block letters)														
Chemistry (22)	-	<input type="text"/>	Institution _____														
Life Science (22)	-	<input type="text"/>	Roll No. <table border="1"><tr><td>1</td><td></td><td></td><td>IX</td><td></td><td></td><td></td></tr><tr><td colspan="3">Centre Code</td><td>Class</td><td colspan="3">No.</td></tr></table>	1			IX				Centre Code			Class	No.		
1				IX													
Centre Code			Class	No.													
Mathematics (22)	-	<input type="text"/>															
ENVS / GK / MAT (12)	-	<input type="text"/>															
Total (100)	-	<input type="text"/>	Verified by _____ Signature of invigilator _____														

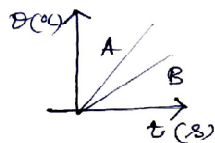
General Instructions

1. Choose the correct answer and put mark inside the appropriate box. If you think that you have put mark in wrong answer, fill it (e.g.) and choose the right from other three. But take the chance once for one question.
2. **Each question carries 2 marks.**
3. No marks will be deducted for wrong answers. Calculator is not allowed.
4. Use back side of question paper or separate sheet to sum the mathematical problems if necessary.

Physics

1. 'Parsec' is the unit of - (a) distance (b) time (c) angle (d) mass 1. a) b) c) d)
2. A body travels along the circumference of a circle of radius 20m. It takes 4 s to complete one rotation. Its average velocity is - 2. a) b) c) d)
(a) $10\pi \text{ ms}^{-1}$ (b) $2\pi \text{ ms}^{-1}$ (c) $5\pi \text{ ms}^{-1}$ (d) Zero
3. Two planets having masses ' M_1 ' and ' M_2 ' and radii R_1 and R_2 , respectively, have equal acceleration due to gravity. The ratio $\frac{M_1}{M_2}$ of their masses is - 3. a) b) c) d)
(a) $\frac{R_1}{R_2}$ (b) $\frac{R_1^2}{R_2^2}$ (c) $\sqrt{\frac{R_1}{R_2}}$ (d) $\frac{R_2}{R_1}$
4. A body of mass ' M ' and density ' D ' is lowered into a liquid of density ' d '. The apparent weight of the body will be - 4. a) b) c) d)
(a) $M\left(1 - \frac{D}{d}\right)g$ (b) $M\left(1 - \frac{d}{D}\right)g$ (c) $Mg - Mdg$ (d) $M - \frac{Md}{D}g$
5. A ball of mass 50g is moving with speed 40 m/s on a smooth horizontal surface and collide with a wall. After collision it bounces back with a same speed. If time duration for collision is 0.1s then force applied by the wall on the ball. 5. a) b) c) d)
(a) 40 N (b) 400 N (c) 4000 N (d) Zero
6. A man approaches a plane mirror with a velocity 5 m/s in a direction making an angle 60° with the normal to the mirror. What will be relative velocity of the image of a man relative to him ? 6. a) b) c) d)
(a) 5 m/s (b) 10 m/s (c) $5\sqrt{3}$ m/s (d) $10\sqrt{3}$ m/s

7. Two gases A and B, have molar masses 32 g mol^{-1} and 2 g mol^{-1} respectively. Ratio between velocity of sound in 'A' to that 'B' is -
 (a) 1 : 2 (b) 2 : 1 (c) 4 : 1 (d) 1 : 4
7. a) b) c) d)
8. Co-efficient of apparent expansion and co-efficient of real expansion of a liquid are γ_a and γ_r respectively then which one is correct ?
 (a) $\frac{\gamma_a}{\gamma_r} > 1$ (b) $\frac{\gamma_a}{\gamma_r} < 1$ (c) $\gamma_a = \gamma_r$ (d) $3\gamma_a = \gamma_r$
8. a) b) c) d)
9. When equal amount of heat is supplied to two different substances A and B, the rise in temperature with time is graphically represented as follows and choos the correct statement.



- (a) If masses of A and B are equal, specific heat of A is equal to specific heat of B (b) If mass of A is greater than mass of B the specific heat capacity of A is greater than specific heat capacity of B (c) Heat capacity of A is less than heat capacity of B (d) None of these
9. a) b) c) d)
10. When a double convex lens (made of glass ; $\mu_g = 1.5$) dipped in to carbon disulphide ($\mu_{cs_2} = 1.63$) then for a parallel incident beam (that also parallel to principal axis of lens) ; which of the following will be correct diagram?



10. a) b) c) d)
11. When a metallic sphere is released from the surface of water filled in a container of uniform area of cross section, it is found to reach the bottom of the container in 2s. If the density of the material of the sphere is 5 g cm^{-3} , then the pressure exerted by the liquid at the bottom of the container is (Assume only gravity and upthrust act on the body).
 (a) 1,60,000 Pa (b) 1,600 Pa (c) 16,000 Pa (d) 160 Pa

Chemistry

1. The percentage of phosphorus in the super phosphate $[\text{Ca}(\text{H}_2\text{PO}_4)_2]$ fertilizer is - (a) 26.5% (b) 53% (c) 2.65% (d) 5.3%
1. a) b) c) d)
2. $\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$
 The above reaction is an example of a -
 (a) decomposition (b) displacement (c) red-ox (d) both (b) & (c)
2. a) b) c) d)
3. 12g of a saturated solution of potassium chloride at 20°C , when evaporated to dryness, leaves a solid residue of 3g. The solubility of potassium chloride at 20°C is - (a) 66.3% (b) 75% (c) 33.3% (d) 25%
3. a) b) c) d)
4. Which of the followings are iso electronic ?
 (a) O^{2-} , N^{3-} (b) Al^{3+} , Cl^- (c) Ca^{2+} , Mg^{2+} (d) F^- , H^-
4. a) b) c) d)
5. In long modern periodic table which group contains elements with three different physical state ? (a) 2 (b) 15 (c) 14 (d) 17
5. a) b) c) d)
6. Lithium shows diagonal relationship with -
 (b) boron (b) aluminium (c) magnesium (d) sodium
6. a) b) c) d)
7. Rutherford's alpha-particle scattering experiment was responsible for the discovery of - (a) atomic nucleus (b) electron (c) proton (d) neutron
7. a) b) c) d)

8. Which of the following has not polar bond ?
 (a) HCl (g) (b) NH₃ (g) (c) Cl₂ (g) (d) CCl₄ (l) 8. a) b) c) d)
9. $^{14}_6\text{C} \rightarrow ^{14}_7\text{N} + ?$; the particle in the place of ' ? ' mark will be -
 (a) α particle (b) β particle (c) γ particle (d) positron particle 9. a) b) c) d)
10. $\text{Sn}^{2+} \rightarrow \text{Sn}^{4+} + 2e^{-}$ is a process of -
 (a) reduction (b) oxidation (c) ionisation (d) both (a) & (b) 10. a) b) c) d)
11. The process of formation of oxyhaemoglobin and oxyhaemoglobin releases O₂ gas in tissues are followed by -
 (a) Boyle's Law (b) Charless Law (c) Henry's Law (d) Gay-lussac's Law 11. a) b) c) d)

