

Kendriya Vidyalaya, AFS Bogdogra

Subject- English Core (CLASS XII)

Summer Vacation Assignment

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1. You are Karan/Karuna of M 114, mall road, Delhi. You are a civil engineer and have recently returned from UAE. You are looking for a job in India. Draft an advertisement for the same in about 50 words. Give details of your qualifications, experience, nature of job and expected remuneration. -4 M (CBSE(AI)2016)
 2. Your school, Akash Public School, Agra needs a canteen manager. On behalf of the Principal, write an adv. in about 50 words to be published in the classified columns of a local daily. Mention the educational and professional qualifications, other qualities required in the manager, who to apply to and the last date for the receipt of applications. (CBSE(AI)2015)
 3. After the rain, cases of dengue, chikungunya, etc. are on the rise in your city. As a Principal, Sunshine Public School, Manu Vihar, you have decided to allow your students to wear full sleeve and trousers in the school for a period of one month. Write the notice in about 0 words. -4 M 9CBSE (AI) 2017)
 4. You are Health Secretary, Students Council Citizens Public School, Ram Bagh, Varanasi. The Council has decided to start from the 2nd of October a week-long cleanliness drive around the school. Draft a notice in about 50 words asking class x to XII to enrol for the drive. (CBSE (AI) (Delhi) 2017)
 5. Draft a poster announcing a "Book Fair" being organised by the 'Book Lovers' Society of India'. - 4M
 6. Design a Poster to aware the people against CORONA VIRUS.
 7. Along with air and water pollution, our cities are also under an attack of noise pollution. Marriage processions, DJs during wedding receptions, loud music from neighbourhood flats, etc. are all sources of noise which is not good for the old, the ailing and students. Write a letter in 120-150 words to the Editor of a local newspaper describing the problem and making a request to the concerned authorities to solve it. -6 M- (CBSE (AI) 2016)
 8. You and your friends are planning a week long holiday to a hill station. Write a letter making necessary enquiries from the tour operator before you make your final decision. (CBSE Sample Paper 2016)
 9. Your school recently launched a GPRS systems in the school buses which will enable the parents to keep track of their children while they are travelling in the bus. The service, however, is not smooth and is facing a lot of problems. As the Transport Incharge of DML Public School, Delhi, write a letter in about 120-150 words to the Manager, Forumloft, 21 Park Street, Delhi, complaining about the same. (CBSE Sample Paper 2017)

Note =Complete all the above mentioned questions in a separate copy.

Summer vacation home work

Sub - Hindi ,Class xii

1. ' कोरोना संकट में महानगरों की दशा ' विषय पर एक रचनात्मक लेख लिखिए ।
- 2 लॉकडाउन : मैं और मेरा मोहल्ला अथवा लॉकडाउन : मैं और मेरा परिवार विषय पर एक रचनात्मक लेख लिखिए ।
3. आपके मोहल्ले में बिजली प्रायः रात्रि के समय कई घंटों के लिए चली जाती है । बिजली संकट से उत्पन्न कठिनाइयों से अवगत कराते हुए बिजली विभाग के संबंधित अधिकारी को पत्र लिखिए ।

‘सिल्वर वेडिंग’ पाठ के प्रश्न -

- 4.यशोधर बाबू और किशन दा के व्यक्तित्व की विशेषताओं का उल्लेख कीजिये ।
- 5.यशोधर बाबू की पत्नी समय के साथ बदल गई परन्तु वे नहीं बदल सके - स्पष्ट कीजिये ।
- 6.यह कहानी पीढ़ियों के अंतराल की विडंबना को व्यक्त कराती है सिद्ध कीजिये।

Summer Vacation Homework

SUBJECT: BIOLOGY

CLASS: XII

1. Collect previous five years CBSE Board questions from different websites available.
2. Segregate the questions as per their marks and type i.e MCQs or VSA/SA/LA and also as per the chapter.
3. Prepare the Question bank chapter wise in file...
4. Exercises questions and diagrams to be practised as per the instruction given during online classes.

