

## Class 11th

### Assignment1 for Dusshera Break1

- 1.If  $p,q,r$  are in G.P. and the equations  $px^2+2qx+r=0$  and  $dx^2+2ex+f=0$  have a common root ,then show that  $d/p$  , $e/q$  , $f/r$  are in a A.P
- 2.If  $p$ th, $q$ th  $r$ th and  $s$ th terms of an A.P. are in G.P. then show that  $(p-q)$ ,  $(q-r)$   $(r-s)$  are also in G.P.
- 3.If  $a,b, c$  are in G.P. and  $a^{\frac{1}{x}} = b^{\frac{1}{y}} = c^{\frac{1}{z}}$  .prove that  $x,y,z$  are in A.P.
- 4.What is the relationship between A.M. and G.M.
- 5.Find H.C.F. and L.C.M. of  $4!$  , $5!$  And  $6!$ .
- 6.Prove that  $2n! = 1.3.5.....(2n-1).2^n.n!$
- 7.Letters of the word MOTHER are arranged in all possible ways and the words (with or without meaning)so obtained are arranged as in a dictionary .What is the position of the word 'MOTHER in this arrangement.
- 8.How many chords can be drawn through 38 points on a circle?
- 9.If  $\sin A + \sin B = p$  and  $\cos A + \cos B = q$  show that  $\tan \frac{A+B}{2} = \frac{p}{q}$
10. Prove that  $\sin 20^\circ \sin 40^\circ \sin 60^\circ \sin 80^\circ = \frac{3}{16}$
11. Prove that  $\cos 10^\circ \cos 50^\circ \cos 60^\circ \cos 70^\circ = \frac{3}{16}$
- 12.Find the domain and range of each of the following real value function:

$$(a) f(x) = \frac{x^2 - 16}{x - 4} \quad (b) f(x) = \sqrt{x - 1}$$

13. Find the real values of  $x$  and  $y$  if  $(3x - 2yi)(2 + i)^2 = 10(1 + i)$

14. Show that  $\frac{\sqrt{7} + \sqrt{3}i}{\sqrt{7} - \sqrt{3}i} + \frac{\sqrt{7} - \sqrt{3}i}{\sqrt{7} + \sqrt{3}i}$  is real.

15. If  $z_1 = 1 + i$ ,  $z_2 = -2 + 4i$ , then calculate the values of  $a$  and  $b$  if

$$a + ib = \frac{z_1 z_2}{\bar{z}_1}$$



## Assignment for Dusshera Break2

### Class 11

- 1.If the  $m$ th,  $n$ th and  $p$ th terms form consecutive terms of a G.P.  
.Prove that  $m, n, p$  are three consecutive terms of A.P.
- 2.The product of first three terms of a G.P. is 1000. If 6 is added to its second term and 7 added to its third term, the terms become in A.P.  
.Find the G.P.
- 3.If  $A = \{10, 12, 14\}$  and  $B = \{2, 5, 6\}$  then find ordered pairs  $(x, y)$  in  $A \times B$  such that  $x$  is a multiple of  $y$
- 4.Let  $R$  be the relation on  $N$  defined by  $R = \{(x, y) : x \in N, y \in N\}$  and  $x + 3y = 12$ . Then (i) list the elements of  $R$  (ii) Find the domain and range of  $R$ .
- 5.How many numbers are there between 100 and 1000 such that every digit is either 2 or 9?
- 6.A tea party is arranged for 16 persons along two sides of a long table with 8 chairs on each side. Four persons wish to sit on one particular side and two on the other side. In how many ways can they be seated?
- 7.Write the following in the form of  $a + ib$ 
  - i)  $\frac{1}{1 + \cos\theta + i\sin\theta}$
  - ii)  $\frac{1}{-3 + \sqrt{-3}}$
  - iii)  $\frac{5 + 4i}{2 - 3i}$
8. Find the real values of  $x$  and  $y$  if  
 $(3x - 2iy)(2 + i)^2 = 10(1 + i)$



BUSINESS STUDIES ASSIGNMENT – 1

CHAPTER- 8 SOURCES OF BUSINESS STUDIES

- Q1. Define ploughing back of profits.
- Q2. State the return given to debenture holders for using their funds.
- Q3. Risk capital is defined as which type of capital?
- Q4. Give one feature of retained earnings that the other source of finance does not have.
- Q5. Mention one similar function between preference share capital and equity share capital.
- Q6. Which term is concerned with the redemption and conservation of capital funds in matching the financial need of a company?