Life Science

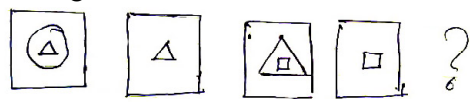

1. The mode of nutrition in all fungi is -
 (a) symbiotic (b) auto trophic (c) saprophytic (d) holozoic 1. a) b) c) d)
2. Athlete's foot caused by - (a) protozoa (b) fungi (c) bacteria (d) virus 2. a) b) c) d)
3. Osteomalacia is the deficiency of -
 (a) Retinol (b) Tocopherol (c) Niacin (d) Calciferol 3. a) b) c) d)
4. Which of the followings is / are function (s) of bile salts ?
 (a) emulsification (b) micelle formation (c) Nutrient absorption (d) All of these 4. a) b) c) d)
5. The pectoral and pelvic girdles and bones of limbs together form -
 (a) axial skeleton (b) outer skeleton (c) appendicular skeleton (d) none of these 5. a) b) c) d)
6. Epidermis is tough due to the presence of -
 (a) melanin (b) keratin (c) sebum (d) collagen 6. a) b) c) d)
7. After fertilisation, the ovule becomes -
 (a) a fruit (b) pericarp (c) stalk of the seed (d) seed 7. a) b) c) d)
8. Which type of tissue forms the spinal cord and the brain ?
 (a) Muscular tissue (b) Nervous tissue (c) Epithelial tissue (d) Epidermis 8. a) b) c) d)
9. Which of the followings are true for the class mammalia -
 (a) Heart is four-chambered (b) excreta is ureo telic (c) pinna is present (d) All of these 9. a) b) c) d)
10. Which one is not a bone of the skull ?
 (a) Mandible (b) Hyoid bone (c) Atlas (d) Frontal bone 10. a) b) c) d)
11. What is correct organelle sequence for the export of material out of a cell?
 (a) RER → SER → Golgi apparatus
 (b) SER → RER → Golgi apparatus
 (c) RER → Golgi apparatus → SER
 (d) SER → Golgi apparatus → RER 11. a) b) c) d)

Mathematics

1. If $\sqrt{2} = 1.414$ then $\sqrt{\frac{(\sqrt{2}-1)}{(\sqrt{2}+1)}} = ?$ 1. a) b) c) d)
- (a) 0.207 (b) 2.414 (c) 0.414 (d) 0.621

2. If $\frac{a}{b} + \frac{b}{a} = -1$, then $(a^3 - b^3) = ?$ (a) -3 (b) -2 (c) -1 (d) 0 2. a) b) c) d)
3. The equation $2x + 5y = 7$ has a unique solution if x and y are -
(a) natural number (b) rational number (c) positive real number
(d) real numbers 3. a) b) c) d)
4. The sum two digits of a two digit number is 14. If 29 is sub tracted from the number then digit for both places are equal. Find the number -
(a) 95 (b) 59 (c) 86 (d) 68 4. a) b) c) d)
5. If $a = b^{2x}$, $b = c^{2y}$ and $c = a^{2z}$, then value of $xyz = ?$
(a) 1 (b) 8 (c) $\frac{1}{8}$ (d) None of these 5. a) b) c) d)
6. If $\angle A, \angle B, \angle C$ and $\angle D$ of a quadrilateral ABCD, taken in order, are in the ratio 3 : 7 : 6 : 4 then ABCD is a
(a) rhombus (b) kite (c) trapezium (d) parallelogram 6. a) b) c) d)
7. ABCD is trapezium in which $AB \parallel DC$, $AB = 16$ cm and $DC = 24$ cm. If 'E' and 'F' are the midpoints of AD and BC respectively, then the ratio of area of ABEF to the area of EFCD will be
(a) $\frac{9}{11}$ (b) $\frac{11}{9}$ (c) $\frac{8}{11}$ (d) $\frac{11}{8}$ 7. a) b) c) d)
8. A cone and a hemisphere have equal bases and equal volumes. The ratio of their height is - (a) 1 : 2 (b) 2 : 1 (c) 4 : 1 (d) $\sqrt{2} : 1$ 8. a) b) c) d)
9. If $\sin A - \operatorname{Cosec} A = 2$, the value of $\sin^2 A + \operatorname{Cosec}^2 A$ is -
(a) 2 (b) 0 (c) 4 (d) 6 9. a) b) c) d)
10. On a certain sum, the simple interest for 2 years is ₹ 2,400. If the rate of interest is 10% p.a. then compound interest for 2nd year is -
(a) ₹ 1320 (b) ₹ 2640 (c) ₹ 1980 (d) ₹ 2400 10. a) b) c) d)
11. If $x = 3K + 2$, $y = 2K - 1$ is a solution of the equation $4x - 3y + 1 = 0$ then $K = ?$ (a) 2 (b) -2 (c) 3 (d) -3 11. a) b) c) d)

ENVS / GK / GA

1. National Sience Day celebrated in India on -
(a) 28th February (b) 28th March (c) 25th January (d) 22nd April 1. a) b) c) d)
2. Which river is called sorrow of Bengal ?
(a) Ajay (b) Roop narayan (c) Shilabati (d) Damodar 2. a) b) c) d)
3. In which layer of atmosphere CFC's produce active chlodrine ?
(a) Troposphere (b) Stratosphere (c) Thermosphere (d) Mesosphere 3. a) b) c) d)
4. In a certain code language, 'BUILDER' is written as 'YKIPLWC'. How will 'SEALING' be written in the same language ?
(a) NTNPD GT (b) NTMPEGT (c) NTNQDHT (d) NTMPDHT 4. a) b) c) d)
5. Which figure will come next to continue the series ?

5. a) b) c) d)
- 
6. Full form of OTEC :
(a) Ocean Thermal Energy Conversion (b) Ocean Tidal Energy Conversion
(c) Ocean Trapped Energy Conversion (d) None of these 6. a) b) c) d)



Test for Scientific Taste : 2024

SET-A

Conducted by :

Organisation for the Cultivation of Science, Egra

Class - X * Full Marks - 100 * Time - 1 1/2 hours

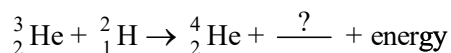
Marks obtained :	<input type="text"/>	NAME _____														
Physics (22) -	<input type="text"/>	(In Block letters)														
Chemistry (22) -	<input type="text"/>	Institution _____														
Life Science (22) -	<input type="text"/>	<table border="1"> <tr> <td>1</td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="3">Centre Code</td> <td>Class</td> <td colspan="3">No.</td> </tr> </table>	1			X				Centre Code			Class	No.		
1				X												
Centre Code			Class	No.												
Mathematics (22) -	<input type="text"/>	Roll No.														
ENVS / GK / MAT (12) -	<input type="text"/>															
Total (100) -	<input type="text"/>	Verified by _____														
		Signature of invigilator _____														

General Instructions

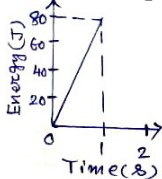
- Choose the correct answer and put [X] mark inside the appropriate box. If you think that you have put [X] mark in wrong answer, fill it (e.g. ■) and choose the right from other three. But take the chance once for one question.
- Each question carries 2 marks.**
- No marks will be deducted for wrong answers. Calculator is not allowed.
- Use back side of question paper or separate sheet to sum the mathematical problems if necessary.