Chemistry

Chapter 2: Solution

1. Some liquids on mixing form azeotropes. What are azeotropes?
2. Define the term osmotic pressure.
3. Define ideal solution.
4. What is meant by reverse osmosis?
5. Define mole fraction.
6. Explain the Henry's law about dissolution of a gas in a liquid.
7. Define the following terms:
 - i. Isotonic solutions.
 - ii. Van't Hoff factor.
8. Explain boiling point elevation constant for a solvent or Ebullioscopic constant.
9. State the main advantage of molarity over molality as the unit of concentration.
10. Define an ideal solution and write one of its characteristics.
11. State Henry's law. What is the effect of temperature on the solubility of a gas in a liquid?
12. State Raoult's law for the solution containing volatile components. What is the similarity between Raoult's and Henry's law?
13. What is meant by positive deviation from Raoult's law? Give an example. What is the sign of $\Delta_{mix}H$ for positive deviation?
14. On mixing liquid X and liquid Y, volume of the resulting solution decreases. What type of solution is this? What change in temperature would you observe after mixing liquid X and Y?
15. What happens when we place the blood cell in water (hypotonic solution)? Give reason.
16. Out of 0.1 molal solutions of glucose and sodium chloride each, which will have the higher boiling point?
17. Will the depression in freezing point be same or different, if 0.1 mole of sugar or 0.1 mole of glucose is dissolved in 1L of water?
18. HOTS What is de-icing agent? How does it function?
19. It is advised to add ethylene glycol to water in car radiator while driving in hill station. Why?
20. A and B on mixing produce a warm solution. Which type of deviation from Raoult's law is there?
21. Two liquids A and B boil at 155°C and 190°C, respectively. Which of them has a higher vapour pressure at 80°C?
22. What role does the molecular interaction play in solution of alcohol and water?
23. How is the vapour pressure of a solvent affected when a non-volatile solute is dissolved in it?
24. When water and nitric acid are mixed together, a rise in temperature is observed. What type of azeotropic mixture is obtained?
25. If a table spoon of sugar is added to water, then what happens to vapour pressure of water?
26. Heptane and octane form ideal solution. At 373K, the vapour pressure of the two liquid components are 105.2 kPa and 46.8 kPa, respectively. What will be the vapour pressure of a mixture of 26.0 g of heptane and 35.0 g of octane?
27. HOTS Components of binary mixtures of two liquids A and B were being separated by distillation. After sometime, separation of components stopped and the composition of vapour phase became same as that of liquid phase. Both components started coming in distillate. Explain the reason.
28. HOTS Benzene and toluene both have equal mole fractions in their mutual solution. What do you expect about their mole fraction in vapour phase at the same temperature?

29. At same temperature, the vapour pressure of pure C_6H_6 is 0.256 bar and that of pure $C_6H_5CH_3$ is 0.0925 bar. If the mole fraction of toluene in solution is 0.6. then,
- What will be the total pressure of the solution?
 - What will be the mole fraction of each component in vapour phase.
30. Calculate the freezing point of solution when 1.9g of $MgCl_2$ ($M = 95\text{g/mol}$) was dissolved in 50g of water, assuming $MgCl_2$ undergoes complete ionization.
(K_f for water = 1.86 K Kg/mol)
31. Out of 1M glucose and 2M glucose, which one has a higher boiling point and why?
32. What happen when the external pressure applied becomes more than the osmotic pressure of solution?
33. When 2.56 g of sulphur was dissolved in 100g of CS_2 , the freezing point lowered by 0.383K. Calculate the formula of sulphur(S_x).
34. Blood cells are isotonic with 0.9% sodium chloride solution. What happen if we place blood cells in a solution containing
- 1.2 % sodium chloride solution?
 - 0.4% sodium chloride solution?
35. What is meant by positive deviation from Raoult's law? Give an example. What is the sign of $\Delta_{mix}H$ for positive deviation?
36. Define azeotropes. What type of azeotrope is formed byb positive deviation from Raoult's law? Give an example.
37. 3.9g of benzoic acid dissolved in 49g of benzene shows a depression in freezing point of 1.62K. calculate the van't hoff factor and predict the nature of solute (associated or dissociated).
(molar mass of benzoic acid= 122g/mol , K_f for benzene= 4.9 K Kg/mol)
38. State Raoult's law for the solution containing volatile components.
38. State Raoult's law for the solution containing volatile components. What is the similarity between Raoult's law and Henry's law?
39. Differentiate between molarity and molality for a solution. How does a change in temperature influence their values?
40. Mention one examples each of miscible liquid pairs showing positive and negative deviation from Raoult's law. Give one reason for each of such deviations.

SUMMER VACATION HOLIDAY HOMEWORK

Class : XII Sc

Subject : COMPUTER SCIENCE

PROGRAMMING ON FUNCTION

1. a Python function to find the Max of three numbers.