BUSINESS STUDIES ASSIGNMENT – 2

CHAPTER- 8 SOURCES OF BUSINESS STUDIES

- Q1. Explain the three advantages of retained earnings.
- Q2. What is the difference between the internal and external sources of raising funds? Explain.
- Q3. Explain trade credit and bank credit as sources of short-term finance for business enterprises.
- Q4. What advantages does issue of debentures provide over the issue of equity shares?
- Q5. Mention two rights of preference shareholder.
- Q6. Explain the three limitations of equity share capital.

## PSYCHOLOGY

### CHAPTER- 2

1. Differentiate between
  - Control Group and Experiment Group
  - Independent Variable and Dependent Variable. (3)
2. Explain the characteristics of a standardised test. (3)
3. How is Qualitative method of research different from Quantitative method of research? (3)
4. Dr. Raj is going to observe and record children's play behaviour at a nursery school without attempting to influence or control the behaviour. Which method of research is involved? Explain the process and discuss its merits and demerits. (6)
5. Explain some limitations experienced by a researcher during Psychological enquiry. (4)
6. Explain different types of tests.(4)
7. Briefly explain the steps in conducting scientific research. (6)
8. What are the goals of a psychological enquiry?( 6)
9. Discuss the control techniques used by an experimenter in order to control relevant variables. (4)
10. Which method of research should be used if the researcher wishes to determine the relationship between two variables for prediction purposes? Explain the method briefly. (4)

<https://youtu.be/GKTcPuSJCJM>

## PSYCHOLOGY (class12th)

### ASSIGNMENT

1. Watch the movie- Taare Zameen Par by Amol Gupte.
2. Write a movie review, based on your understanding about:
  - What is the disorder Ishaan was suffering from?
  - What symptoms were you clearly able to identify, in context to Chapter- 6 : Learning from NCERT?
  - What do you understand by the term Dyslexia?
  - What should be your approach to help a friend in your class who has the same psychological disability?
  - Explain the role of Amir Khan in the movie. (Refer Chapter-1: What is Psychology?)

<https://youtu.be/EMgg80F2KYg>





EAST POINTS PUBLIC SCHOOL

VASUNDHARA ENCLAVE NEW DELHI 96

CLASS-11

SUBJECT: HISOTRY

CHAPTER 11

1Q. Comment on any points of difference between the native peoples of South and North America.

2Q. What did the 'frontier' mean to the Americans?

3Q. Why was the history of the Australian native peoples left out of the history books?

4Q.How satisfactory is a museum gallery display in explaining the culture of a people? Give examples from your own experience of a museum.

5Q. Imagine an encounter in California in about 1880 between four people: a former African slave, a Chinese labourer, a German who had come out in the Gold Rush, and a native of the Hopi tribe, and narrate their conversation.

### **Very Short Answer Type Questions**

Q 1. Define the term 'native'.

Q2. Which three European nations began to increase their trading activities after 17th century?

Q3. Who established themselves as a political power in South Africa and how?

Q4. Explain the term 'Settler'.

Q 5. Which names were given by Europeans to the countries of the New World?

Q 6. What are the various terms used to describe the native peoples of New World?

Q 7. What do you know about Wampum belts?

Q 8. Write about the lifestyle of native peoples of North America.

Q 9. Write three points about the life of native peoples of North America.

Q10. Where did John Cabot reach?

Q 11. List the items of exchange between the natives and Europeans.

Q 12. Why did the Europeans consider natives of America as uncivilized?

Q 13. What enabled the Europeans to dictate their terms to the natives of North America?

Q 14. When did Britain recognize the USA as an independent country?

Q15. Describe the views expressed by Washington Irwin about the natives of America.

## Long Answer Type Questions

- Q1. Discuss the features of the lifestyle of the native peoples of North America.
- Q 2. How would you interpret the expansion of the USA? Also discuss the development of agriculture in the USA.
- Q3.What do you know about the slavery system in the USA? How was it abolished? Discuss.
- Q 4. What do you know about wind of change in the USA and Canada?
- Q5.Write a description about the winds of change in Australia.