Physics

- Two waves of same pitch have amplitudes in the ratio 1 : 3. The ratio of their intensities and frequencies are respectively
1. a) b) c) d)
(a) 1 : 9 & 1 : 3 (b) 1 : 3 & 1 : 9 (c) 1 : 9 & 1 : 9 (d) 1 : 3 & 1 : 3
- To complete the nuclear reaction which of the following particle should be at '?' mark ?
2. a) b) c) d)

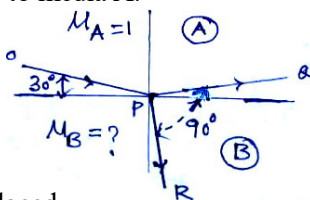
(a) α (b) β (c) γ (d) protium

- With the help of the graph given alongside, calculate power of the lamp. 3. a) b) c) d)



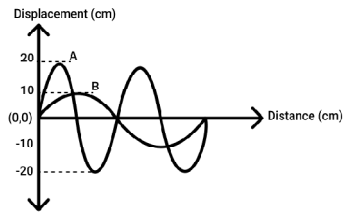
(a) 60 W (b) 80 W (c) 40 W (d) 50 W

- A beam of light falls on the interface of two different optical media and get reflected and refracted simultaneously as shown in figure along side. Find the R.I. of media 'B' with respect to media A. 4. a) b) c) d)

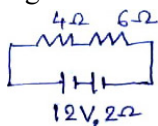
(a) $\frac{\sqrt{3}}{2}$ (b) $\frac{1}{2}$ (c) $\sqrt{3}$ (d) $\frac{1}{\sqrt{3}}$

- In a simple microscope, the object is placed -
(a) between 'F' & '2F' (b) between 'O' & 'F' (c) at F (d) at 2F 5. a) b) c) d)

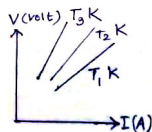
6. Displacement-distance graph of two sound waves A & B, travelling in a medium, are shown in figure. Find the ratio of amplitudes and wavelengths of A and B waves respectively -



- (a) 2 : 1 & 1 : 2 (b) 2 : 1 & 2 : 1 (c) 1 : 2 & 1 : 2 (d) 1 : 2 & 2 : 1
7. A battery of emf 12V and internal resistance 2Ω is connected with two resistors of resistance 4Ω and 6Ω respectively joined in series as given in figure. The electrical energy spent per minute in 4Ω resistor is -



- (a) 402 J (b) 420 J (c) 24 J (d) 204 J
8. If linear momentum of a body increased by 30% then increase in kinetic energy by - (a) 96% (b) 69% (c) 72% (d) 60%
9. For the given ohmic conductor, V-I graph in different temperature are given in the figure. Then what is correct relation of temperatures.



- (a) $T_1 > T_2 > T_3$ (b) $T_1 = T_2 = T_3$ (c) $T_2 > T_1 > T_3$
 (d) $T_3 > T_2 > T_1$
10. 40g of ice at 0°C is used to bring down the temperature of a certain mass of water at 60°C to 10°C . Find the mass of water used. Specific heat capacity of water = $4200 \text{ J kg}^{-1} \text{ }^\circ\text{C}^{-1}$ and specific latent heat of fusion of ice = $336 \times 10^3 \text{ J kg}^{-1}$ (a) 72 g (b) 36 g (c) 27 g (d) 18 g
11. A pair of scissors is used to cut a piece of cloth placed 2 cm from the rivet. A force of 8 kg f is applied at a distance of 7.5 cm from the rivet. What is the resistance offered by cloth ?
 (a) 60 kgf (b) 50 kgf (c) 48 kgf (d) 30 kgf

Chemistry

1. Calculate the percentage of sodium in sodium aluminium fluoride $[\text{Na}_3\text{AlF}_6]$; Na = 23, Al = 27, F = 19
 (a) 32.8 % (b) 12.8 % (c) 54.2 % (d) None of these
2. A compound with low boiling point is -
 (a) water (b) mercury (c) carbon tetrachloride (d) carbon-disulphide
3. The element with highest ionization potential, is -
 (a) Hydrogen (b) Caesium (c) Radon (d) Helium
4. The most electronegative element from the given elements is -
 (a) Magnesium (b) Nitrogen (c) Chlorine (d) Sulphur
5. The reason for using aluminium in the alloy duralumin is -
 (a) Aluminium is brittle (b) Aluminium gives strength (c) Aluminium brings lightness (d) Aluminium lowers melting point.

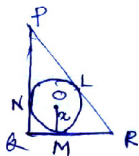
6. Choose the method of preparation of sodium nitrate -
 (a) Precipitation (b) Neutralization (c) Direct Combination
 (d) Substitution 6. a) b) c) d)
7. The organic compound which undergoes substitution reaction is -
 (a) C_2H_2 (b) C_2H_4 (c) $C_{10}H_8$ (d) C_2H_6 7. a) b) c) d)
8. The electrolysis of molten NaCl is an example of -
 (a) Oxidation (b) Reduction (c) Redox reaction (d) Synthesis 8. a) b) c) d)
9. A gaseous hydro carbon contains 82.76% of carbon and if the vapour density is 29 then the molecular formula of gas is (given C = 12, H = 1)
 (a) C_4H_{10} (b) C_4H_8 (c) C_3H_8 (d) C_4H_6 9. a) b) c) d)
10. The aqueous solution of ammonium chloride contains :
 (a) only molecules (b) mainly ions (c) ions and molecules (d) only atoms 10. a) b) c) d)
11. The metal whose oxide, which is amphoteric, is reduced to metal by carbon reduction is - (a) Fe (b) Mg (c) Al (d) Pb 11. a) b) c) d)

Life Science

1. The main nitrogenous waste formed in the human body -
 (a) Uric acid (b) Urea (c) Ammonia (d) Creatinine 1. a) b) c) d)
2. Organ of corti is present inside the -
 (a) Cochlea (b) Semi Circular Canal (c) Sacculus (d) Utriculus 2. a) b) c) d)
3. Find out the odd term - (a) Auxin (b) Ethylene (c) Adrenaline (d) Cytokinin 3. a) b) c) d)
4. Complete the second pair on a similar basis as, Uterus : Implantation :: Fallopian tube : _____
 (a) Zygote (b) Ovulation (c) embryo (d) Fertilization 4. a) b) c) d)
5. Which one of the following does not affect the rate of transpiration ?
 (a) Light (b) Humidity (c) Wind (d) Age of the plant 5. a) b) c) d)
6. A muscular wall is absent in - (a) Capillary (b) Venule (c) Vein (d) Arteriole 6. a) b) c) d)
7. Aqueous humour is present between the -
 (a) lens and retina (b) Iris and lens (c) cornea and iris (d) cornea and lens 7. a) b) c) d)
8. Marine fish when placed in tap water bursts because of -
 (a) Endosmosis (b) Exosmosis (c) Diffusion (d) Plasmolysis 8. a) b) c) d)
9. Synthesis Phase in the cell cycle is called so, because of the synthesis of more -
 (a) RNA (b) RNA and proteins (c) DNA (d) Glucose 9. a) b) c) d)
10. The individual flattened stacks of membranous structures inside the chloroplasts are known as -
 (a) Grana (b) Stroma (c) Thylakoids (d) Cristae 10. a) b) c) d)
11. The mineral ion needed for the formation of blood clot is -
 (a) Potassium (b) Sodium (c) Iron (d) Calcium 11. a) b) c) d)

