

**Dear Parents** Greetings of the day!

Vacations are the best time to relax and enjoy. Summer vacations are the reason behind fun in the sun, beach and shadow of the umbrella, but it is also the time to keep some analogy of academics alive in the fun to chisel the inherent potential inside your child. My suggestion to you is to spend these holidays being sociable and be vibrant in undertaking your plans so that the vacation is made purposeful.

To begin with, enhance every precious moment prudently by motivating your child to read informative and enlightening books. Help them improve their speech by conversing with them on every possible occasion and strop their vocabulary by providing them with new words. Spend substantial time visiting your kith and kin and people in your vicinity. Hold parley with your child on daily happenings and crucial world events as this is the best time to update, put forth your thoughts, notions and ideas before your ward and ask for an opinion, be a constant supporter of tolerance and disseminate it amongst people, teach your child to help and let him/her realize the meaning of real happiness and harmony and certainly root out all possible ill feelings and factions. Try being friendly and benevolent to all, let your child play the part in family reunions which will strengthen your family bond. Look out for the ways to abrade the plodding routine and take up some supportive vigorous activities with your child like swimming, cycling, jogging, painting or any other activity that your child enjoys.

It's your time to make every single moment eventful and memorable for your child and fill them with loads of experiences, which he/she eagerly wants to share with his/her pals and Educators when returned to School.

I wish you a pleasant vacation!

Regards

Principal Delhi Public School Gwalior

# ADD ONS TO MAKE YOUR VACATION MEANINGFUL !!

Childhood is a crucial stage of development. Most of life's important lessons are learnt here! Let us join hands and make sincere efforts to augment and hone the learning process of the child through inculcation of self learning and keen observation.

- \* Let us attempt to enable them by allowing them to assume responsibilities of the routine household and shopping chores. (e.g.: laying the table, serving the guests, making their beds, buying groceries from the nearby stores etc.)
- \* Let us make them aware about their social responsibilities which will transform them into a responsible citizen of our society. (e.g.: keeping the surroundings clean, make use of public litter bins, switching off lights / fans / closing the taps properly etc.)
- \* They should be taught how to connect with Almighty God through prayers and meditation. (e.g.: daily prayers, thought of the day, meditate to improve the concentration etc.)
- \* Socialize and connect with people, neighbours and relatives. (e.g.: meeting & greeting neighbours, helping the elderly around, be friendly to the peers etc.)

We wish all the great for your summer holiday time. May all the pleasure in the world embrace you, let your fun endless with friends and family.

Note :Kindly do all the Holiday Assignments neatly and submit it latest by July 10,2025.

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# <u> SUBJECT – ENGLISH</u>

Attempt any one of the following in about 500 words in a file.

Write a short story titled **"The World Beyond the Mirror"** in which a character discovers a parallel universe by accident. Explore the theme of choices, consequences & alternate realities.

# <u>OR</u>

Write a speech on"**The Role of Social Media in Shaping Modern Society**". Discuss its positive and negative effects providing examples from current events or social trends.

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# <u>SUBJECT – MATHEMATICS</u>

**General Instructions** –

- Holiday Assignment consists of Multiple Choice questions, Case based questions and solve the following questions.
- All the work to be done in A4 sized ruled sheets which are to be arranged in a stick file.
- All the best! Stay Home, Stay Safe!

## Multiple Choice Questions

Two finite sets have m and n elements. The number of subsets of the first set is 112 more than 1. that of second set. The value of m and n are – (a) 4, 7 (b) 7, 4 (c) 9, 4(d) 7, 7 If  $X = \{8^n - 7n - 1 : n \in N\}$  and  $y = \{49n - 49 : n \in N\}$  then 2. (a)  $X \subset Y$ (b)  $Y \subset X$ (c) X = Y(d)  $X \cap Y = \emptyset$ 3. If A and B are two sets, then  $A \cap (A \cup B)$  is equal to (a) A (b) B (c)  $A \cap B$ (d) The range of  $f(x) = \frac{1}{1 - 2\cos x}$  is (a) $\begin{bmatrix} \frac{1}{3}, 1 \end{bmatrix}$  (b)  $\begin{bmatrix} -1, \frac{1}{3} \end{bmatrix}$ 4. (c) $(-\infty, -1) \cup [\frac{1}{3}, \infty)$  (d)  $[\frac{-1}{3}, 1]$ The domain of the function f defined by  $f(x) = \sqrt{4-x} + \frac{1}{\sqrt{x^2-1}}$  is 5. (a)  $(-\infty, -1) \cup (1, 4]$ (b)  $(-\infty, -1] \cup (1, 4]$ (d)  $(-\infty, -1) \cup [1,4]$ (c)  $(-\infty, -1) \cup [1,4]$ If A and B are finite sets such that n(A) = 5 and n(B) = 7, then the number of functions from 6. A to B is (c)  $7^7$ (b)  $5^7$ (d)  $5^5$ (a)  $7^5$ The domain for which the functions defined by  $f(x) = 3x^2 - 1$  and g(x) = 3 + x are equal 7. (c)  $\left[-1, \frac{4}{3}\right]$  (d)  $\left[-2, \frac{-4}{3}\right]$ (a)  $\left\{-1, \frac{4}{3}\right\}$  (b)  $\left[1, \frac{4}{3}\right]$ 

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8. If 
$$\tan \alpha = \frac{m}{m+1}$$
 and  $\tan \beta = \frac{1}{2m+1}$ , then  $\alpha + \beta$  is equal to  
(a)  $\frac{\pi}{2}$  (b)  $\frac{\pi}{3}$  (c)  $\frac{\pi}{6}$  (d)

9. If  $10 \sin^4 \alpha + 15 \cos^4 \alpha = 6$ , then the value of  $27 \csc^6 \alpha + 8 \sec^6 \alpha$  is (a) 240 (b) 245 (c) 250 (d) 140

10. The value of 
$$\left(1 + \cos\frac{\pi}{8}\right) \left(1 + \cos\frac{3\pi}{8}\right) \left(1 + \cos\frac{5\pi}{8}\right) \left(1 + \cos\frac{7\pi}{8}\right)$$
 is  
(a)  $\frac{1}{8}$  (b)  $\frac{1}{6}$  (c)  $\frac{1}{4}$  (d) None of these

#### Assertion Reasoning Questions

# Direction of questions : In the following questions, A statement of Assertion (A) is followed by a statement of Reason (R).