Read the following passages and answer the questions that follow:

### Passage 1.

It is interesting to note that another writer, Washington Irving, much younger than Wordsworth and who had actually met native people, described them quite differently. 'The Indians I have had an opportunity of seeing in real life are quite different from those described in poetry... Taciturn they are, it is true, when in company with white men, whose goodwill they distrust and whose language they do not understand; but the white man is equally taciturn under like circumstances. When the Indians are among themselves, they are great mimics, and entertain themselves excessively at the expense of the whites... who have supposed them impressed with profound respect for their grandeur and dignity... The white men (as I have witnessed) are prone to treat the poor Indians as little better than animals.'

Questions:

- (i) Who is the author of this passage? How did he describe a native?
- (ii) How did William Wordsworth and French philosopher Rousseau view the natives differently?
- (iii) What are the different names used in English to describe native peoples of New World?

### Passage 2.

Thomas Jefferson, third President of the USA, and a contemporary of Wordsworth, spoke of the natives in words that would lead to a public outcry today: This unfortunate race which we have been taking so much pains to civilize... have justified extermination.

Questions:

- (i) Who was Thomas Jefferson?
- (ii) Why was Thomas Jefferson known for?

(iii) What were his views about the native Americans?

Passage 3.

‘Kathy my sister with the torn heart,  
I don’t know how to thank you  
For your dreamtime stories of joy and grief  
Written on paperbark.  
You were one of the dark children I wasn’t allowed to play with  
Riverbank campers, the wrong colour (I couldn’t turn you white.)  
So it was late I met you,  
Late I began to know  
They hadn’t told me the land I loved  
Was taken out of your hands.’

-‘Two Dreamtimes’, written for Oodgeroo Noonuccal

Questions:

- (i) What do you know about Judith Wright?
- (ii) How did the European settlers treat the natives?
- (Hi) How did things begin to change for the natives in Australia?

Passage 4.

Karl Marx (1818-83), the great German philosopher, described the American frontier as “the last positive capitalist utopia...the limitless nature and space to which the limitless thirst for profit adapts itself.”

—‘Bastiat and Carey’, Grundrisse

Questions:

- (i) Who was Karl Marx?
- (ii) What made him popular?
- (iii) What was his opinion about the American frontier?

## WORKSHEET 1

### ACCOUNTANCY CLASS XI

1. From the following information a two-column cash book

		(₹)
2016		
May 1	Commenced business with cash	80,000
May 2	Opened bank current account in ICICI Bank	50,000
May 4	Bought goods from Ashok on credit	18,000
May 7	Paid Ashok by cheque and Discount received	171,000 900
May 10	sold goods to Dinesh	2,000
May 11	Received cheque from Mohan and allowed discount	19,500 500
May 17	Withdrew cash from Bank for office use and for personal use	13,000 12,000
May 19	Sold goods to Raman and received cheque	15,000
May 23	Cheque received from Raman endorsed to Sohan and paid balance by cheque.	

2. Prepare the purchase book of M/S Shiv stationers, Delhi from the following 2019

June 1	Purchased from Gagan Stationery Mart, Delhi on credit 70 dozen pencils @25 per dozen 10 dozen registers @15 per register
June 10	Purchased from Amit furniture, Delhi 2 tables @ 1500 per table
June 15	Purchased 3 dozen ink pot @ 80 per dozen from Mehar Paper co., Mumbai
June 18	Purchased from Rehman Brothers, Delhi 5 reams of white paper @ 50 per ream 120 pens @ 60 per dozen.

In all the above transactions there is trade discount of 10 %; CGST and SGST @ 6% each and IGST @ 12 %

## WORKSHEET 2

### ACCOUNTANCY CLASS XI

1. From the following information in the books of Sanjeev prepare a Bank reconciliation statement on 31<sup>st</sup> December, 2019

(I) Debit balance as per cash book ₹ 3,400

- (II) Cheques issued but not presented for payment up to 31<sup>st</sup> December ₹ 2,350.
- (III) Bank charges ₹ 180
- (IV) Cheque deposited but not cleared 2,500.
- (V) Payment side of cash book was ₹ 100 short
- (VI) Interest allowed by Bank paid ₹ 250
- (VII) Cheque deposited into bank dishonoured but no intimation is received so far ₹ 1,370
- (VIII) 40 for bank charges were recorded twice in the cash book and bank expenses of ₹ 35 were not at all recorded in the cash book.
- (IX) Bank received ₹350 as interest on debentures on behalf of Sanjeev.