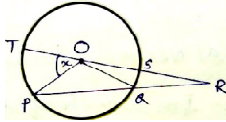
Mathematics

1. If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ the value of $A^2 - 5A + 7I$
 (a) 0 (b) 1 (c) -1 (d) 2 1. a) b) c) d)
2. In triangle PQR, PQ = 24 cm, QR = 7 cm and $\angle PQR = 90^\circ$. Find the radius of the inscribed circle. 2. a) b) c) d)



- (a) 5 cm (b) 4 cm (c) 3 cm (d) 2 cm

3. At what rate % p.a. will a sum of ₹ 4000 yield ₹ 1324 as compound interest in 3 years ? (a) 12% (b) 10% (c) 8% (d) 6.5% 3. a) b) c) d)
4. If $(x-9) : (3x+6)$ is the duplicate ratio of 4 : 9, find the value of x using properties of proportion. (a) 20 (b) 22 (c) 25 (d) 30 4. a) b) c) d)
5. Find the value of 'K' for which $x = 3$ is a solution of a quadratic equation $(K+2)x^2 - kx + 6 = 0$ (a) 4 (b) - 4 (c) - 1 (d) 3 5. a) b) c) d)
6. In the given figure, 'O' is the centre of the circle. If $OR = OP$ and $\angle ORP = 20^\circ$, Find the value of x - 6. a) b) c) d)

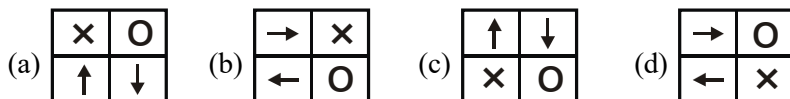


- (a) 110° (b) 80° (c) 70° (d) 60°

7. $\frac{2x + \sqrt{4x^2 - 1}}{2x - \sqrt{4x^2 - 1}} = 4$, find the value of x - (a) $\frac{5}{8}$ (b) $-\frac{5}{8}$ (c) $\pm\frac{5}{8}$ (d) $\pm\frac{1}{8}$ 7. a) b) c) d)
8. The product of two consecutive natural numbers which are multiples of 3 is equal to 810. The two numbers are - 8. a) b) c) d)
- (a) 9, 90 (b) 27, 30 (c) 18, 45 (d) 54, 15
9. What must be added to the polynomial $2x^3 - 3x^2 - 8x$ so that it leaves a remainder 10 when divided by $2x + 1$? (a) 7 (b) 6 (c) 5 (d) 4 9. a) b) c) d)
10. A solid right circular cone of radius 5 cm and height 9 cm is melted and made into small cylinders of radius of 0.5 cm and height 1.5 cm. Find the number of cylinders so formed. (a) 300 (b) 250 (c) 195 (d) 200 10. a) b) c) d)
11. A light house is 80 m high. The angle of elevation of its top from a point 80 m away from its foot along the same horizontal line is - 11. a) b) c) d)
- (a) 60° (b) 45° (c) 30° (d) 90°

ENVS / GK

1. Which one of the following is mangrove tree - 1. a) b) c) d)
- (a) Neem (b) Gulmohor (c) Sundari (d) Mango
2. In which of the following layer of atmosphere ; CFCs produces active chlorine ? 2. a) b) c) d)
- (a) Thermosphere (b) Troposphere (c) Strato Sphere (d) Mesosphere
3. The state tree of West Bengal is - 3. a) b) c) d)
- (a) Mango tree (b) Neem tree (c) Banyan tree (d) Chhatim tree
4. Which of the following is more clean fuel than others - 4. a) b) c) d)
- (a) Biomass (b) Natural Gas (c) Diesel (d) Anthracite coal
5. Find the odd one out - 5. a) b) c) d)



6. If the code for 'LOVE' is '3695' and for 'CARE' is '1875', then which word would be coded as 16783 ? 6. a) b) c) d)
- (a) VOCAL (b) COVER (c) CORAL (d) LOYAL



Test for Scientific Taste : 2024

SET-A

Conducted by :

Organisation for the Cultivation of Science, Egra

Class - XI * Full Marks - 100 * Time - 1 1/2 hours

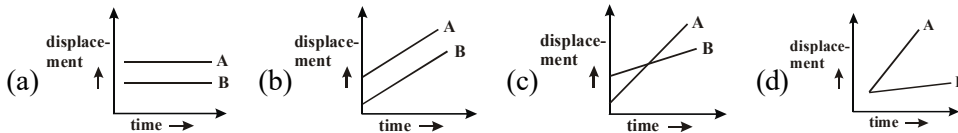
Marks obtained :	<input type="text"/>	NAME _____														
Physics (22) -	<input type="text"/>	(In Block letters)														
Chemistry (22) -	<input type="text"/>	Institution _____														
Life Science (22) -	<input type="text"/>	Roll No. <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; text-align: center;">1</td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px; text-align: center;">XI</td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> </tr> <tr> <td colspan="3" style="text-align: center;">Centre Code</td> <td style="text-align: center;">Class</td> <td colspan="3" style="text-align: center;">No.</td> </tr> </table>	1			XI				Centre Code			Class	No.		
1				XI												
Centre Code			Class	No.												
Mathematics (22) -	<input type="text"/>															
ENVS / GK / MAT (12) -	<input type="text"/>															
Total (100) -	<input type="text"/>	Verified by _____ Signature of invigilator _____														

General Instructions

- Choose the correct answer and put mark inside the appropriate box. If you think that you have put mark in wrong answer, fill it (e.g.) and choose the right from other three. But take the chance once for one question.
- Each question carries 2 marks.**
- No marks will be deducted for wrong answers. Non-programmable Calculator is allowed.
- Use back side of question paper or separate sheet to sum the mathematical problems if necessary.

Physics

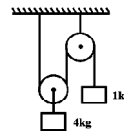
- Which of the following relations is dimensionally correct ?
 (a) $1u = 931.5 \text{ Mev}$ (b) $1u = 931.5 \text{ Mev}/c^2$ (c) $1u = 1.67 \times 10^{-27} \text{ J}$ (d) none of these
 1. a) b) c) d)
- Which one of the following represents displacement - time graph of two objects A and B moving with zero relative velocity ?
 2. a) b) c) d)



- Two vectors A and B have equal magnitudes. If magnitude of $A + B$ is equal to n times the magnitude of $A - B$, then the angle between A and B is -
 3. a) b) c) d)

(a) $\cos^{-1} \left(\frac{n-1}{n+1} \right)$ (b) $\cos^{-1} \left(\frac{n^2-1}{n^2+1} \right)$ (c) $\sin^{-1} \left(\frac{n-1}{n+1} \right)$ (d) $\sin^{-1} \left(\frac{n^2-1}{n^2+1} \right)$

- In the system shown in the fig., the acceleration of 1 kg mass is -
 4. a) b) c) d)