 $\frac{\pi}{4}$ 

- (A) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (B) Both (A) and (R) true but (R) is NOT the correct explanation of (A).
- (C) (A) is correct but (R) is not correct
- (D) (A) is not correct but (R) is correct.

11. Assertion (A): The domain of function 
$$f(x) = \frac{1}{\sqrt{x-5}}$$
 is  $(5, \infty)$ 

**Reason (R) :** The range of function  $f(x) = \frac{1}{\sqrt{x-5}}$  is R<sup>+</sup>

12. Assertion (A) : The ordered pair (5, 2) belongs to the relation  $R = \{(x, y): y = x - 5, x, y \in z\}$ 

**Reason (R) :** The order pair (5, 2) does not belongs to the relation  $R = \{(x, y): y = x - 5, x, y \in z\}$ 

- 13. Assertion (A) : If  $f(x) = y = \frac{ax-b}{cx-a}$ , then f(y)=xReason (R) : To prove f(y) = x put  $y = \frac{ax-b}{cx-a} \inf f(x)$
- 14. Given  $L = \{1, 2, 3, 4\}, M = \{3, 4, 5, 6\}$  and  $N = \{1, 3, 5\}$ Assertion (A):  $L \cap (M \cup N) = \{1, 3, 4\}$

**Reason (R)**:  $(L \cap M) \cup (L \cap N) = \{1, 3, 4\}$ 

- 15. If A and B are subset of universal set ∪ then Assertion (A) : A ⊂ A ∪ B
  Reason (R) : (A ∩ B)⊂A
- 16. Let  $T = \left\{ x: \frac{x+5}{x-7} 5 = \frac{4x-40}{13-x} \right\}$ Assertion (A) : Then T is an empty set. Reason (R) : Then T is not an empty set.
- 17. Assertion (A) : For all sets A, B and C if A $\subset$ B then  $A \cap C \subset B \cap C$ Reason (R) : For all sets A, B and C, If  $A \subset B$  then  $A \cup C \subset B \cup C$

18. Assertion (A) : The value of  $\tan\left(\frac{13\pi}{12}\right)$  is  $2 - \sqrt{3}$ 

**Reason (R)**:  $3\sin\frac{\pi}{6}\sec\frac{\pi}{3} - 4\sin\frac{5\pi}{6}\cot\frac{\pi}{4} = 1$ 

19. Assertion (A): The number of radians is an angle subtended by an arc of a circle at the centre is equal to  $\frac{arc}{radius}$ 

Reason (R): Every real number can be considered as radian measure of some angle.

20. Assertion (A): If sin2x = 3sin2y then  $\frac{\tan(x+y)}{\tan(x-y)} = 2$ Reason (R):  $sin C \pm sin D = 2 sin \left(\frac{C \pm D}{2}\right) cos \left(\frac{C \mp D}{2}\right)$ 

#### Solve the following :

- 21. If A, B and C be any set then prove that  $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$ .
- 22. For all sets A, B and C prove that  $(A B) \cap (A C) = A (B \cup C)$
- 23. If A= {1,3,5,7,9,11,13,15,17}, B = {2,4,6,8,10, ..., 18} and N is the set of natural is the universal set then find  $(A' \cup (A \cup B) \cap B')$
- 24. Find the domain of the function  $f(x) = \frac{1}{\sqrt{x+|x|}}$

25. If 
$$f(x) = \frac{x-1}{x+1}$$
 show that  $f\left(\frac{-1}{x}\right) = \frac{-1}{f(x)}$ 

- 26. Find the domain and range of the function f given by f(x) = 2 |x 5|
- 27. Find the value of the expression  $3\left[\sin^4\left(\frac{3\pi}{2} - \alpha\right) + \sin^4(3\pi + \alpha)\right] - 2\left[\sin^6\left(\frac{\pi}{2} + \alpha\right) + \sin^6(5\pi - \alpha)\right]$
- 28. Prove that  $\cos^4 \frac{\pi}{8} + \cos^4 \frac{3\pi}{8} + \cos^4 \frac{5\pi}{8} + \cos^4 \frac{7\pi}{8} = \frac{3}{2}$

29. If 
$$\tan(\pi \cos\theta) = \cot(\pi \sin\theta)$$
 then find  $\cos\left(\theta - \frac{\pi}{4}\right)$ 

30. Prove that  $\frac{1+\sin A - \cos A}{1+\sin A + \cos A} = \tan \frac{A}{2}$ 

## Case Study Based Questions

- 31. Given :  $\tan x = \frac{3}{4}$  and x lies in third quadrant. **Based on this information, answer the following questions:** (i) Find the value of *sin 2x*.
  - (ii) Find the value of cos 2x.

- (iii) Find the value of  $\sin \frac{x}{2}$
- (iv) Find the value of  $\cos \frac{x}{2}$

32. Given : sin x - sin y = a and cos x - cosy = b
Based on the above information, answer the following questions:
(i) Find the value of cos(x - y).

- (ii) Find the value of  $\tan\left(\frac{x+y}{2}\right)$ .
- (iii) Find the value of sin(x + y).
- (iv) Find the values of cos(x + y).