2. Write a Python function to sum all the numbers in a list.

Sample List : (8, 2, 3, 0, 7)

Expected Output : 20

3. Write a Python function to multiply all the numbers in a list.

Sample List : (8, 2, 3, -1, 7)

Expected Output : -336

4. Write a Python program to reverse a string.

Sample String : "1234abcd"

Expected Output : "dcba4321"

5. Write a Python function to calculate the factorial of a number (a non-negative integer). The function accepts the number as an argument.

6. Write a Python function to check whether a number is in a given range.

7. Write a Python function that accepts a string and calculate the number of upper case letters and lower case letters.

Sample String : 'The quick Brow Fox'

Expected Output :

No. of Upper case characters : 3

No. of Lower case Characters : 12

8. Write a Python function that takes a list and returns a new list with unique elements of the first list.

Sample List : [1,2,3,3,3,3,4,5]

Unique List : [1, 2, 3, 4, 5]

9. Write a Python function that takes a number as a parameter and check the number is prime or not.

Note : A prime number (or a prime) is a natural number greater than 1 and that has no positive divisors other than 1 and itself.

10. Write a Python program to print the even numbers from a given list.

Sample List : [1, 2, 3, 4, 5, 6, 7, 8, 9]

Expected Result : [2, 4, 6, 8]

11. Write a Python function to check whether a number is perfect or not.

According to Wikipedia : In number theory, a perfect number is a positive integer that is equal to the sum of its proper positive divisors, that is, the sum of its positive divisors excluding the number itself (also known as its aliquot sum). Equivalently, a perfect number is a number that is half the sum of all of its positive divisors (including itself).

Example : The first perfect number is 6, because 1, 2, and 3 are its proper positive divisors, and $1 + 2 + 3 = 6$. Equivalently, the number 6 is equal to half the sum of all its positive divisors: $(1 + 2 + 3 + 6) / 2 = 6$. The next perfect number is $28 = 1 + 2 + 4 + 7 + 14$. This is followed by the perfect numbers 496 and 8128.

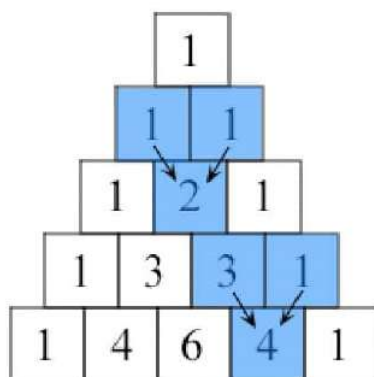
12. Write a Python function that checks whether a passed string is palindrome or not.

Note: A palindrome is a word, phrase, or sequence that reads the same backward as forward, e.g., madam or nurses run.

13. Write a Python function that prints out the first n rows of Pascal's triangle.

Note : Pascal's triangle is an arithmetic and geometric figure first imagined by Blaise Pascal.

Sample Pascal's triangle :



Each number is the two numbers above it added together

14. Write a Python function to check whether a string is a pangram or not.

Note : Pangrams are words or sentences containing every letter of the alphabet at least once.

For example : "The quick brown fox jumps over the lazy dog"

15. Write a Python program that accepts a hyphen-separated sequence of words as input and prints the words in a hyphen-separated sequence after sorting them alphabetically.

Sample Items : green-red-yellow-black-white

Expected Result : black-green-red-white-yellow

16. Write a Python function to create and print a list where the values are square of numbers between 1 and 30 (both included).

QUESTIONS ON FILE

1. Write a Python program to read first n lines of a file.
2. Write a Python program to read last n lines of a file.
3. Write a python program to find the longest words.
4. Write a Python program to count the number of lines in a text file
5. Write a Python program to count the frequency of words in a file
6. Write a Python program that takes a text file as input and returns the number of words of a given text file.
7. Write a python program to read the source code of the file you are creating
8. Write a python code to calculate the length of the given file. (hint: length of the file may be considered as equal to number of characters bytes)

Holiday Homework

Class-XII (Physics)

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Chapter - Electric Charges and Field

VSA (1 mark)

- Q1. Gauss' law is true only if force due to charges varies as
(a) r^{-1} (b) r^{-2} (c) r^{-3} (d) r^{-4}
- Q2. Electric charge is additive in nature. Explain.
- Q3. Give one difference betⁿ the conductors and insulators.
- Q4. A point charge $+Q$ is placed in the vicinity of a conducting surface. Draw the electric field lines betⁿ the surface and the charge.
- Q5. For a given surface, the $\oint \vec{E} \cdot d\vec{s} = 0$. From this, we can conclude that
(a) E is necessarily zero on the surface.
(b) E is \perp to the surface at every point.
(c) the total flux through the surface is zero.
(d) the flux is only going out of the surface.