- (a) $\frac{g}{4}$ downwards (b) $\frac{g}{2}$ downwards (c) $\frac{g}{4}$ upwards (d) $\frac{g}{2}$ upwards
- Water is flowing in a river at 2ms^{-1} . The river is 50m wide and has an average depth of 5m. The power available from the current in the river is (density of water = 1000 kg m^{-3}) - (a) 0.5 MW (b) 1 MW (c) 1.5 MW (d) 2 MW
 5. a) b) c) d)
 - When two spheres of equal masses undergo glancing elastic collision with one of them at rest, after collision they will move -
 (a) opposite to one another (b) in the same direction (c) together (d) at right angle to each other.
 6. a) b) c) d)
 - Angular momentum L and rotational K.E. K of a rigid body are related to each other by the relation (I = moment of inertia) -
 7. a) b) c) d)

(a) $K = 2IL$ (b) $K = \frac{L^2}{2I}$ (c) $K = \frac{2I}{L}$ (d) $K = \frac{L^2}{I}$

8. The work done to raise a mass m from the surface of the earth to a height h , which is equal to the radius of the earth, is - 8. a) b) c) d)
- (a) $\frac{3}{2} mgR$ (b) mgR (c) $2 mgR$ (d) $\frac{1}{2} mgR$
9. Two astronauts are floating in gravitational free space after having lost contact with their spaceship the two will - 9. a) b) c) d)
- (a) move towards each other (b) move away from each other (c) will become stationary (d) keep floating at the same distance between them.
10. Assertion : The contact angle between water and glass is acute
Reason : The surface of water in the capillary is convex. 10. a) b) c) d)
- (a) Both assertion and reason are true and reason is the correct explanation of assertion.
(b) Both assertion and reason are true but reason is not the correct explanation of assertion.
(c) Assertion is true but reason is false. (d) Both Assertion and reason are false.
11. The rate of cooling at 600 K, if surrounding temperature is 300 K is H . The rate of cooling at 900 K is - (a) $\frac{16}{3} H$ (b) $2 H$ (c) $3 H$ (d) $\frac{2}{3} H$ 11. a) b) c) d)

Chemistry

1. The orbital diagram in which the Aufbau principle is violated is - 1. a) b) c) d)
- (a) $\uparrow\downarrow$ \uparrow \uparrow \square (b) $\uparrow\downarrow$ \uparrow \uparrow \uparrow
(c) \uparrow \uparrow \uparrow \uparrow (d) $\uparrow\downarrow$ $\uparrow\downarrow$ \uparrow \uparrow
2. An impure sample of silver (1.5 g) is heated with S to form 0.124 g of Ag_2S . What was the percent yield of Ag_2S ? 2. a) b) c) d)
- (a) 21.6 % (b) 7.2% (c) 1.7% (d) 24.8%
3. Which of the following properties of isotopes of an element is different ? 3. a) b) c) d)
- (a) first ionisation enthalpy (b) Effective nuclear charge (c) Electron affinity
(d) Melting point and boiling point.
4. Mark out the incorrect match of shape - 4. a) b) c) d)
- (a) $XeOF_2 \rightarrow$ Trigonal planar (b) $ICl_2^- \rightarrow$ Square planar
(c) $[SbF_5]^{2-} \rightarrow$ Square pyramidal (d) $NH_2^- \rightarrow$ V-shaped
5. If Z is a compressibility factor, van der Waals' equation at low pressure can be written as - 5. a) b) c) d)
- (a) $Z = 1 + \frac{Pb}{RT}$ (b) $Z = 1 + \frac{RT}{Pb}$ (c) $Z = 1 - \frac{a}{VRT}$ (d) $Z = 1 - \frac{Pb}{RT}$
6. For the reaction : $H_2(g) + Cl_2(g) \rightarrow 2HCl$; $\Delta H = -44$ KCal what is the enthalpy of decomposition of HCl ? 6. a) b) c) d)
- (a) +44 KCal / mol (b) -44 KCal / mol (c) -22 KCal / mol (d) +22 KCal / mol
7. Calculate K_p for the equilibrium - $NH_4HS(S) \rightleftharpoons NH_3(g) + H_2S(g)$; if the total pressure inside the reaction vessel is 1.12 atm at $105^\circ C$. 7. a) b) c) d)
- (a) 0.56 (b) 1.25 (c) 0.31 (d) 0.63
8. Which of the following acts as a self-indicator ? 8. a) b) c) d)
- (a) $K_2Cr_2O_7$ (b) $KMnO_4$ (c) Oxalic acid (d) Iodine
9. Based on the following reactions, arrange the metals in increasing order of their reduction potentials. 9. a) b) c) d)
- $Zn + Cu^{2+} \rightarrow Zn^{2+} + Cu$; $Mg + Zn^{2+} \rightarrow Mg^{2+} + Zn$;
 $Cu + 2Ag^+ \rightarrow Cu^{2+} + 2Ag$
- (a) $Mg > Zn > Cu > Ag$ (b) $Mg < Zn < Cu < Ag$ (c) $Zn < Cu < Ag < Mg$
(d) $Mg > Cu > Zn > Ag$

10. Among the following the exceptions of the octet rule is -
 (a) the incomplete octet of central atom (b) an odd number of electrons on central atom (c) expanded octet of the central atom (d) all of these
11. Which of the following is electron-deficient ?
 (a) $(\text{BH}_3)_2$ (b) PH_3 (c) $(\text{CH}_3)_2$ (d) $(\text{SiH}_3)_2$

Biology

1. In angiosperms, functional megaspore develops into -
 (a) embryo sac (b) ovule (c) endosperm (d) pollen sac
2. Endospermic seeds are found in -
 (a) barley (b) castor (c) pea (d) Both (a) and (b)
3. Assertion : Annual rings are used to calculate the age of tree
 Reason : Secondary growth is not found in bamboo.
 (a) Both assertion and reason are true and reason is the correct explanation of assertion.
 (b) Both assertion and reason are true but reason is not the correct explanation of assertion.
 (c) Assertion is true but reason is false. (d) Both assertion and reason are false.
4. Primary function of enteronephric nephridia of Pheretima is -
 (a) osmoregulation (b) excretion of nitrogenous wastes (c) respiration (d) locomotion
5. Smooth endoplasmic reticulum is well developed in the cells which synthesise -
 (a) Steroids (b) proteins (c) carbohydrates (d) all of these/
6. Colchicine is a cell poison which arrests cell division at _____ and can induce _____.
 (a) metaphase, parthenocarp (b) anaphase, parthenocarp (c) metaphase, polyploidy (d) anaphase, polyploidy
7. Which of the following is an amino acid derived hormone ?
 (a) Epinephrine (b) Ecdysone (c) Estradiol (d) Estriol
8. Eustachian tube is a passage connecting the -
 (a) inner ear with pharynx (b) eye with nose (c) middle ear with pharynx (d) middle ear with eye
9. Match Column-I with Column-II and select the correct option :

Column-I	Column-II
A. True ribs	i) 3 pairs
B. False ribs	ii) 2 pairs
C. Floating ribs	iii) 7 pairs

 (a) A - (i), B - (ii), C - (iii) (b) A - (iii), B - (i), C - (ii)
 (c) A - (iii), B - (ii), C - (i) (d) A - (ii), B - (i), C - (iii)
10. Select the correctly matched pair :
 (a) Pineal gland – Does not influence menstrual cycle
 (b) Corpus luteum – Secretes oxytocin
 (c) Interstitial cells – Erythropoietic
 (d) Cholecystokinin – Stimulates pancreatic enzyme secretion
11. Which cells of 'Crypts of Lieberkuhn' secrete antibacterial lysozyme ?
 (a) Paneth cells (b) Zymogen cells (c) Kupffer cells (d) Argentaffin cells