33. Given :  $\tan(45^\circ + x) = \frac{1 + \tan x}{1 - \tan x} = \frac{\cos x + \sin x}{\cos x - \sin x}$  and  $\tan(45^\circ - x) = \frac{1 - \tan x}{1 + \tan x} = \frac{\cos x - \sin x}{\cos x + \sin x}$ 

Based on the above information, answer the following questions:

- (i) Find the value of  $\frac{\cos 11^\circ + \sin 11^\circ}{\cos 11^\circ \sin 11^\circ}$
- (ii) Find the value of  $\frac{\cos 9^\circ \cos 9^\circ}{\cos 9^\circ + \sin 9^\circ}$
- (iii) Find the value of  $\frac{1-\tan 15^\circ}{1+\tan 15^\circ}$
- (iv) Find the value of tan 82°
- 34. A survey is conducted by a career counselor in a college to find career choice of students after the Intermediate. There are 100 students that goes for Engineering Courses, 50 wants to make their career in Medical, 100 students continue their further study in Arts. There are 10 students that go for both Engineering and Medical, and 3 goes for Medical and Arts. There are 3 students that do not go for any further studies.



#### Based on the above information, answer the following questions:

- (i) Find the number of students that goes for only engineering course.
- (ii) Find the number of students that goes for both Medical and Art.
- (iii) Find the number of students that goes for medical of engineering.
- (iv) Find the number of students that goes for Engineering or Art.

## 35. Venn Diagrams

Venn diagrams were invented by a logician John Venn as a way of picturing relationships between different groups of things. These diagrams, also called Set diagrams or Logic diagram, are widely used in mathematics, statistics, logic, teaching, linguistics, computer science and business.

In the following diagram, triangle shows children, circle shows rural population, rectangle shows school going population & square shows boys.



### Based on the information stated above answer the below given questions:

- (i) The village boys not going to school are denoted by which number?
- (ii) The village children not going to school are denoted by which number?
- (iii) What is represented by number 4?
- (iv) School going boys from village are denoted by which number?

# SUBJECT – APPLIED MATHEMATICS

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- The following guidelines are issued by CBSE to schools for the session 2025-26.
- Project work and record : 5 marks and year end presentation/ viva : 5 marks

# Following are the topics for the projects to be done individually. One has to select any one topic and prepare a detailed report on it

- 1) Predicting the Outcome of an Election- Exit Polls.
- 2) Weather Prediction (To study how weather is predicted and understand the use of mathematics in weather prediction).
- 3) Risk Assessments by Insurance Firms from Data.
- 4) Stock Price Movements.
- 5) To show application of mathematics in real life in maximizing the profit of Kirana stores.
- 6) Effect of Temperature and Rain Variations on Various Crops.
- 7) To analyze what the infant mortality rate of a country is and how we can predict it.
- 8) Predicting a Stock Market Crash.
  - Steps involved in the conduct of the project:

## Choose a topic

✓ Collect the research material/data

Organize material/data

## Present material/data

Analyse the material/data for conclusion

# Draw the relevant conclusion

Presentation of the Project Work Page 7 of 24

## • Expected Checklist for the project work:

- ✓ Introduction of topic/title
- ✓ Identifying the causes, events, consequences and/or remedies
- ✓ Various stakeholders and effect on each of them.
- ✓ Advantages and disadvantages of situations or issues identified.
- ✓ Short term and long term implications of strategies suggested in the course of research.
- ✓ Validity, reliability, appropriateness and relevance of data used for research work and for presentation in the project file.
- Presentation and writing that is succinct and coherent in project file.
- ✓ Citation of the material referred to, in the file in footnotes, resources section, bibliography etc.

The project report should include Title page, Acknowledgements, Certificate, Contents page(Index), Introduction, Body of report, Evaluation, Conclusions and Future Work, Bibliography and Appendix.

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# SUBJECT – PHYSICS

<b>Objec</b>	Objective questions				
1.	Which of the following is not the unit of time				
	(a) second	(b) minute	(c) month	(d) light year	
2.	<ul> <li>Dimensional analysis can be applied to</li> <li>(a) to check the correctness of a physical equation.</li> <li>(b) to derive the relationship between different physical quantities.</li> <li>(c) to convert a physical quantity from one system of units to other. Which of the following physical quantity has the dimensional formula [M<sup>1</sup>L<sup>2</sup>T<sup>-3</sup>]</li> </ul>				
	(a) work	(b) power	(c) All of the above	(d) impulse	
3.	Which of the following is dimensionless (a) force/acceleration (c) volume/area		<ul><li>(b) velocity/acceleration</li><li>(d) energy/work</li></ul>		
4.	If $x = a + bt + ct^2$ , wh (a) m/s	here x is in metre and t (b) m/s <sup>2</sup>	in second, then what is (c) kgm/s	the unit of 'c'? (d) m <sup>2</sup> /s	
5.	The base quantity am (a) Speed	ong the following is, (b) area	(c) length	(d) weight	
6.	A car is moving with a uniform velocity of 60 km/h. What is its acceleration? (a) $0 \text{ km/h}^2$ (b) $10 \text{ km/h}^2$ (c) $20 \text{ km/h}^2$ (d) $30 \text{ km/h}^2$				
7.	For the motion with uniform velocity, the slope of the velocity-time graph is equal to(a) 1 m/s(b)Zero(c)Initial velocity(d)Final velocity				
8.	Which is the formula (a) $v = u + at$	for motion in a straight (b) $v = u - at$	t line (c) u = 2at+v	(d) $v = 2at+u$	

- 9. A body starts from rest and moves with a uniform acceleration of  $2 \text{ m/s}^2$ . What is its velocity after 10 seconds? (c) 15 m/s(b) 10 m/s
  - (a) 5 m/s(d) 20 m/s
- A ball is thrown vertically upward with an initial velocity of 50 m/s. What is its maximum 10. height? (a) 125 m (b) 250 m (c) 500 m (d) 1000 m

### **Descriptive questions.**

- Under what condition is the relation s=vt correct? 11.
- 12. Two balls of different masses are thrown vertically upward with the same initial speed. Which one will rise to a greater height?
- A 400m long railway train is going from New Delhi railway station to Kanpur. Can we 13. consider a railway train as a point object?
- 14. Can the speed of an object be negative? Justify
- 15. Under what condition the displacement and the distance of a moving object will have the same magnitude?
- 16. A particle is thrown upwards. It attains a height (h) after 5 seconds and again after 9 seconds comes back. What is the speed of the particle at a height h?
- 17. Figure gives the x-t plot of a particle in one-dimensional motion. Three different equal intervals of time are shown, in which interval is the average speed greatest, and in which is it the least? Give the sign of average velocity for each interval.