2. From the following information prepare a Bank reconciliation statement on 31<sup>st</sup> August, 2019:

- a) A's Overdraft as per Cash book ₹12,000
- b) On 28<sup>th</sup> August, cheques had been issued for ₹ 70,000 out of which cheques of ₹ 3,000 only had been encashed.
- c) The Bank has charged ₹ 500 as interest on overdraft and the intimation of which has been received on 2<sup>nd</sup> September 2019.
- d) Cheques amounted to ₹ 3,500 had been deposited into bank for collection but out of these only ₹ 500 had been credited in the Pass Book.
- e) Bank has collected ₹ 600 directly in respect of interest on A's investment A has no knowledge of it.
- f) A cheque for ₹ 200 has been debited in bank column of Cash Book by A, but it was not sent to bank at all.
- g) Cheque deposited into bank dishonoured but no intimation is received so far ₹ 1,370
- h) ₹ 40 for bank charges were recorded twice in the cash book and bank expenses of ₹ 35 were not at all recorded in the cash book.
- i) Bank received ₹350 as interest on debentures on behalf.

## **WORKSHEET 1**

### **FMM CLASS XI**

1. What is a Prospectus/Offer document?
2. What is an 'Abridged Prospectus'?
3. When is a Red Herring Prospectus prepared?
4. Who prepares the 'Prospectus'/Offer Documents'?
5. What is meant by 'Listing of securities'?
6. What is a 'Listing Agreement'?
7. What does 'Delisting of securities' mean?
8. What is meant by Foreign Currency Convertible Bonds?

9. Why does a company issue American Depository Receipt?
10. Why does a company issue Global Depository Receipts?

**EAST POINT SCHOOL  
ECONOMICS WORKSHEET  
CLASS XI (2020-2021)**

1. State whether the following statements are true or false.
  - (i) There are many sources of data. (True/False)
  - (ii) Telephone survey is the most suitable method of collecting data, when the population is literate and spread over a large area. (True/False)
  - (iii) Data collected by investigator is called the secondary data. (True/False)
  - (iv) There is a certain bias involved in the non-random selection of samples. (True/False)
  - (v) Non-sampling errors can be minimised by taking large samples. (True/False)
2. Give two examples each of sample, population and variable.
3. Which of the following methods give better results and why?
  - (a) Census
  - (b) Sample
4. Discuss how you would use the lottery method to select 3 students out of 10 in your class
5. Does the lottery method always give you a random sample? Explain.
6. Do samples provide better results than surveys? Give reasons for your answer.
7. Mention any three qualities of a good Questionnaire
8. Give reason to support your answer stating why primary method of collection of data is considered to be more costlier than secondary method of collection of data

**EAST POINT SCHOOL  
ECONOMICS WORKSHEET  
CLASS XI (2020-2021)**

1. Define the following terms  
Variable, class interval, Frequency distribution, Class frequency
2. Distinguish between Discrete variable and continuous variable

3. What do you mean by Qualitative classification ?
4. In a city 45 families were surveyed for the number of domestic appliances they used. Prepare a frequency array based on their replies as recorded below.

1	3	2	2	2	2	1	2	1	2	2	3	3	3	3
3	3	2	3	2	2	6	1	6	2	1	5	1	5	3
2	4	2	7	4	2	4	3	4	2	0	3	1	4	3

5. Prepare a discrete series table from the following marks secured by 40 students in a test of 10 marks in statistics.

4	8	6	4	3	2	1	10	9	10
5	4	1	2	5	4	3	2	2	5
8	1	2	5	6	7	6	5	4	5
10	3	3	6	7	9	3	5	7	8

6. The weights in grams of 20 apples picked from 5 boxes are as under. Construct an inclusive type frequency distribution with a class interval of 5

90	95	91	103	101	105	109	97	109	110
92	107	94	106	105	110	92	100	93	91

7. Prepare a frequency distribution table with class intervals of 0 – 10 from the data given below.

64	58	62	50	52	63	9	38	42	5
33	55	40	51	48	35	42	41	60	19
76	25	61	48	46	26	11	45	64	28
30	45	53	82	40	18	17	65	55	13
20	40	36	64	50	58	7	15	47	55
70	33	60	48	55	54	15	65	50	60

8. Following are the marks obtained by 20 students in an English test. Prepare a frequency distribution taking class interval of 10 using exclusive and inclusive method.

5	16	17	17	20	21	22	22	22	25
25	26	26	30	31	31	34	35	42	48

## PHYSICAL EDUCATION

### CLASS-11

#### DUSSERA BREAK ASSIGNMENT-1

1. Explain the term “physical Activity environment”
2. What do you mean by “lifestyle”
3. State the aim of physical education.
4. Define psychology.
5. What do you mean by learning?





