

G.D.GOENKA PUBLIC SCHOOL, SILIGURI
HOLIDAY HOMEWORK
CLASS : XI (2018-2019)

CLASS: XI

SUBJECT: Computer Science

Chapter : Structured Data Type: Array

1. Write a program in C++ to enter elements in a 1 D array and replace the even position elements of the array by 0 and odd position elements by 1?
2. Write a program to replace every space in a string with hyphen.
3. Write a program to arrange 10 numbers in ascending order.
4. Write a program to find the High and low value in an array.
5. Write a program to check whether the string is palindrome or not.
6. Write a program to count the no. of vowels and digits in a given string.
7. Write a program to add two matrices.
8. Write a program to find row sum and column sum of a matrix.
9. Write a program to find the sum of diagonal elements.
10. Write a program to find the sum of odd numbers in a matrix.

CLASS: XI

SUBJECT: Biology

Draw flow charts of glycolysis & kreb's cycle.

CLASS: XI

SUBJECT: Physics

Solve the Questions from NCERT book for the following Chapters in Physics Class Work Copy.

1. Laws of Motion.
2. Work, Energy and Power.
3. System of Particles and Rotational Motion.

Answer the following questions:

1. Out of CO_2 and NH_3 gas, which is expected to show more deviation from ideal gas behaviour?
2. Using the equation of state $PV = nRT$, show that at a given temperature, density of a gas is proportional to the gas pressure 'P'.
3. Define Boyle temperature.
4. Can we apply Dalton's law of partial pressures to a mixture of carbon monoxide and oxygen?
5. The size of the weather balloon becomes larger and larger as it ascends up into higher altitude. Assign reason.
6. Why are tyres of automobiles inflated to lesser pressure in summer than in winter?
7. What would have happened to the molecular motion in a gas if the molecular collisions were not elastic?
8. Under what conditions do real gases show maximum deviation from ideal gas behaviour?
9. Define Boyle's and Charle's law. Also give their mathematical expressions.
10. What will be the minimum pressure required to compress 500 dm^3 of a gas at 1 bar to 200 dm^3 at 30°C ?
11. If the value of 'a' for a gas is zero, can it be liquefied?
12. Gases like CO_2 and NH_3 show more deviation from ideal gas behaviour as compared to gases H_2 and He. Justify.
13. Drop of liquid assumes spherical shape. Why?
14. a. Which type of intermolecular forces are present in the molecules HF, HCl and HBr?
b. Boiling points of HF, HCl and HBr are 2893K, 189 K and 206 K. Why is the boiling point of HF the highest and that of HCl the lowest?
c. What kind of molecular interaction exists between the nonpolar molecules?
15. a. Compressibility factor, Z, of a gas is given as $Z = PV/nRT$.
 - i. What is the value of Z for an ideal gas?
 - ii. For real gas what will be the effect on the value of Z above Boyle's temperature?b. The critical temperature and critical pressure of CO_2 are 30.98°C and 73 atm. Can CO_2 be liquefied at 32°C and 80 atm? Justify your answer.
c. Arrange the following gases in the increasing order of 'b'. Also give reason.
 O_2 , CO_2 , H_2 , He.
16. What is the effect of temperature on : (a) Density (b) Surface tension (c) Viscosity of a liquid?
17. Which type of intermolecular forces exist among the following molecules? (i) H_2O (ii) SiCl_4 (iii) HF (iv) He
18. What type of graph will you get when PV is plotted against P at constant temperature?
19. How is the partial pressure of a gas in a mixture related to the total pressure of the gaseous mixture?
20. Why vegetables are cooked with difficulty at a hill station?
21. Out of N_2 and NH_3 , which one will have greater value for van der Waals constant 'a' and which one will have greater value for van der Waals constant 'b'?

22. The van der Waals constants for two gases are as follows : Gas X has value of vander Waal's constants, a (1.39) and b (0.0391). Gas Y has value of a (3.59) and b (0.0427). Which of them is more easily liquefiable and which has greater molecular size?

23. Out of H-H and H-Cl, which has a higher bond energy?

24. A dioxygen-dinitrogen mixture contains 4.2 g dinitrogen and 3.2 g dioxygen. If pressure of the mixture of gases in the cylinder is 25 bar. What is the partial pressure of dioxygen and dinitrogen in the mixture?