- 18. Define the term relative velocity.
- 19. In which of the following examples of motion, can the body be considered approximately a point object:
  - a) A railway carriage moving without jerks between two stations.
  - b) A monkey sitting on top of a man cycling smoothly on a circular track.
  - d) A tumbling beaker that has slipped off the edge of a table.
- 20. Sameer went on his bike from Delhi to Gurgaon at a speed of 60km/hr and came back at a speed of 40km/hr. What is his average speed for the entire journey?
- 21. If Planck's constant (h) and speed of light in vacuum (c) are taken as two fundamental quantities, which one of the following can, in addition, be taken to express length, mass and time in terms of the three chosen fundamental quantities?
  - (a) Mass of electron  $(m_e)$ (b) Universal gravitational constant (G)
  - (c) Charge of electron (e) (d) Mass of proton  $(m_n)$
- 22. Derive an expression for time period of a simple pendulum.
- 23. Explain dimensional analysis with its uses.

- 24. Why length, mass and time are chosen as base quantities in mechanics?
- 25. A new system of units is proposed in which unit of mass is  $\alpha$  kg, unit of length  $\beta$  m and unit of time  $\gamma$  s. How much will 5J measure in this new system?
- 26. What is the difference between A and A.U.?
- 27. Name Physical Quantities Whose Units are Electron Volt and Pascal.
- 28. Define S.I. Unit of Solid Angle.
- 29. A Radar signal is beamed towards a planet from the earth and its echo is received seven minutes later. Calculate the velocity of the signal, if the distance between the planet and the earth is  $6.3 \times 10^{10}$  m.
- 30. Find the Dimensions of Latent Heat and Specific Heat.

# SUBJECT – CHEMISTRY

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## **Objective questions**

- 1. What is the meaning of the term "mole" in chemistry?
  - A) A unit of massC) A unit of amount of substance

B) A unit of volumeD) A unit of temperature

- 2. Which of the following statements is true about the mole concept?
  - A) 1 mole of any substance has a mass equal to its relative molecular mass in grams
  - B) 1 mole of any substance has a mass equal to its relative atomic mass in grams
  - C) 1 mole of any substance has a volume equal to its relative molecular mass in litres
  - D) 1 mole of any substance has a volume equal to its relative atomic mass in litres
- 3. What is the empirical formula of a compound?
  - A) The simplest whole-number ratio of atoms of each element present in the compound
  - B) The actual number of atoms of each element present in the compound
  - C) The molecular formula of the compound
  - D) The structural formula of the compound

## 4. What is the molecular mass of a compound?

- A) The sum of the atomic masses of all the atoms present in one molecule of the compound
- B) The average of the atomic masses of all the atoms present in one molecule of the compound
- C) The difference of the atomic masses of all the atoms present in one molecule of the compound
- D) The product of the atomic masses of all the atoms present in one molecule of the compound
- 5. Which of the following laws is related to the conservation of mass in a chemical reaction? A) Law of Definite Proportions B) Law of Multiple Proportions
  - A) Law of Definite ProportionsB)C) Law of Conservation of MassD)
    - D) Law of Constant Composition

6.	Which of the followi A) Molarity	ng is dependent on tem B) Molality	perature? C) Mole fraction	D) Mass percentage
7.	4 g of NaOH dissolved in 100 ml solution. Molarity of the solution is			
	A) 1 M	B) 10 M	C) 0.1 M	D) 4 M
8. Which has the maximum number of molecules among the following?			ng?	
	A) $44g$ of $CO_2$	B) 44g of O <sub>2</sub>	C) 8g of H <sub>2</sub>	D) 64g of SO <sub>2</sub>
9.	10 mol of Zn reacts with 10 mol of HCl. Calculate the number of moles of $H_2$ produced.			noles of H <sub>2</sub> produced.
	A) 5 mol	B) 10 mol	C) 20 mol	D) 2.5 mol
10. The number of oxygen atoms in 4.4g of $CO_2$ is approximately				
	A) $1.2 \times 10^{23}$	B) $6 \times 10^{22}$	C) $6 \times 10^{23}$	D) $12 \times 10^{23}$
Descri	iptive questions.			
Q.1	What mass of sodium chloride would be decomposed by 9.8 g of sulphuric acid, if 12 g o			

- Q.1 What mass of sodium chloride would be decomposed by 9.8 g of sulphuric acid, if 12 g of sodium bisulphite and 2.75 g of hydrogen chloride were produced in a reaction assuming that the law of conservation of mass is true?
- Q.2 4.9 g KClO<sub>3</sub> when pyrolysed gives the residue of 2.96 g. calculate the mass of oxygen released, using law of conservation of mass.
- Q.3 Calculate the mass of 2.5 g atoms of oxygen.
- Q.4 Calculate the number of moles in 25 g of calcium carbonate & number of oxygen atoms.
- Q.5 6 g of carbon was completely burnt in oxygen. What would be the volume of carbondioxide gas produced at NTP and how many molecules will be present in that gas?
- Q.6 How many atoms and molecules of sulphur are present in 64 g of sulphur  $S_8$ .
- Q.7 What volume of CCl<sub>4</sub> having density 1.5g/cc will contains  $10^{25}$  atoms of chlorine?
- Q.8 One litre sample of sea water is found to contain  $5.8 \times 10^{-3}$  g of dissolved oxygen. Calculate the concentration of dissolved oxygen in sea water in ppm.
- Q.2 What is the conc. of glucose in Mol  $L^{-1}$ , if 40 g of it is dissolved in enough water to make a final volume upto 2L?
- Q.9 If the density of methanol is 0.793 g/ml. what is its volume needed for making 2.5 L of its 0.25M solution.
- Q.10 Calculate the amount of carbon dioxide that could be produced when
  - (1) 1 mole of C is burnt in air.
  - (2) 1 mole of carbon is burnt in 16 g of dioxygen.
  - (3) moles of carbon are burnt in 16 g of dioxygen.
- Q.11 The empirical formula and molecular mass of a compound are CH<sub>2</sub>O and 180 respectively. What will be the molecular formula of the compound?
- Q.12 State :(i) Law of definite proportions.(ii) State Avogadro's law.