Mathematics

1. The domain and range of the relation R is given by $R = \{(x, y) : y = x + \frac{6}{x}; \text{ where } x, y \in \mathbb{N} \text{ and } x < 6\}$ is respectively -
 (a) $\{1, 2, 3\}$ and $\{7, 5\}$ (b) $\{1, 2\}$ and $\{7, 5\}$ (c) $\{2, 3\}$ and $\{5\}$
 (d) None of these
2. Let $f(x + \frac{1}{x}) = x^2 + \frac{1}{x^2}$, $x \neq 0$, then $f(x) =$ (a) x^2 (b) $x^2 - 1$ (c) $x^2 - 2$ (d) $x^2 + 1$
3. If $1 + \cos x = K$, where x is acute, then $\sin(x/2)$ is -
 (a) $\sqrt{\frac{1-k}{2}}$ (b) $\sqrt{2-k}$ (c) $\sqrt{\frac{2+k}{2}}$ (d) $\sqrt{\frac{2-k}{2}}$

4. The multiplicative inverse of $\frac{3+4i}{4-5i}$ is - 4. a) b) c) d)
- (a) $\frac{8}{25} - \frac{31}{25}i$ (b) $-\frac{8}{25} - \frac{31}{25}i$ (c) $-\frac{8}{25} + \frac{31}{25}i$ (d) none of these
5. Solution of $\left|x + \frac{1}{x}\right| > 2$ is 5. a) b) c) d)
- (a) $R - \{0\}$ (b) $R - \{-1, 0, 1\}$ (c) $R - \{1\}$ (d) $R - \{-1, 1\}$
6. A box contains two white balls, three black balls and four red balls. The number of ways in which three balls can be drawn from the box so that at least one of the balls is black, is - 6. a) b) c) d)
- (a) 74 (b) 84 (c) 64 (d) 20
7. Find the coefficient of a^4 in the product $(1 + 2a)^4 (2 - a)^5$. 7. a) b) c) d)
- (a) -435 (b) -438 (c) -424 (d) -430
8. For any three positive real numbers a, b and c, 8. a) b) c) d)
- $9(25a^2 + b^2) + 25(c^2 - 3ac) = 15b(3a + c)$. Then
- (a) b, c and a are in A.P. (b) a, b and c are in A.P. (c) a, b and c are in G.P.
(d) b, c and a are in G.P.
9. The locus of the mid-point of the portion intercepted between the axes by the line $x \cos \alpha + y \sin \alpha = p$, where p is a constant, is - 9. a) b) c) d)
- (a) $x^2 + y^2 = 4p^2$ (b) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{4}{p^2}$ (c) $x^2 + y^2 = \frac{4}{p^2}$ (d) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{2}{p^2}$
10. A triangle has a vertex at (1, 2) and the midpoints of the two sides through it are (-1, 1) and (2, 3). Then the centroid of this triangle is - 10. a) b) c) d)
- (a) $\left(\frac{1}{3}, \frac{5}{3}\right)$ (b) $\left(1, \frac{7}{3}\right)$ (c) $\left(\frac{1}{3}, 2\right)$ (d) $\left(\frac{1}{3}, 1\right)$
11. Four distinct points (2k, 3k), (1, 0), (0, 1) and (0, 0) lie on a circle for - 11. a) b) c) d)
- (a) only one value of k (b) $0 < k < 1$ (c) $k < 0$ (d) all integral values of k

GK / ENVS / MAT

1. The Terai region is made up of which of the following materials coming from Himalayan tract ? I - Sand, II - Gravel, III - Pebbles, IV - Slit 1. a) b) c) d)
- (a) only I (b) I, II and III (c) II, III & IV (d) I, III & IV
2. The City 'KRISHNANAGAR' is located at near the river. 2. a) b) c) d)
- (a) Kaljani (b) Jalangi (c) Torsa (d) Dwarka
3. World diabetes day celebrated on - 3. a) b) c) d)
- (a) 12th Nov (b) 13th Nov (c) 14th Nov (d) 14th March
4. God particles is - 4. a) b) c) d)
- (a) Boson particle (b) Higgs-boson particle (c) Higgs particle
(d) Higgs-Einstein particle
5. How many squares are there in a Chessboard 5. a) b) c) d)
- (a) 402 (b) 246 (c) 264 (d) 204
6. In a certain rule ; HOMV : KRPY :: ? : VEHM them ? = 6. a) b) c) d)
- (a) TBEJ (b) SBEJ (c) SCDO (d) TCEO



Test for Scientific Taste : 2024

SET-A

Conducted by :

Organisation for the Cultivation of Science, Egra

Class - XII * Full Marks - 100 * Time - 1 1/2 hours

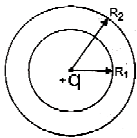
Marks obtained :	<input type="text"/>	NAME _____																
Physics (22) -	<input type="text"/>	(In Block letters)																
Chemistry (22) -	<input type="text"/>	Institution _____																
Life Science (22) -	<input type="text"/>	Roll No. <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; text-align: center;">1</td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px; text-align: center;">XII</td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> </tr> <tr> <td colspan="2" style="text-align: center;">Centre Code</td> <td colspan="2" style="text-align: center;">Class</td> <td colspan="3" style="text-align: center;">No.</td> </tr> </table>			1			XII				Centre Code		Class		No.		
1			XII															
Centre Code		Class		No.														
Mathematics (22) -	<input type="text"/>																	
ENVS / GK / MAT (12) -	<input type="text"/>																	
Total (100) -	<input type="text"/>	Verified by _____ Signature of invigilator _____																

General Instructions

- Choose the correct answer and put mark inside the appropriate box. If you think that you have put mark in wrong answer, fill it (e.g.) and choose the right from other three. But take the chance once for one question.
- Each question carries 2 marks.**
- No marks will be deducted for wrong answers. Non-programmable Calculator is allowed.
- Use back side of question paper or separate sheet to sum the mathematical problems if necessary.

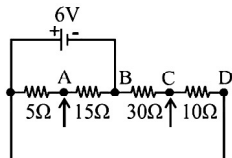
Physics

- A metallic spherical shell has an inner radius R_1 and outer radius R_2 . A charge is placed at the centre of the spherical cavity. The surface charge density on the inner surface is -



1. a) b) c) d)
- (a) $\frac{q}{4\pi R_1^2}$ (b) $-\frac{q}{4\pi R_1^2}$ (c) $\frac{q^2}{4\pi R_2^2}$ (d) $\frac{q}{4\pi R_2^2}$

- Four resistors are connected as shown in the figure. The potential difference across A and C (if battery has a negligible resistance) is -



2. a) b) c) d)
- (a) Zero (b) 1.5 V (c) 2V (d) 3V

- The range of magnetic susceptibility and relative permeability for diamagnetic substances are -

3. a) b) c) d)
- (a) $-1 \leq \chi > 0, 0 \geq \mu_r < 1$ (b) $-1 \geq \chi > 0, 0 \leq \mu_r < 1$
(c) $-1 \geq \chi > 1, 0 \leq \mu_r < 1$ (d) $-1 \leq \chi < 0, 0 \leq \mu_r < 1$

- Assertion** : An important application of electro magnetic induction is ac generator. **Reason** : The direction of current changes periodically and therefore the current is called alternating current.