Q9. Why is it easier to balance a bicycle in motion? Q10. What are the factors on which moment of inertia of a body depends?

Q11. Why are spokes fitted in a cycle wheel? Q12. Why does a pilot not fall down when his airplane takes a vertical loop?

Q13. If the ice on the polar caps of the earth melts, how will it affect the duration of the day?

2/3 mark type :-

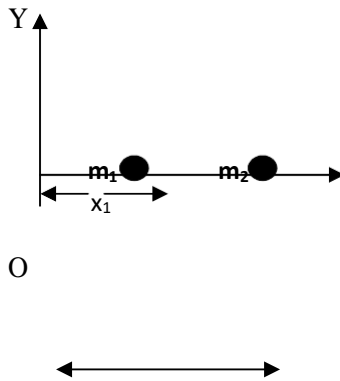
Q14. If no external force is acting on a two body system, what will happen to :- (a) Velocity of COM. (b) Angular momentum.

Q15. How does a diver manage to make somersaults in air?

Q16. The angular speed of a motor wheel is increased from 1200 rpm to 3120 rpm in 16 seconds. (i) What is its angular acceleration, assuming acceleration as uniform? (ii) How many revolutions does wheel make during this time?

Q17. State the two theorems of moment of inertia.

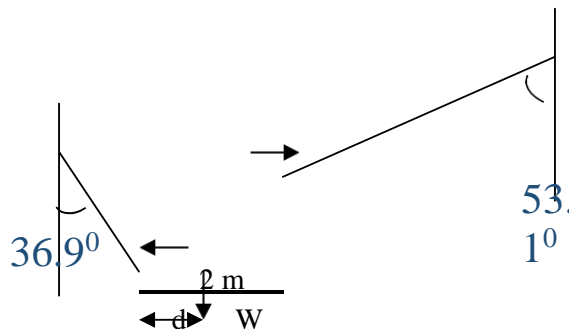
Q18. What will be the centre of mass of the pair of particles described below on the x-axis?



X2

Q19. A ring, a disc & a sphere all of same radius & mass roll down an inclined plane from same ht. h. Which of 3 reaches bottom (i) earliest (ii) latest? Q20. Deduce the relation between torque and angular momentum.

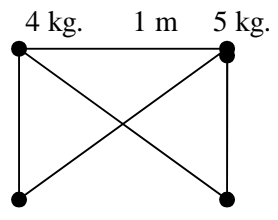
Q21. A non-uniform bar of wt W is suspended at rest by 2 strings of negligible weights as shown. The angles made by strings with vertical are  $36.9^\circ$  &  $53.1^\circ$  respectively. The bar is 2m long. Cal. The distance of L of the COG of the bar from its left end.

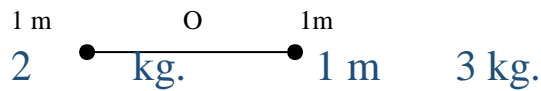


Q22. A car weights 1800 kg. The distance between its front & back axles is 1.8m. Its COG is 1.05m behind the front axle. Determine the force exerted by the level ground on each front wheel & each back wheel.

Q23. Derive & define radius of gyration of a body rotating about an axis.

Q24. 4 particles of masses 4kg, 2 kg, 3kg, & 5 kg are respt. located at four corners A, B, C & D of sq of side 1 m as shown. Cal. moment of inertia of the system about. (i) an axis passing through pt. of intersection of the diagonals & perpendicular to the plane of the square. (ii) the side AB (iii) the diagonal BD

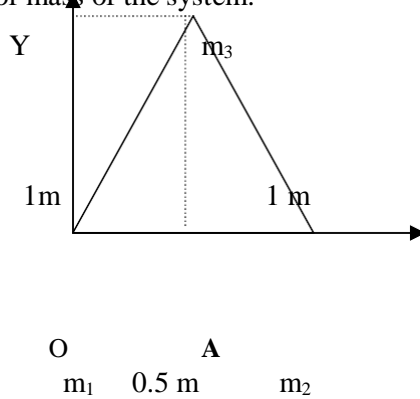




Q25. Energy of 484J is spent in increasing speed of a flywheel from 60 rpm to 30 rpm. Find the moment of inertia of the wheel.