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- Q.14 Define the following terms: (i) Mole fraction (ii) Molality
- Q.15 In three moles of ethane (C<sub>2</sub>H<sub>6</sub>), calculate the following:
  (i)Number of moles of carbon atoms.
  (ii)Number of moles of hydrogen atoms.
  (iii)Number of molecules of ethane.
- Q.16 In a reaction  $A+B_2 \rightarrow AB_2$ , identify the limiting reagent, if any, in the following reaction mixtures.
  - (i) 300 atoms of A + 200 molecules of  $B_2$
  - (ii) 2 mol A + 3 mol  $B_2$
  - (iii) 100 atoms of A + 100 molecules of  $B_2$
- Q.17 Dinitrogen and dihydrogen react with each other to produce ammonia according to the following chemical equation:

 $N_2(g) + H_2(g) \rightarrow 2NH_3(g)$ 

- (i) Calculate the mass of ammonia produced if  $2.00 \times 10^3$  g dinitrogen reacts with  $1.00 \times 10^3$  g of dihydrogen.
- (ii) Will any of the two reactants remain unreacted?
- (iii) If yes, which one and what would be its mass?
- Q.18 What is a limiting reagent? 50.0 kg of  $N_2$  (g) and 10.0 kg of  $H_2$  (g) are mixed to produce  $NH_3$  (g). Calculate the  $NH_3$  (g) formed. Identify the limiting reagent in the production of  $NH_3$  in this situation.
- Q.19 Calcium carbonate reacts with aqueous HCl to give CaCl<sub>2</sub> and CO<sub>2</sub> according to the reaction given below:

 $CaCO_3 (s) + 2HCl (aq) \rightarrow CaCl_2(aq) + CO_2(g) + H_2O(l)$ 

What mass of  $CaCl_2$  will be formed when 250 mL of 0.75 M HCl reacts with 1000 g of  $CaCO_3$ ? Name the limiting reagent. Calculate the number of moles of  $CaCl_2$  formed in the reaction.

Q.20 Determine the empirical formula of an oxide of Iron which has 69.9 % iron and 30.1 % dioxygen by mass.

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### **Objective Questions**

Nonflowering plants belong to :
 a) Monocots
 b) Dicots

c) Cryptogams

d) Phanerogams

2. Which of the following characteristics is shared by all living organisms?a) Cell wallb) Chloroplastsc) Organizationd) Movement

3.	What is the primary a) Autotrophic	mode of nutrition in fu b) Heterotrophic	ngi? c) Mixotrophic	d) Saprotrophic
4.	Which of the followi a) Predator-prey rela c) Mutualism	ng is an example of a s tionship d) Commensalism	symbiotic relationship? b) Competition for re	esources
5.	Which of the followi a) Monera	ng kingdoms includes b) Protista	only eukaryotic organi c) Fungi	sms? d) Animalia
6.	What is the term for a) Cosmology	the study of the structu b) Taxonomy	re, behavior, and evolu c) Ecology	ation of the universe? d) Biology
7.	<ul> <li>Which of the following is a characteristic of a prokaryotic cell?</li> <li>a) Presence of a nucleus</li> <li>b) Absence of a cell wall</li> <li>c) Presence of membrane-bound organelles</li> <li>d) Absence of a nuclear membrane</li> </ul>			wall ear membrane
8.	Which of the following is an example of a heterotrophic organism?a) Plantb) Animalc) Fungusd) Algae			
9.	What is the term for the process of classifying organisms based on their characteristics?a) Taxonomyb) Systematicsc) Phylogenyd) Morphology			n their characteristics? d) Morphology
10	Which of the followi	na kinadama inaludaa	or conjume that are can	able of photosynthesis?

10. Which of the following kingdoms includes organisms that are capable of photosynthesis?a) Monerab) Protistac) Fungid) Plantae

# Subjective Questions

## \* Draw diagram wherever required

- 1. Describe the characteristics of the kingdom Monera.
- 2. What are the differences between prokaryotic and eukaryotic cells?
- 3. Explain the concept of symbiosis and give examples of different types of symbiotic relationships.
- 4. Describe the characteristics of the kingdom Fungi.
- 5. Describe the respiratory organs of non- chordates.
- 6. Give the general characteristics of the vertebrates and list the distinguishing features of the classes under it.
- 7. What is taxonomy? Explain the different levels of classification in taxonomy.
- 8. Describe the characteristics of the kingdom Plantae.
- 9. Explain the concept of phylogeny and its importance in understanding the diversity of life.
- 10. Describe the characteristics of the kingdom Protista.
- 11. What are the characteristics of a living organism? Explain with examples.

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- 12. Explain the terms : A. Gametophyte B. Sporophyte
  - C. Alternation of generations
- 13. Draw a well labelled diagram of Euglena.
- 14. Describe the various modes of nutrition in protists.
- 15. What is the importance of classification in biology? Explain with examples.
- 16. Describe the characteristics of the phylum Chordata.
- 17. What is the difference between a species and a genus? Explain with examples.
- 18. Describe the characteristics of the phylum Arthropoda.
- 19. What is the concept of convergent evolution? Explain with examples.
- 20. Describe the characteristics of the phylum Mollusca.