Short Answer Type (2 marks)

- Q1. Deduce the expression for the electric field E due to a system of two charges q_1 and q_2 with position vectors \vec{r}_1 and \vec{r}_2 at a point \vec{r} with respect to a common origin.
- Q2. An electric dipole is held in a uniform electric field.
(i) Show that the net force facing on it is zero.
(ii) The dipole is aligned parallel to the field. Find the work done in rotating it through the angle of 180° .
- Q3. What is the use of Gaussian surface? Also, mention the importances of Gauss' theorem.
- Q4. A point charge causes an electric flux of -3×10^4 $\text{N-m}^2/\text{C}$ to pass through a spherical Gaussian surface.
(i) Find the value of the point charge.
(ii) If the radius of the Gaussian surface is doubled,

how much flux could pass through the surface? Pg-2

Long Answer type I (3 marks)

Q1. (i) Derive the expression for electric field at a point on the equatorial line of an electric dipole.
(ii) Depict the orientation of the dipole in (a) stable (b) unstable equilibrium in uniform electric field.

Q2. (i) Obtain the expression for the torque τ experienced by an electric dipole of dipole moment p in a uniform electric field E .

(ii) What will happen if the field were not uniform.

Q3. A charge is distributed uniformly over a ring of radius a . Obtain an expression for the electric field intensity E at a point on the axis of the ring. Hence, show that for points at large distances from the ring, it behaves like a point charge.

Q4. A spherical conducting shell of inner radius R_1 and outer radius R_2 has a charge Q . A charge q is placed at the centre of the shell.

(i) What is the surface charge density on the (a) inner surface? (b) outer surface of the shell?

(ii) Write the expression for the electric field at a point $x > R_2$ from the centre of the shell.

Long Answer Type II (5 marks)

Q1. (a) Define electric flux. Is it a scalar or a vector quantity? A point charge q is at a distance of $d/2$ directly above the centre of a square of side d , as shown in the figure. Use Gauss's law to obtain the expression for the electric flux through the square.

(b) If the point charge is now moved to a point distance d from the centre of the square and the side of the square is doubled, explain how the

electric flux will be affected.

[Pg-3]

- Q2. (i) Derive the expression for the electric intensity at any point P , at a distance r from the centre of an electric dipole, making an angle α , with its axis.
- (ii) Two point charges $4\mu C$ and $+1\mu C$ are separated by a distance of $2m$ in air. Find the point on the line joining charges at which the net electric field of the system is zero.

Chapter - Electrostatic Potential & Capacitance

VSA (1 mark)

- Q1. If $100J$ of work has to be done in moving an electric charge $4C$ from a place where potential is $-10V$ to another place where potential is V volt, find the value of V .

(a) $5V$ (b) $10V$ (c) $25V$ (d) $15V$

- Q2. In an electric field with $E=0$, the potential V varies with the distance r as

(a) $V \propto \frac{1}{r}$ (b) $V \propto r$ (c) $V \propto \frac{1}{r^2}$ (d) V will not depend on r .

- Q3. Two charges $3 \times 10^{-8}C$ and $-2 \times 10^{-8}C$ located $15cm$ apart. At what point on the line joining the two charges is the electric potential zero?

(a) $9cm$ (b) $45cm$ (c) $18cm$ (d) Both (a) and (b)

- Q4. On bringing an electron near to other electron, the potential energy of the system
- (a) decreases (b) increases (c) remains same (d) becomes zero.

- Q5. Do electrons tend to go to regions of high potential or low potential?

Short Answer Type Question (2 Marks)

- Q1. Draw three equipotential surfaces corresponding to a field that uniformly increases in magnitude but remains constant along x -direction. How are these surfaces different from that of a constant electric field along x -direction?

Q2. Two point charge $5\mu\text{C}$ and $-5\mu\text{C}$ are placed at points A and B, 5cm apart.

- Draw the equipotential surface of the system.
- Why do equipotential surface get close to each other near the point charge?