25. A gas occupying a volume of 100 litres is at 20°C under a pressure of 2 bar. What temperature will it have when it is placed in an evacuated chamber of volume 175 litres? The pressure of the gas in the chamber is one-third of its initial pressure.

26. 4 g of a gas at 40°C occupied the same volume as 4.8 g of dioxygen at 27°C at the same pressure. What is the molar mass of the gas ?

27. Calculate the total number of electrons present in 22 g of CO₂ gas.

28. 34.05 mL of phosphorus vapour weighs 0.0625 g at 546°C and 1.0 bar pressure. What is the molar mass of phosphorus?

29. What will be the pressure exerted by a mixture of 5.6 g of N₂ and 6.4 g of CH₄ contained in a 12 dm³ flask at 37 °C?

30. A molecule of H₂ exists while that of the Be₂ does not. Explain.

31. BeF₂ and H₂O are both tri-atomic molecules but have different shapes. Discuss.

32. o-nitrophenol is steam volatile while p-nitrophenol is not. Discuss.

33. On the basis of VSEPR theory, predict the shapes of the following molecules

a. CCl₄ b. SO₂ c. SF₄ d. PF₅ e. H₂O f. ClF₅ g. PH₃

34. Discuss the hybridisations of:

a. PCl₅ b. SF₄ c. NH₃ d. C₂H₂ e. SF₆

35. Why axial bonds of PCl₅ are longer than equatorial bonds?

36. Explain why N₂ has greater bond dissociation energy than N⁺² whereas O⁺² has greater bond dissociation energy than O₂.

37. Explain why HF is less viscous than H₂O.

38. F has a higher electronegativity than Cl but has a lower value of electron affinity. Explain.
OR

Chlorine can be converted into chloride ion more easily as compared to fluoride ion from fluorine. Explain.

39. Calculate the bond order of: a. N₂ b. O₂⁺ c. Li₂ d. N₂⁻

40. Define isoelectronic species with examples.

41. Why is ΔI.E₂ value of an element more than its ΔI.E₁ value?

42. What would be IUPAC names and symbols for elements with atomic numbers 122, 127, 135, 149 and 150?

43. Arrange the following elements in the increasing order of non-metallic character : B, C, Si, N, F.

44. Arrange the following ions in order of decreasing ionic radii:

Li²⁺, He⁺, Be³⁺

45. Ne and Na⁺ ions are isoelectronic species. Do they have same ionization enthalpies also?

46. Why molality is preferred over molarity in expressing the concentration of a solution?

47. Out of 3d and 4s orbitals, which is filled first?

48. Why can 2p sub-shell accommodate more electrons than 2s sub-shell?

49. Write the electronic configuration of (i) Mn^{4+}
(ii) Fe^{3+}
(iii) Cr^{2+}
and (iv) Zn^{2+} . Report the number of unpaired electrons in each case.
50. What is the maximum number of electrons that can be present in an atom in which the highest principal quantum number is 4?
51. Calculate the concentration of nitric acid in moles per litre in a sample which has a density 1.41 g mL^{-1} and the mass percent of nitric acid in it is being 69%.
52. Calculate the molarity of a solution of ethanol in water in which the mole fraction of ethanol is 0.040.
53. Calculate no. of carbon and oxygen atoms present in 11.2 litres of CO_2 at N.T.P.
54. A flask P contains 0.5 mole of oxygen gas. Another flask Q contains 0.4 mole of ozone gas. Which of the two flasks contains greater number of oxygen atoms?
55. If the density of methanol is 0.793 kg L^{-1} , what is its volume needed for making 2.5 L of its 0.25 M solution?
56. What is the wavelength of light emitted when the electron in a hydrogen atom undergoes transition from an energy level with $n = 4$ to an energy level with $n = 2$?
57. (i) The energy associated with the first orbit in the hydrogen atom is $-2.18 \times 10^{-18} \text{ J atom}^{-1}$. What is the energy associated with the fifth orbit?
(ii) Calculate the radius of Bohr's fifth orbit for hydrogen atom.
58. How is bond order related to bond length, bond enthalpy and stability of a molecule?
59. Draw the Lewis dot structures for: N_2 , H_2S , AlCl_3 , CH_3Cl
60. Why does the third period of the periodic table has 18 elements and not 8 elements?
61. What should be the maximum value of 'n' for a 'h' sub-shell to exist?