# SUBJECT – ACCOUNTANCY

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# A) MULTIPLE CHOICE QUESTIONS

## 1. **Basic function of financial accounting is to**

- (a) record all business transactions.(c) assist the management.
- (b) interpret financial data.
- (d) None of these
- 2. Which of the following will not be recorded in the books of account?
  - (a) Sales of goods

- (b) Payment of salary
- (c) Quality of staff
- (d) Purchase of Goods
- 3. Which of the following transaction is not of financial character?
  - (a) Purchase of asset on credit
  - (b) Purchase of asset for cash
  - (c) Withdrawing of money by proprietor from business
  - (d) Strike by employees.
- 4. Which of the following limitations of accounting states that accounts may be manipulated to conceal vital facts :
  - (a) Accounting is not fully exact
  - (b) Accounting may lead to window dressing
  - (c) Accounting ignores price level changes
  - (d) Accounting ignores qualitative elements

# 5. Which external user of accounting information is most interested in knowing the long-term solvency position of the firm?

(a) Employees

- (b) Management
- (c) Bank and Financial Institutions
- (d) Researchers

# 6. During the life-time of an entity, accounting produces financial statements in accordance with which of the following accounting concept? (a) Matching (b) Conservatism (c) Accounting period (d) Cost

7. M/s Future Ltd. has invested ₹ 10,000 in the shares of Relicam Industries Ltd. Current market value of these shares is ₹ 10,500. Accountant of Future Ltd. wants to show ₹ 10,500 as value of investment in the books of accounts, which accounting convention restricts him from doing so?

(a) Full disclosure (b) Consistency (c) Conservatism (d) Materiality

## 8. According to the Cost Concept

- (a) Assets are recorded at lower of cost and market value.
- (b) Assets are recorded by estimating the market value at the time of purchase.
- (c) Assets are recorded at the value paid for acquiring it.
- (d) Assets are not recorded

### 9. According to Convention of Conservatism closing stock is valued at:

- (a) At cost Price
- (b) At Realisable value
- (c) Cost price or realizable whichever is less
- (d) At Real value

### 10. Convention of conservatism takes into account:

- (a) All future profits and losses
- (c) All future losses and not profits
- (b) All future profits and not losses
- (d) Neither profits nor losses of the future

## **B)** Case Study

1. Mohan started business for buying and selling of readymade garments with ₹40,00,000 as an initial investment. Out of this he paid ₹20,00,000 for the purchase of garments,₹2,50,000 for furniture, ₹2,50,000 for computer and theremaining amount was deposited into the bank.He sold some of the ladies and kids garments for ₹15,00,000 for cash and some garments for 7,50,000 on credit to Rajesh.

Subsequently, he bought men's garments of ₹10,00,000 from Satish. In the first week of next month, a fire broke out in his office and stock of garments worth ₹5,00,000 was destroyed. Later on, some garments which cost ₹6,00,000 were sold for ₹6,50,000. Expenses paid during the year were ₹45,000. Mohan withdrew ₹1,00,000 from business for his domestic use.

From the above, answer the following:

- a) What is the amount of capital with which Gopal started business?
- b) What Non-current assets dis he buy?
- c) What is the value of goods purchased?
- d) Who is the creditor and state the amount payable to him?
- e) Who is the debtor and what amount is receivable from him?
- f) What is the amount of Expense?
- g) What is the amount of drawings of Mohan?

Project: Collect the different vouchers (Invoice, Cash Memo, Pay-in-slip, Withdrawal form, cheque) and explain them.

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# <u>SUBJECT – ECONOMICS</u>

## A) MULTIPLE CHOICE QUESTIONS

- 1. Which of the following statements reflects the actual relationship between the marginal opportunity cost and production possibility frontier?
  - a. When the marginal opportunity cost remains constant, the production possibility frontier is a downward sloping straight line
  - b. When the marginal opportunity cost remains constant, the production possibility frontier is an upward sloping straight line
  - c. When the marginal opportunity cost remains constant, the production possibility frontier is a central sloping straight line
  - d. There is no relation between the marginal opportunity cost and the production possibility frontier
- 2. Which of the following statements is the actual meaning of scarcity?
  - a. The actual meaning of scarcity is that there is an increase in the resources
  - b. The actual meaning of scarcity is that there is a shortage in the resources
  - c. The actual meaning of scarcity is that there is no change in the resources
  - d. None of the above
- 3. Which of the following statements about the economy is correct?
  - a. An economy is a system that helps in the production of goods and also enables people to earn a living
  - b. An economy is a system that helps in the production of services and also enables people to earn a living
  - c. Both a and b are correct
  - d. Both a and b are incorrect
- 4. Which of the following statements reflect the correct situation related to the allocation of the resources?
  - a. Allocation of the resources comes under the causes of economic problems
  - b. Allocation of the resources comes under the causes of opportunity cost
  - c. Allocation of the resources comes under the causes of central problems
  - d. Allocation of the resources comes under the causes of marginal demand
- 5. The branch of economics that deals with the allocation of resources is \_\_\_\_\_
  - a. Econometrics b. Macroeconomics c. Microeconomics d. None of the above
- 6. Which of the following is a type of economic activities
  a. Production
  b. Consumption
  c. Exchange and Investment
  d. All of these
- 7. Which of the following statements about the production possibility curve is true?
  - a. If a point falls inside the production possibility curve, it indicates that the resources are over utilised
  - b. If a point falls inside the production possibility curve, it indicates that the resources are underutilised
  - c. If a point falls inside the production possibility curve, it indicates that there is adequate employment in the economy
  - d. If a point falls inside the production possibility curve, it indicates that there is inadequate employment in the economy

- 8. Which of the following is a sign of a free economy?
  - a. The prices are regulated
  - b. The prices are partly regulated
  - c. The prices are determined with the help of the forces of demand and supply
  - d. None of these
- 9. Which is the first law of Gossen:
  - a. Law of Demand
  - c. Consumer Surplus
- 10. Which of the following is truea. TU increases till MU is positivec. TU declines when MU is negative
- b. Law of Diminishing Marginal Utility
- d. Law of Equi-marginal utility
- b. TU is maximum when MU is equal to zero
- d. All of these

# <u>Project</u>: a) Explain Types of Economies with Pictures b) Explain Production Possibility Curve with diagram and its properties.