Q26. Cal. The rotational K.E. of the earth about its own axis. Mass of the earth =  $6 \times 10^{24}$  kg and radius of the earth = 6400 Km.

Q27. Three masses 3, 4 and 5 Kg. are located at the corner of an equilateral triangle of side 1 m. Locate the centre of mass of the system.



Q28. Two particles of masses 100g & 300g at a given time have positions  $2\hat{i} + 5\hat{j} + 13\hat{k}$  and

$6\hat{i} + 4\hat{j} + 2\hat{k}$  respectively & velocities  $10\hat{i} + 7\hat{j} + 3\hat{k}$  &  $7\hat{i} + 9\hat{j} + 6\hat{k}$   $\text{ms}^{-1}$  respective

Determine the instantaneous position and velocity of C.M.

**CLASS XI BIOLOGY**

**ASSIGNMENT NO.**

2
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**BLOOD FLUIDS AND CIRCULATION**

- Q1. Name the enzyme that catalyses the formation of carbonic acid in erythrocytes.
- Q2. What is systemic circulation ?
- Q3.. Give two examples of extra-cellular fluids.
- Q4. What name is given to the blood vessels which generally bring blood to an organ ?
- Q5.. Which adrenal hormone accelerates the heart beat under normal conditions ?
- Q6 . Name the blood vessel that carries blood from the intestine to liver.
- Q7.. Describe cardiac cycle.
- Q8. Name the protein found in RBCs. 12. What happens to a person suffering from hemophilia ?
- Q9. Explain the following:-
- (a) Auricles have thinner walls than ventricles.
  - (b) Blood flows under pressure in the arteries.
  - (c) There is a slight gap between auricular systole and ventricular systole.
  - (d) Why can you palpate the pulse on an artery in each heart beat?
  - (e) SA node is called the pacemaker of heart. (f) No mixing of deoxygenated & oxygenated blood in mammalian heart.
  - (g) There is no back flow of blood in veins.
- Q10. A cardiologist observed an enlarged QRS wave in the ECG of a patient. What does it indicate ?

# Class XIth

## Chemistry - Worksheet

1. What is the difference between 160 cm and 160.0 cm
2. In the combustion of methane, what is the limiting reactant and why?
3. State the number of significant figures in each of the following:  
(i) 208.91 (ii) 0.00456
4. What are the values of  $n$  and  $l$  for 2p orbital?
5. Which of the following orbitals are not possible? 1p, 2s, 3f and 4d
6. Neutrons can be found in all atomic nuclei except in one case. Which is this atomic nucleus and what does it consists of?
7. When  $\alpha$ - rays hit a thin foil of gold, very few  $\alpha$ - particles is deflected back. What does it prove?
8. State the modern periodic law.
9. Elements in the same group have equal valency. Comment on it.
10. Write the favourable factors for the formation of ionic bond.
11. What is units of  $a$  and  $b$  which are vander waal's constant?
12. Which property of liquid is responsible for spherical shape of drop?
13. Calculate wave number of yellow radiations having wavelength of  $5800 \text{ \AA}$ .
14. How is the partial pressure of a gas in a mixture is related to the total pressure of the gaseous mixture?
15. Why vegetables are cooked with difficulty at hill station.
16. In terms of Charle's law explain why  $-273^\circ \text{C}$  is the lowest temperature?
17. What is the value of  $Z$  (compressibility factor) for an Ideal gas?
18. The outer electronic configuration of some elements are: (a)  $3s^2 3p^4$  (b)  $3d^{10} 4s^2$  (c)  $3s^2 3p^6 4s^2$  (d)  $6s^2 4f^3$  To which block of elements in the periodic table each of these belongs?