CLASS: XI

SUBJECT: Accountancy

1) On 1st April, 2000, Sonu Ltd. Purchased a machinery for Rs.3,90,000 on which they spent Rs.10,000 for carriage and other charges. On 1st November, 2001, they purchased another machinery for Rs.1,20,000 and on 30th September, 2002, the first machinery was sold at a loss of Rs.1,27,800. The company charges depreciation @ 10% p.a. on written down value basis. Accounts are closed on 31st March every year. Prepare Machinery Account upto 31st March, 2003.

2. X Ltd. has imported a machinery on 1 July, 2009 for Rs. 1,28,000, paid customs duty and freight Rs.64,000 and incurred installation charges Rs. 48,000. Another local machinery costing Rs. 80,000 was purchased on January1, 2010. On July 1, 2011, a portion of the imported machinery (value 1/3) got out of order and was sold for Rs. 27,840. Another machinery was purchased to replace the same for Rs. 40,000. Depreciation is to be calculated at 20% p.a. Show the machinery A/c for 2009, 2010 and 2011, if depreciation is provided according to :

- Straight Line method
- Written Down value method

3. Ankit Ltd. Purchased a machine on 1st April 2006 for Rs. 1,80,000 and spent Rs. 20,000 on its installation. On 1st January, 2007, it purchased another machine for Rs. 2,40,000. On 1st July 2008 the machine purchased on 1st April, 2006 for 60,000 was sold at a loss of Rs. 2000. On 1st October, 2008 another machine was purchased for Rs. 3,60,000.

Prepare Machinery A/c and provision for depreciation a/c from after charging depreciation @ 10% p.a. by diminishing balance method. Accounts are closed 31st March each year.

4. Make a project on Bank reconciliation statement of exercise 3 from page no. P.50 from the book T. S Grewal in your copy.

CLASS: XI**SUBJECT: Business Studies**

1. Describe in brief the features of equity shares.
2. Differentiate between equity shares and preference shares
3. Make a comparative evaluation of shares and debentures.
4. What are retained profits? Discuss their advantages and disadvantages.
5. Write a note on international source of finance.

An established company has decided to expand its production capacity. It does not have adequate reserves to finance the expansion. Suggest with reasons any two other sources of finance for the company.

CLASS: XI**SUBJECT: Economics**

1. Project on Global Warming to be completed.
2. Micro Economics
(Unsolved Practical Problems)
Ch 5 - Q No. 8 & 9
Ch 6 - Q No. 35 & 36
Ch 7 - Q No. 6 & 7
Ch 8 - Q No. 13 & 14
Ch 9 - Q No. 2

CLASS: XI**SUBJECT: English**

1. Define the following poetic devices with examples:

Alliteration
Allusion
Imagery
Irony

2. Write within 100-120 words about the following authors / poets and their work:

Amitabh Ghosh
Vikram Seth
Khushwant Singh

3. Write in about 100 words:

Difference between Chinese and European art.

OR

Tethys Ocean

OR

Write about the Silk Road. Illustrate with a map.

Note: The home-work must be done on A4 sheets.

CLASS: XI

SUBJECT: IP

1. Create the following table named "Charity" and write SQL queries for the tasks that follow:

P_Id	LastName	FirstName	Address	City	Contribution
1	Bindra	Jaspreet	5B, GomtiNagar	Lucknow	3500.50
2	Rana	Monica	21 A, Bandra	Mumbai	2768.00
3	Singh	Jatinder	8, Punjabi Bagh	Delhi	2000.50
4	Arora	Satinder	K/1, Shere Punjab Colony	Mumbai	1900.00
5	Krishnan	Vineeta	A-75, Adarsh Nagar		

(Contribution is in Rs.)