## -----X------

# <u> SUBJECT – BUSINESS STUDIES</u>

# **Choose the correct option:**

1.	The industries which provide support services to other industries a a) Primary industries c) Commercial industries			are known as b) Secondary industries d) Tertiary industries
2.	The occupation in wh a) Business	nich people work for o b) Profession	thers and get remunera c) Employment	nted in return is known as d) None of these
3.	Which of the followi a) Production of good c) Sale or exchange of	ng does not characteriz ds and services of goods and services	ze business activity? b) Presence of risk d) Salary and wages	
4.	Economic activities r a) Profession	nay be classified into l b) Occupation	c) Vocation	and employment d) Work
5.	Human activities are a) One	oftypes b) Two	c) Three	d) Four
6.	<ul> <li>Following are the characteristics of business risks. One of them is not correct. Please identify it.</li> <li>a) Loss is the reward for risk bearing</li> <li>b) Business risks are due to uncertainties</li> <li>c) Risk is an essential component of every business</li> <li>d) Degree of risk depends mainly upon the nature and size of business</li> </ul>			
7.	Commerce includes a a) Supporting	activities relating to tra b) Subsidiaries	de and c) Auxiliaries	_ to trade. d) None of these
8.	Which one of the following may not be a factor behind starting a bus a) Routine workload b) size of the firm c) finance d) location of the busin Page 17 of 24			business? siness

9.	Which of the followi a) Mining	ng cannot be classified b) Insurance	as an auxiliary to trad c) Warehousing	e? d) Transport
10.	Which of the broad c a) Primary	ategories of industries b) Secondary	covers oil refinery and c) Tertiary	sugar mills? d) None of these
11.	Which of the followi a) Patriotism	ng is not an example o b) Teaching	f non-economic activit c) Sentiment	y? d) Sympathy
12.	Transfer of interest e a) Profession	xists in the case of. b) Employment	c) Business	d) None of these
13.	Name the two broad categories of business a) Trade and commerce c) Industry and commerce		activities. b) Trade and Industry d) None of these	
14.	The possibilities of inadequate profits or eve a) Business contingencies c) Business ventures		en losses due to uncertainties are known as ? b) Business risks d) None of these	
15	'Earning of profit is considered to be the subsidiary objective of the business'. The given statement is			
DESC	CRIPTIVE QUESTIC	<u>DNS</u> :	c) cannot say	d) None
1.	Define Business . Discuss the characteristics of business.			
-				

- 2. Differentiate between Business, Profession and Employment.
- 3. Explain the various objectives of business.
- 4. Define Commerce . Discuss the various functions of commerce.
- 5. Explain the various types of Industries with suitable examples.

-----X------

# <u> SUBJECT – HISTORY</u>

- Theme one Writing and City Life
- Timeline to be learnt
- Complete NCERT exercise
- Map work to be done and properly filed

# <u>SUBJECT – GEOGRAPHY</u>

# 1. WRITING SKILLS

# <u>Prepare notes</u> -

Chapter-1 - Geography as a Discipline (Book-1 Fundamentals of Geography) Chapter-1 - India- location (Book-2 India Physical Environment)

• <u>NCERT Textbook Exercises</u> Complete exercises and questions from the NCERT textbook related to the chapter.

## Geographical Terms :

Prepare a glossary of geographical terms related to India's physical features.

## 2. MAP SKILLS

Mark the following on the political outline map of India and paste it in your notebook.

- Latitudinal extent of India
- Longitudinal extent of India
- Standard Meridian of India
- Important latitude passing through India (Tropic of Cancer)
- Southernmost point of mainland of India (Kanya Kumari)

## 3. PRACTICAL FILE

## Complete the following chapters in the practical file -

- Chapter 1 introduction to maps
- Chapter 2 Map Scale
- Chapter 3 Latitude, Longitude, and Time

# SUBJECT – POLITICAL SCIENCE

-----X-----

- Prepare a scrapbook
- Daily read newspaper subscribed in your house and cut and paste one political news

-----X-----

# <u> SUBJECT – PSYCHOLOGY</u>

Note – Kindly do in practical file.

## Q.1 Give answer of given questions.

- a) Explain the three terms utilized in the definition of Psychology.
- b) What are the 7 different types of Psychology?
- c) State four points to point out the connection between mind and behaviour.
- d) Define the following terms:i) Objectivity ii) Sample iii) Data iv) Population v) Hypothesis
- e) Differentiate between:
  - (i) Naturalistic and controlled observation.
  - (ii) Control and experimental group.
  - (iii) Participant and non participant observation.
- Q.2 Write about enquiry methods and prepare a questionnaire for Survey with survey report.

## Topics for Survey (Choose any one)

- a) Can screen time habit change your thinking and perception about life.
- b) Adoption of smart home devices and their impact on daily life.
- c) Preferences for online VS in-store shopping.
- d) Introvert behaviour at adults consequences and reasons.

### -----X-----

# SUBJECT – SOCIOLOGY

- 1) Work Life Balance and Gender Roles
- 2) Social isolation and Community
- 3) Health Care Access

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- 4) Religious and Communal Tensions
- 5) Farmer Distress
- 6) Domestic Violence
- 7) Cultural Celebrations and Harassment

Submit a dissertation paper using method of your choice – survey, interview, observation or combination of more than one method on any one of the following topics.