4. a) b) c) d)
- (a) both assertion and reason are true and reason is the correct explanation of assertion.
(b) both assertion and reason are true but reason is not the correct explanation of assertion.
(c) assertion is true but reason is false. (d) both assertion and reason are false.

- An electrical device draws 2KW power from ac mains voltage 223V (rms). The current differs lags in phase by $\phi = \tan^{-1}\left(-\frac{3}{4}\right)$ as compared to voltage. The resistance R in the circuit is -

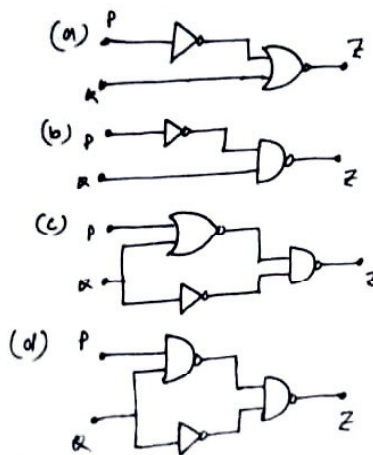
5. a) b) c) d)
- (a) 15 Ω (b) 20 Ω (c) 25 Ω (d) 30 Ω

- If E and B denote electric and magnetic fields respectively, which of the following is dimensionless ?

6. a) b) c) d)
- (a) $\sqrt{\mu_0 \epsilon_0} \frac{E}{B}$ (b) $\mu_0 \epsilon_0 \frac{E}{B}$ (c) $\mu_0 \epsilon_0 \left(\frac{E}{B}\right)^2$ (d) $\frac{E}{B} \cdot \frac{\mu_0}{\epsilon_0}$

7. A plano - convex lens ($f = 20$ cm) is silvered at plane surface. The focal length will be - (a) 20 cm (b) 40 cm (c) 30 cm (d) 10 cm
8. When a low flying aircraft passes overhead, we sometimes notice a slight shaking of picture on our TV screen. Which of the following phenomena is responsible for it ? (a) Interference (b) Diffraction (c) Polarisisation of direct signal (d) Both (b) and (c)
9. The de Broglie wave length of an electron with K.E. 120 eV is - (Given $h = 6.63 \times 10^{-34}$ J.S, $m_e = 9 \times 10^{-31}$ kg, $1 \text{ eV} = 1.6 \times 10^{-19}$ J) (a) 2.13 \AA (b) 1.13 \AA (c) 4.15 \AA (d) 3.14 \AA
10. The activity of a sample of radioactive material is A_1 at time t_1 and A_2 at time t_2 ($t_2 > t_1$). If its mean life is T , then - (a) $A_1 t_1 = A_2 t_2$ (b) $A_1 A_2 = t_2 - t_1$ (c) $A_2 = A_1 e^{(t_1 - t_2)/T}$ (d) $A_2 = A_1 e^{-\left(\frac{t_1}{t_2}\right)T}$
11. A combination of logic has the truth table as shown - Which combination has this table ?

P	Q	Z
0	0	0
0	1	1
1	0	1
1	1	1

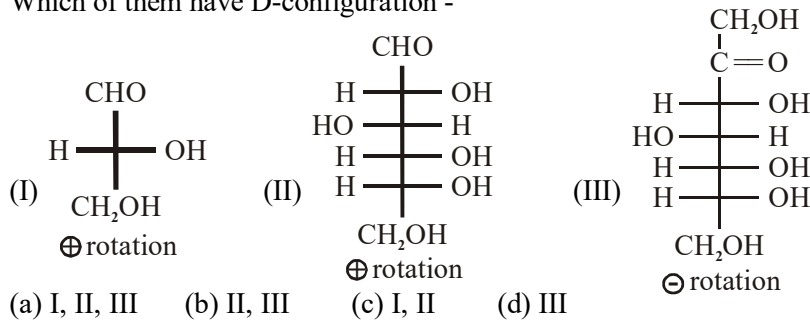


11. a) b) c) d)

Chemistry

1. The edge lengths of the unit cells in terms of the radius of spheres constituting fcc, bcc and simple cubic unit cell are respectively - 1. a) b) c) d)
- (a) $2\sqrt{2}r, \frac{4r}{\sqrt{3}}, 2r$ (b) $\frac{4r}{\sqrt{3}}, 2\sqrt{2}r, 2r$ (c) $2r, 2\sqrt{2}r, \frac{4r}{\sqrt{3}}$ (d) $2r, \frac{4r}{\sqrt{3}}, 2\sqrt{2}r$
2. The degree of dissociation of salt A_2B_2 in its solution is α . The van't Hoff factor for the salt is - (a) $\alpha + 1$ (b) $2\alpha + 1$ (c) $\alpha + \frac{1}{2}$ (d) $4\alpha + 1$ 2. a) b) c) d)
3. Standard electrode potential of three metals 'X', 'Y' and 'Z' are - 1.2V, + 0.5 V and - 3.0 V respectively. The reducing power of these metals will be - 3. a) b) c) d)
- (a) $X > Y > Z$ (b) $Y > Z > X$ (c) $Y > X > Z$ (d) $Z > X > Y$
4. Which option is valid for a zero order reaction - 4. a) b) c) d)
- (a) $t_{3/4} = \frac{3}{2} t_{1/2}$ (b) $t_{1/2} = \frac{4}{3} t_{3/4}$ (c) $t_{1/2} = 2 t_{3/4}$ (d) $t_{3/4} = t_{1/2}^2$
5. The gold number of lyophilic colloids A, B, C and D are 125, 10, 0.1 and 0.005 respectively. Their protective power will be in the order - 5. a) b) c) d)
- (a) $B > D > C > A$ (b) $D > C > B > A$ (c) $A > B > C > D$ (d) $C > B > A > D$
6. Which pair is isostructural - 6. a) b) c) d)
- (a) NH_3 and NO_3^- (b) NF_3 and BF_3 (c) BF_4^- and NH_4^+ (d) BCl_3 and BrCl_3
7. The colour of cuprous chloride is - (a) red (b) white (c) green (d) brown 7. a) b) c) d)
8. Which of the following complex ions has no 'd' electron(s) in the central metal atom 8. a) b) c) d)
- (a) $[\text{Cr}(\text{H}_2\text{O})_6]^{3+}$ (b) $[\text{Co}(\text{NH}_3)_5\text{Cl}]^{2+}$ (c) $[\text{Fe}(\text{CN})_6]^{3-}$ (d) $[\text{MnO}_4]^-$
9. The compound expected to be formed in the above reaction is - 9. a) b) c) d)
- (a) (b) (c) (d)
10. Which will not undergo benzoin condensation - 10. a) b) c) d)
- (a) PhCHO (b) $\text{CH}_3\text{O}-\text{C}_6\text{H}_4-\text{CHO}$ (c) $\text{CH}_3-\text{C}_6\text{H}_4-\text{CHO}$ (d) $\text{C}_6\text{H}_5-\text{CH}_2\text{CHO}$