I. Display all first names in lowercase

II. Display all last names of people of Mumbai city in uppercase

III. Display Person Id along with First 3 characters of his/her name.

IV. Display first name concatenated with last name for all the employees.

V. Display length of address along with Person Id

VI. Display last 2 characters of City and Person ID.

VII. Display Last Names and First names of people who have "at" in the second or third position in their first names.

VIII. Display the position of 'a' in Last name in every row.

IX. Display Last Name and First name of people who have "a" as the last character in their First names.

X. Display the first name and last name concatenated after removing the leading and trailing blanks.

XI. Display Person Id, last names and contribution rounded to the nearest rupee of all the persons.

XII. Display Person Id, last name and contribution with decimal digits truncated of all the persons.

XIII. Display Last name, contribution and a third column which has contribution divided by 10. Round it to two decimal points.

XIV. Update City and Contribution of Vineeta with (City=Kolkata and Contribution=3000)

XV. Display the total contribution of person staying in Mumbai city.

2. Consider the table "Grocer" and write SQL queries for the tasks that follow:

Table: Grocer

Item_Id	ItemName	UnitPrice	Quantity (kg)	Date_Purchase
1	Rice	52.50	80	2010-02-01
2	Wheat	25.40	50	2010-03-09
3	Corn	50.80	100	2010-03-11
4	Semolina	28.90	50	2010-01-15

(Unit Price is per kg price)

- I. Display Item name, unit price along with Date of purchase for all the Items.
- II. Display Item name along with Month (in number) when it was purchased for all the items.
- III. Display Item name along with year in which it was purchased for all the items.
- IV. Display Item Id, Date of Purchase and day name of week (e.g. Monday) on which it was purchased for all the items.
- V. Display names of all the items that were purchased on Mondays or Tuesdays.
- VI. Display the day name of the week on which Rice was purchased.
- VII. Display the Item name and unit price truncated to integer value (no decimal digits) of all the items.
- VIII. Display current date
- IX. Add a new column Exp_Date with date datatype in the Grocer Table.
- X. Update Exp_Date Of all Items in the Grocer Table. (Any date from the year 2017)

CHAPTER - 8

BINOMIAL THEOREM

KEY POINTS

- $(a + b)^n = n_{C_0} a^n + n_{C_1} a^{n-1} b + n_{C_2} a^{n-2} b^2 + \dots + n_{C_n} b^n$

$$= \sum_{r=0}^n n_{C_r} a^{n-r} b^r, n \in \mathbb{N}$$

- $T_{r+1} = \text{General term}$

$$= n_{C_r} a^{n-r} b^r \quad 0 \leq r \leq n$$

- Total number of terms in $(a + b)^n$ is $(n + 1)$

- If n is even, then in the expansion of $(a + b)^n$, middle term is $\left(\frac{n}{2} + 1\right)^{\text{th}}$

term i.e. $\left(\frac{n+2}{2}\right)^{\text{th}}$ term.

- If n is odd, then in the expansion of $(a + b)^n$, middle terms are $\left(\frac{n+1}{2}\right)^{\text{th}}$ and $\left(\frac{n+3}{2}\right)^{\text{th}}$ terms

- In $(a + b)^n$, r^{th} term from the end is same as $(n - r + 2)^{\text{th}}$ term from the beginning.

- r^{th} term from the end in $(a + b)^n$
 $= r^{\text{th}}$ term from the beginning in $(b + a)^n$

- In $(1 + x)^n$, coefficient of x^r is n_{C_r}

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK)

1. Compute $(98)^2$, using binomial theorem.
2. Expand $\left(x - \frac{1}{x}\right)^3$ using binomial theorem.
3. Write number of terms in the expansion of $(1 + 2x + x^2)^{10}$.
4. Write number of terms in $(2a - b)^{15}$
5. Simplify :

$$\frac{{}^n C_r}{{}^n C_{r-1}}$$

6. Write value of

$${}^{2n-1} C_5 + {}^{2n-1} C_6 + {}^{2n} C_7$$

[Hint : Use ${}^n C_r + {}^n C_{r-1} = {}^{n+1} C_r$]

7. In the expansion, $(1 + x)^{14}$, write the coefficient of x^{12}
8. Find the sum of the coefficients in $(x + y)^8$
[Hint : Put $x = 1, y = 1$]
9. If ${}^n C_{n-3} = 120$, find n .
[Hint : Express 720 as the product of 3 consecutive positive integers]
10. In $\left(\frac{x}{2} - \frac{2}{x}\right)^8$, write 5th term.