<u>Mention</u> – Objective, Importance, Theoretical assumption, Statement of the purpose, Methodology, Technique and Conclusion (Submit the holiday homework in file) with content and bibliography inserted.

## **Checklist for the dissertation paper**

Choose a Title / Topic Need of the study, objective of the study Hypothesis

Content – Time line, Mind maps, Pictures etc.

[Primary / Secondary data] (Questionnaire)

Analysing of Data for

Conclusion, Draw the Relevant Conclusion

Bibliography, Deferences

# SUBJECT – ENTREPRENEURSHIP

# A. <u>PROJECTWORK:</u>

Case study on any one UNICORN Company of India.

- Introduction
- Journeytowards Entrepreneurship
- Contribution in Economy
- AchievementsandAcknowledgements
- Business Mantra
- Messagetoyouth
- Collect the information covering the above aspects and then write neatly on A4 size ruled thick sheets. Project should be hand written with minimum of 15 sheets. Be creative

## B. <u>DESCRIPTIVE QUESTIONS:</u>

- Q1. DefineEntrepreneurship.DiscusstheprocessofEntrepreneurship.
- Q2. Discuss the Advantages and Disadvantages of Entrepreneurship.
- Q3. DescribeanyfiveManagerialfunctionsofanentrepreneur.
- Q4. Discuss the various myths of entrepreneurship
- Q5. Explain the importance of entrepreneurship in Indian economy.

-----X-----

# <u> SUBJECT – MASS MEDIA</u>

# A. Engage yourself in watching a movie

The Godfather

<u>OR</u>

A Satyajit Ray Movie

- Write the review of the movie .
- The plot of the same.
- Your favourite character and the reason why.
- Also frame five questions you will ask your favouite character in the movie if you get to meet them.

**B. Prepare a portfolio file separate for the entire year.** Do FIVE Portfolio Questions for Holiday Homework.

C. Revise all the chapters done.

# <u>SUBJECT – HINDI</u> <u>परियोजना–विषय</u>

-----X-----

1. निम्नलिखित में से किन्हीं दो समाज सुधारकों के योगदान का उल्लेख चित्र सहित कीजिए –

- (1) दयानंद सरस्वती
- (2) स्वामी विवेकानंद
- (3) राजाराम मोहनराय

## अथवा

स्वर कोकिला सुश्री लतामंगेशकर की संगीतमय जीवन-यात्रा पर आकर्षक परियोजना तैयार कीजिए।

2. राजस्थान की पृष्ठभूमि तथा वहाँ की संस्कृति पर चित्र सहित परियोजना तैयार कीजिए।

अथवा

कबीर और मीरा की भक्ति—भावना का तुलनात्मक विवेचन करते हुए परियोजना तैयार कीजिए।

परियोजना संबंधी समस्त निर्देशों का पालन करते हुए उपरोक्त परियोजनाओं में से (क) एवं (ख) की एक–एक आकर्षक परियोजना तैयार कीजिए।

# <u>परियोजना हेतुनिर्देश</u>-

- परियोजना का पहला पृष्ठ विद्यार्थी का नाम, कक्षा, वर्ग, अनुक्रमांक, विद्यालय का नाम एवं विद्यालय का प्रतीक चिहन (लोगो)
- 2. दूसरा पृष्ठ आभार ज्ञापन
- 3. तीसरा पृष्ठ प्रमाण–पत्र
- 4. चौथा पृष्ठ अनुक्रमणिका
- 5. पाँचवा पृष्ठ भूमिका
- छठे पृष्ठ से आकर्षक संपूर्ण परियोजना

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# SUBJECT – PHYSICAL EDUCATION

Write following topics in Practical Lab Manual:-

- Practical 1: Labelled diagram of 400 M Track & Field with computations.
- **Practical 2:** Describe Changing Trends in Sports & Games in terms of changes in Playing Surface, Wearable gears, Equipment, Technological advancements.
- **Practical 3:** Anyone IOA recognized Sport/Game. Labelled diagram of Field & Equipment. Also mention its Rules, Terminologies & Skills.

-----X-----

# <u> SUBJECT – COMPUTER SCIENCE</u>

- 1. Write a Python Program to add two numbers inputted by the user.
- 2. Write aPython Program to calculate the square root of any given Number.
- 3. Write aPython Program to Calculate the Area of a Triangle using Herons Formula.
- 4. Write aPython Program to Solve Quadratic Equation.
- 5. Write aPython Program to Swap Two Variables
- 6. Write aPython Program to Generate a Random Number
- 7. Write aPython Program to Convert Kilometers to Miles
- 8. Write aPython Program to Convert Celsius To Fahrenheit
- 9. Write aPython Program to Check if a Number is Odd or Even
- 10. Write aPython Program to Check Leap Year
- <u>Note</u> Prepare a file and print program on A4 size sheet along with output.

-----X------

# <u> SUBJECT – HINDUSTANI VOCAL MUSIC</u>

- १. तानपुरे का सचित्र वर्णन करें।
- २. राग भीमपलासी का पूर्ण परिचय दें।
- ३. मियाँ तानसेन का जीवन परिचय लिखें।
- ४. तीन ताल का पूर्ण परिचय दें।
- ५. धमार गायन शैली के बारे में लिखें।

-----X-----

# SUBJECT – PAINTING

<u>Practical 1</u>- Draw and color a color wheel on Buff sheet. <u>Medium</u> : Poster color

<u>Practical 2</u>- Draw a fruit/ vegetable composition on Buff sheet. <u>Medium</u>: Poster/ Water color

> -----x-----Page 22 of 24

# SUBJECT – DANCE

Practical 1 – Rehearsal of Gatnikas, Gatbhav, Paran and Vandana

Practical 2 – Rehearsal THATH, AMAD and TUKDA