Q3. A slab of material of a dielectric constant k has the same area as that of plates of a parallel plate capacitor but has the thickness $2d/3$, where d is separation betⁿ the plates. Find the expression of the capacitance when the slab is inserted betⁿ the plates of the capacitor.

Long Answer Type I (3 marks)

Q1. (i) Derive the expression for the electric potential due to an electric dipole at a point on its axial line.

- Depict the elect equipotential surfaces due to an electric dipole.

Q2. Define an equipotential surface. Draw equipotential surfaces

- in case of a single point charge.

(i) In a constant electric field in z -direction. Why the electric equipotential surfaces about a single charge are not equidistant?

- Can electric field exist tangential to an equipotential surface? Give reason.

Long Answer Type II (5 marks)

Q1. (a) Use Gauss's law to derive the expression for the electric field (E) due to a straight uniformly charged infinite line of charge density $\lambda\text{ C/m}$.

- Draw a graph to show the variation of E with perpendicular distance r from the line of charge.

(b) Find the work done in bringing a charge q from a distance r_1 to r_2 ($r_2 > r_1$).

Qd. (i) Derive the expression for the energy stored in parallel plate capacitor. Hence, obtain the expression for the energy density of the electric field.

(ii) A fully charged parallel plate capacitor is connected across an uncharged identical capacitor. Show that the energy stored in the combination is less than stored initially in the single capacitor.

Chapter - Current electricity

VSA (3 mark)

Q1. A potential difference V is applied to a copper wire of length l and diameter d . If V is doubled then the drift velocity

- (a) is doubled (b) remains same (c) is halved (d) becomes zero

Q2. Unit of specific resistance is

- (a) $\Omega m^{-1} m^{-1}$ (b) $\Omega m^{-1} m^2$ (c) $\Omega m^{-1} m^3$ (d) $\Omega m^{-1} m$

Q3. The length of 50Ω resistance become twice by stretching. The new resistance is

- (a) 25Ω (b) 50Ω (c) 100Ω (d) 200Ω

Q4. What is the significance of direction of electric current?

Q5. Describe how the resistivity of the conductor depends upon

- (i) no. density (n) (ii) relaxation time, of free electrons

SA (2 marks)

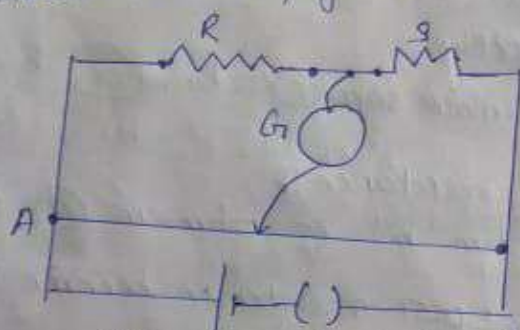
Q1. Two electric bulbs P and Q have their resistance in the ratio 1:2. They are connected in series across a battery. Find the ratio of the power dissipation in these bulbs.

Q2. Use Kirchhoff's rules to obtain balance conditions for the balance conditions in a Wheatstone bridge.

Q3. A conductor of length l is connected to a DC source of potential V . If the length of the conductor is tripled by gradually stretching it, keeping V constant, how will
 (i) drift speed of electrons and (ii) resistance of the conductor be affected. Justify your answer.

Long Answer type I (3marks)

Q1. (i) Write the principle of working of a meter bridge.
 (ii) In a meter bridge, the balance point is found at a distance l_1 with resistance R and S as shown in the figure



An unknown resistance X is now connected in parallel to the resistance S and the balance point is found at a distance

l_2 . Obtain a formula for X in terms of l_1 , l_2 and S .

Q2. A cell of emf E and internal resistance r is connected across a variable load resistor R . Draw the plot of the terminal voltage V versus
 (i) resistance R and (ii) current I .

It is found that when $R = 4\ \Omega$, the current is 1 A and when $R = 9\ \Omega$, the current reduces to 0.5 A . Find the value of emf E and internal resistance r .

Long Answer Type II (5marks)

Q1. State the principle of potentiometer. Draw a circuit diagram used to measure internal resistance of a cell and derive the expression. How can sensitivity of a potentiometer be increased?

Q2. (i) State with the help of a circuit diagram, the working principle of a meter

Fig-4
bridge. Obtain the expression used for determining the unknown resistance.

Fig-7
(ii) What happens if the galvanometer and cell are interchanged at the balance point of the bridge?

(iii) Why is it considered important to obtain the balance point near the mid-point of wire?