SHORT ANSWER TYPE QUESTIONS (4 MARKS)

11. If the first three terms in the expansion of $(a + b)^n$ are 27, 54 and 36 respectively, then find a, b and n .
12. In $\left(3x^2 - \frac{1}{x}\right)^{18}$, which term contains x^{12} ?

13. In $\left(2x - \frac{1}{x^2}\right)^{15}$, find the term independent of x .
14. Evaluate : $(\sqrt{2} + 1)^5 - (\sqrt{2} - 1)^5$ using binomial theorem.
15. Evaluate $(0.9)^4$ using binomial theorem.
16. Prove that if n is odd, then $a^n + b^n$ is divisible by $a + b$.
[Hint : $a^n = (a + b - b)^n$. Now use binomial theorem]
17. In the expansion of $(1 + x^2)^8$, find the difference between the coefficients of x^6 and x^4 .
18. In $\left(2x - \frac{3}{x}\right)^8$, find 7th term from end.
19. In $\left(2x^3 - \frac{1}{x^2}\right)^{12}$, find the coefficient of x^{11} .
20. Find the coefficient of x^4 in $(1 - x)^2 (2 + x)^5$ using binomial theorem.
21. Using binomial theorem, show that
 $3^{2n+2} - 8n - 9$ is divisible by 8.
[Hint : $3^{2n+2} = 9 \left(3^2\right)^n = 9 (1 + 8)^n$, Now use binomial theorem.]
22. Prove that,

$$\sum_{r=0}^{20} {}^{20}C_{20-r} (2 - t)^{20-r} (t - 1)^r = 1$$
23. Find the middle term(s) in $\left(x - \frac{1}{x}\right)^8$
24. If the coefficients of three consecutive terms in the expansion of $(1 + x)^n$ are in the ratio 1:3:5, then show that $n = 7$.
25. Show that the coefficient of middle term in the expansion of $(1 + x)^{20}$ is equal to the sum of the coefficients of two middle terms in the expansion of $(1 + x)^{19}$

LONG ANSWER TYPE QUESTIONS (6 MARKS)

26. Show that the coefficient of x^5 in the expansion of product $(1 + 2x)^6(1 - x)^7$ is 171.
27. If the 3rd, 4th and 5th terms in the expansion of $(x + a)^n$ are 84, 280 and 560 respectively then find the values of a, x and n
28. In the expansion of $(1 - x)^{2n - 1}$, find the sum of coefficients of $x^r - 1$ and $x^{2n - r}$
29. If the coefficients of x^7 in $\left(ax^2 + \frac{1}{bx}\right)^{11}$ and x^{-7} in $\left(ax - \frac{1}{bx^2}\right)^{11}$ are equal, then show that $ab = 1$



G.D. GOENKA PUBLIC SCHOOL, SILIGURI

Term II/ 2017-18

Class-XI Hum

Sub – POLITICAL SCIENCE

Holiday Homework

1. Make a project on the organisation and functioning of the Panchayat/Municipality of your area. Make a brief assessment of the performance of a local leader of the concerned Panchayat/Municipality.
2. NCERT solutions of the chapters:
 - a) Local Governments
 - b) Political Theory: An Introduction.

HOLIDAY HOME WORK

HISTORY

CLASS-11

Make a project of about 20 pages on any one of the topics given below. Take the help of the guidelines given alongside for the completion of the project. Illustrate your project with suitable pictures/ drawings.

1. Inventions of the Industrial Age (meaning of Industrial Revolution, why did it take place in England? Inventions in the weaving industry, pg- 201, steam power and it's significance, impact of Industrial Revolution)
2. Cathedrals- important institution of Medieval Europe (meaning of cathedral, emergence of cathedral towns, 5 famous cathedrals of Europe and their significance)
3. European Renaissance (14th- 17th century) (meaning of Renaissance, why did it take place in Europe? Contributions of Renaissance in the field of art, architecture, literature)