11. Optical rotation of some compounds along with their structures are given below. Which of them have D-configuration - 11. a) b) c) d)



Biology

1. Lotic ecosystem is an example - 1. a) b) c) d)
(a) fresh water ecosystem (b) marine ecosystem (c) grassland ecosystem (d) desert ecosystem
2. The adaptation for a plant to survive in desert is - 2. a) b) c) d)
(a) C₃ cycle of photosynthesis (b) leaves modified to spines (c) presence of tendrils (d) pitcher present
3. The free-living fungus Trichoderma can be used for - 3. a) b) c) d)
(a) killing insects (b) biological control (c) controlling butterfly (d) producing antibiotics
4. Humulin was first marketed by - 4. a) b) c) d)
(a) Eli Lilly (b) Sunpharma (c) Nova Industry (d) None of these
5. PBR322 does not have - 5. a) b) c) d)
(a) Ampicillin resistant gene (b) Chloramphenical resistant gene (c) restriction site for clai enzyme (d) Ori
6. 'Smack' is a drug obtained from the - 6. a) b) c) d)
(a) flowers of Datura (b) leaves of canavis sativa (c) latex of papaver somniferum (d) fruits of Erythroxylyum coca
7. Phenomenon of 'industrial melanism' demonstrates - 7. a) b) c) d)
(a) Geographical isolation (b) Reproductive isolation (c) Natural selection (d) Induced mutation
8. Each female overy consist of - 8. a) b) c) d)
(a) millions of ova (b) millions of primary oocytes (c) millions of oogonia (d) millons of secondary oocytes
9. Which of the following is the triplets code of glutenic acid ? 9. a) b) c) d)
(a) GGG (b) AAG (c) GAA (d) GAG
10. With regard to mature mRNA eukaryotes, choose the correct statement - 10. a) b) c) d)
(a) Exons and introns do not appear in the mature RNA (b) Exons appears but introns do not appear in the mature RNA (c) Introns appear exons do not appear in the mature RNA (d) Both exons and introns appear in the mature RNA.
11. Read both staments 'A' & 'R' and find out the correct alternative - 11. a) b) c) d)
Assertion → A → False fruits are produced from thalamus.
Reason → R → Banana is one of its example.
(a) Both 'A' & 'R' are true and 'R' is correct explanation of 'A'
(b) Both 'A' & 'R' are true but 'R' is not correct explanation of 'A'
(c) 'A' is true 'R' is false (d) 'A' is false and 'R' is true

Mathematics

1. If $f(x) = \int_1^{\sqrt{x}} \sin(t^2) dt$ Then $f'(1) = ?$ 1. a) b) c) d)
(a) $\sin 1$ (b) $2 \sin 1$ (c) $\frac{3}{2} \sin 1$ (d) $\frac{1}{2} \sin 1$
2. What is the point of intersection of the plane $2x - 3y + 4z - 6 = 0$ and the perpendicular to the plane drawn from the origin ? 2. a) b) c) d)
(a) $\left(\frac{27}{\sqrt{29}}, \frac{-13}{\sqrt{29}}, \frac{14}{\sqrt{29}}\right)$ (b) $\left(\frac{12}{29}, \frac{-18}{29}, \frac{24}{29}\right)$ (c) $(14, -18, 26)$ (d) $\left(\frac{17}{\sqrt{29}}, \frac{-18}{\sqrt{29}}, \frac{26}{\sqrt{29}}\right)$

3. If $|\alpha + \beta| < |\alpha - \beta|$ and θ is the angle between α and β , then find the range of θ . 3. a) b) c) d)
- (a) $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$ (b) $(0, \pi)$ (c) $\left(\frac{\pi}{2}, \frac{3\pi}{2}\right)$ (d) $(0, 2\pi)$
4. P have two children. Amoy of them one is a son, Jatin. Find the probability that other is a brother of Jatin. 4. a) b) c) d)
- (a) $\frac{1}{3}$ (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) $\frac{2}{3}$
5. $\int e^x \left(\frac{1-x}{1+x^2}\right)^2 dx = ?$ 5. a) b) c) d)
- (a) $\frac{e^x(1-x)}{1+x^2} + c$ (b) $\frac{e^x}{(1+x^2)^2} + c$ (c) $\frac{e^x}{1+x} + c$ (d) $\frac{e^x}{1+x^2} + c$
6. If the area between the axes and the tangent to the curve $f(x) = x^2 + bx - b$ at $(1,1)$ is 2 units, then find the value of b 6. a) b) c) d)
- (a) -3 (b) -1 (c) 3 (d) 1
7. If $f(2) = 4$, $f'(2) = 4$ then, find $\lim_{x \rightarrow 2} \frac{x f(2) - 2f(x)}{x - 2}$ 7. a) b) c) d)
- (a) 2 (b) -4 (c) -2 (d) 3
8. If $A = \begin{bmatrix} k & 0 & 0 \\ 0 & k & 0 \\ 0 & 0 & k \end{bmatrix}$, then find $|A| \cdot |\text{adj } A|$ 8. a) b) c) d)
- (a) k^{27} (b) k^3 (c) k^6 (d) k^9
9. What is the lowest value of $\left(e^{\sin^{-1}x} + e^{\cos^{-1}x}\right)$? 9. a) b) c) d)
- (a) e^4 (b) $e^{\pi/4}$ (c) $2e^{\pi/4}$ (d) 0
10. $R = \{(3, 3), (6, 6), (9, 9), (12, 12), (6, 12), (3, 9), (3, 12), (3, 6)\}$ is a relation on the set $A = \{3, 6, 9, 12\}$. Then the relation R is - 10. a) b) c) d)
- (a) only Reflexive and Transitive (b) only Reflexive and Symmetric
(c) only Reflexive (d) Equivalence
11. What is the solution of $\sin y \frac{dy}{dx} = \cos y (1 - x \cos y)$ 11. a) b) c) d)
- (a) $\sec y = 1 - x - ce^x$ (b) $\sec y = 1 + x + ce^x$ (c) $\sec y = x + e^x + c$
(d) None of these

GK/MAT/ENVS

1. Which of the following is the coldest planet of the solar system ? 1. a) b) c) d)
- (a) Uranus (b) Saturn (c) Neptune (d) Pluto
2. The Head office of 'National Biodiversity Authority' is located at - 2. a) b) c) d)
- (a) Chennai (b) Kolkata (c) New Delhi (d) Geneva
3. The full form of 'VPN' regarding network system is - 3. a) b) c) d)
- (a) Virtual Provider Network (b) Virtual Protocol Network
(c) Virtual Privacy Network (d) Virtual Private Network
4. 'Flying Sikh' is - 4. a) b) c) d)
- (a) P.T. Usha (b) Major Dhyan Chand (c) Kapil Dev (d) Milkha Singh
5. If 'NATION' is coded as 'ANITNO' then 'BOTTLE' be coded is same way as - 5. a) b) c) d)
- (a) ELTTOB (b) OBTTLT (c) LETTBO (d) OBTTEL
6. Dolomite mineral found in the district of West Bengal state is - 6. a) b) c) d)
- (a) Purulia (b) Bankura (c) Jalpaiguri (d) Purba Bardhaman