19. A mixture of dihydrogen and dinitrogen at 1 bar pressure contains 20% by weight of  $H_2$ . Calculate partial pressure of  $H_2$ .
20. Define hydrogen bond. Is it weaker or stronger than the van der Waals forces?
21. Draw diagrams showing the formation of a double bond and a triple bond between carbon atoms in  $C_2H_4$  and  $C_2H_2$  molecules.
22. An element with mass number 81 contains 31.7 % more neutrons as compared to protons. Assign the atomic symbol.
23. Calculate the radius of Bohr's fifth orbit for hydrogen atom
24. What do mean by gram atomic mass. One million silver atoms weigh  $1.79 \times 10^{16}$  g. Calculate the gram atomic mass of silver.
25. What do mean by molarity .Calculate the molarity of NaOH in the solution prepared by dissolving its 4 g in enough water to form 250 mL of the solution
26. What is the difference between empirical and molecular formula? A compound contains 4.07 % hydrogen, 24.27 % carbon and 71.65 % chlorine. Its molar mass is 98.96 g. What are its empirical and molecular formulas?
27. The energy associated with the first orbit in the hydrogen atom is  $-2.18 \times 10^{-18}$ J/atom. What is the energy associated with the fifth orbit
28. Arrange the following as stated:
  - a.  $N_2, O_2, F_2, Cl_2$  (Increasing order of bond dissociation energy)
  - b. F, Cl, Br, I (Increasing order of electron gain enthalpy)
  - c.  $F_2, N_2, Cl_2, O_2$  (Increasing order of bond length)
29. Calculate the total pressure in mixture of 4g of  $O_2$  and 2gm. Of  $H_2$  can fixed to a total volume of 1 L at  $0^\circ C$ . ( $R = 0.0821 \text{ L atm K}^{-1} \text{ Mol}^{-1}$ )

CLASS-XI  
CHEMISTRY  
WORKSHEET-2

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1. By heating sample of  $\text{CaCO}_3$ , 11.2g of  $\text{CaO}$  is formed. What volume of  $\text{CO}_2$  at STP obtained in this reaction
2. How many mL of a 0.1 M  $\text{HCl}$  are required to react completely with 1 g mixture of  $\text{Na}_2\text{CO}_3$  and  $\text{NaHCO}_3$  containing equimolar amounts of two?
3. Elements X and Y form two different compounds. In the first, 0.324 g of X is combined with 0.471 g of Y. In the second, 0.117 g of X is combined with 0.509 g of Y. Show that these follow law of multiple proportions
4. The mole fraction of  $\text{CH}_3\text{OH}$  in an aqueous solution is 0.02 and density of solution  $0.994 \text{ cm}^{-3}$ . Determine the molality and molarity.
5. A welding fuel gas contains carbon and hydrogen only. Burning a small sample of it in oxygen gives 3.38 g carbon dioxide 0.690 g of water and no other products. A volume of 10.0 L (measured at STP) of this welding gas is found to weigh 11.6 g. Calculate (i) empirical formula, (ii) molar mass of the gas, and (iii) molecular formula.,
6. Molecular shapes of  $\text{SF}_4$ ,  $\text{CF}_4$  and  $\text{XeF}_4$  are
  - the same, with 2, 0 and 1 lone pairs of electrons
  - the same, with 1, 1 and 1 lone pairs of electrons
  - different, with 0, 1 and 2 lone pairs of electrons
  - different, with 1, 0 and 2 lone pairs of electrons
7. The geometry of  $\text{H}_2\text{S}$  and its dipole moment are
  - (A) angular and non-zero (B) angular and zero
  - (C) linear and non-zero (D) linear and zero
8. On hybridization of one s and one p orbitals we get:
  - (A) two mutually perpendicular orbitals
  - (B) two orbitals at  $180^\circ$
  - (C) four orbitals directed tetrahedrally
  - (D) three orbitals in a plane
9. True / False:
  - a) Dipole moment of  $\text{CH}_3\text{Cl}$  is greater than that of  $\text{CCl}_3\text{H}$
  - b)  $\text{H}_2\text{O}$  molecule is linear.

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- c) The presence of polar bonds in a poly-atomic molecule suggests that the molecule has non-zero dipole moment.
- d)  $sp^3$  hybrid orbitals have equal s and p character.
- e) In benzene, carbon uses all the three p-orbitals for hybridization.
- f)  $SnCl_2$  is a non-linear molecule.
- g) All molecules with polar bonds have dipole moment.
- h) H-F is more ionic than H-Br
- i) H-F bond is stronger than H-I
- j) Both  $BrF_3$  and  $BF_3$  are T-shaped
10. Calculate the total pressure in a 10 L cylinder which contains 0.4g of helium, 1.6g of oxygen and 1.4 g of nitrogen at  $27^\circ C$ . Also calculate the partial pressure of helium gas in the cylinder. Assume ideal behaviour for gases.
11. A gas occupies one litre under atmospheric pressure. What will be the volume of the same amount of gas under 750 mm of Hg at the same temperature?
12. A 2.5 litre flask contains 0.25 mole each of sulphur dioxide and nitrogen gas at  $27^\circ C$ . Calculate the partial pressure exerted by each gas and also the total pressure.