



B.M. BHARTI MODEL SCHOOL

(A Senior Secondary School)
(Recognized and Affiliated to CBSE)

Majri, Delhi – 110081

Ph. No. : 9899507287

Website : www.bmbhartischool.com

Email ID: bmbhartimdl@gmail.com

SUMMER HOLIDAYS HOMEWORK
SESSION 2024-25
CLASS-XI



Dear Students,

- ❖ Learning is the beginning of wealth.
- ❖ Learning is the beginning of health.
- ❖ Learning is the beginning of spirituality.
- ❖ Searching and learning is where the miracle process all begins.

..... Jim Rohn

Holiday is the time that we all eagerly wait for. We all make plans to enjoy, to relax and to empower ourselves during these gala days. This summer vacation the Holiday Homework so designed by the mentors of the school is a medium for you all to achieve the motto of **“Fun and Learn”** The assignments are designed in a way to foster curiosity, develop creativity, enhance knowledge and instill the joy of learning among you all. They will certainly help you discover a new you who is more enriched and confident and performs every action to perfection.

CLASS- XI

ECONOMICS	<p>➤ Make an art integrated project.</p> <p>Topic:</p> <ul style="list-style-type: none"> • Andaman and Nicobar Islands and Lakshadweep <p>Basic Instruction about project:</p> <table border="1" style="width: 100%;"> <thead> <tr> <th>P.no</th> <th>TOPIC</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Acknowledgment</td> </tr> <tr> <td>2</td> <td>Certificate</td> </tr> <tr> <td>3</td> <td>Index</td> </tr> <tr> <td>4</td> <td>Introduction of topic</td> </tr> <tr> <td>5-10</td> <td>Project should include all these topic Birth Rate of the place Death Rate Population density Important economic activity Budget provision of union territory Statically data of tourism(Comparing Nature)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Impact of globalization <table border="1" style="width: 100%;"> <thead> <tr> <th>p.no</th> <th>Topic</th> </tr> </thead> <tbody> <tr> <td>11-12</td> <td>Observations and finding details</td> </tr> <tr> <td>13</td> <td>Conclusion</td> </tr> <tr> <td>14</td> <td>References</td> </tr> <tr> <td>15</td> <td>Remarks</td> </tr> </tbody> </table> <p>➤ Revise PT-1 Syllabus for Pt-1 Exam. Micro Economics –ch-1,2,3 Statistics(ch-1 Learn notes and question/answer.</p> <p>➤ Solve worksheet in your fair notebook.</p> <p>➤ Collect some information and details about “Digitization in India A cash less Economy” (write on A4 size sheet.</p>	P.no	TOPIC	1	Acknowledgment	2	Certificate	3	Index	4	Introduction of topic	5-10	Project should include all these topic Birth Rate of the place Death Rate Population density Important economic activity Budget provision of union territory Statically data of tourism(Comparing Nature)	p.no	Topic	11-12	Observations and finding details	13	Conclusion	14	References	15	Remarks
P.no	TOPIC																						
1	Acknowledgment																						
2	Certificate																						
3	Index																						
4	Introduction of topic																						
5-10	Project should include all these topic Birth Rate of the place Death Rate Population density Important economic activity Budget provision of union territory Statically data of tourism(Comparing Nature)																						
p.no	Topic																						
11-12	Observations and finding details																						
13	Conclusion																						
14	References																						
15	Remarks																						
BUISNESS STUDIES	<p>➤ Make a collage of Indian MNC’s including their name, brand mark and name, tag line and their CEO on a chart.</p> <p>➤ Make an Art integrated project on “Andaman and Nicobar Island” industries and other business activities performed there on A4 size sheet about 10-12 pages.(Basic instructions as same as economic)</p> <p>➤ Make a mind map of topics of following chapters and learn these chapters also:</p> <ul style="list-style-type: none"> • Ch-1 Evolution and fundamental of business • Ch-2 Forms of business organizations • Ch-3 Public, Private and Global Enterprises. 																						
ACCOUNTANCY	<p>➤ Practice and revise PT-1 syllabus.</p> <p>➤ Make/ complete notes of ch-1,2 and 3.</p> <p>➤ Assignment: Do the enclosed worksheet.</p> <p>➤ Project: prepare a file on any 2 key industries in Lakshadweep and Andaman and Nicobar Islands each.</p> <p>A. Paste a printout of their balance sheet and find out the following for the financial year ended 31st March, 2024.</p> <p>Liabilities: Capital, Creditors, Outstanding expense if (any), Loans and advances(short term and long term)</p>																						

	<p>Assets: Current and Non-Current Assets.</p> <p>B. Compare the financial position of industries of both islands. Instructions:</p> <p>1. Questions 1-3 are to be done in subject notebook.</p> <p>2. Project is to be submitted in a separate file. Show your creativity.</p>
CHEMISTRY	<ul style="list-style-type: none"> ➤ Do given worksheets in your holiday's homework notebook. ➤ Do NCERT questions of Ch-1, 2, 3 in your notebook. ➤ Learn Ch-1,2,3
PHYSICS	<ul style="list-style-type: none"> ➤ Prepare project file for physics on topic (Motion) (12 pages – Including front page, index , acknowledgment, Bibliography and main topics) ➤ Complete your activity file. Six activities- will be provided via what's app ➤ Complete lab manual practical file up to the Experiment which have been performed in the lab. ➤ Do questions answers and numerical given—in the Exercises for the chapters taught in the holidays homework notebook.
BIOLOGY	<ul style="list-style-type: none"> ➤ Experiment no. 1- To study a parts of a compound microscope. ➤ Experiment no. 2- Study and identification of spotting. ➤ Experiment no. 3- Study of virtual specimens/ slides/ models and identification with reasons. ➤ Ques: Make a project file on (any one): <ol style="list-style-type: none"> 1. Chordata vertebrata in Animal Kingdom 2. Cell cycle and phase of cell cycle 3. Endocrine glands and hormones 4. Blood 5. Skeletal System
MATHEMATICS	<ul style="list-style-type: none"> ➤ Do given worksheet.
POLITICAL SCIENCE	<p>*PROJECT FILE:</p> <ul style="list-style-type: none"> ➤ Prepare Art Integration project file on “Andaman and Nicobar Islands “and “Lakshadweep” ➤ Comprehensive study of its :- Formation of origin , Population composition, Ruling party, Constituency, Districts, Formation as Union Territory, Government and administration Economy and infrastructure, Election history of 1st General Election. ➤ Do given assignment.
HISTORY	<ul style="list-style-type: none"> ➤ Prepare case study on any one topic given below (A4 size sheets) <ul style="list-style-type: none"> • Ancient History in depth - Mesopotamia. • Piecing together there the part of Genghis Khan • Contribution of Roman civilization. ➤ Prepare a timeline of the major developments and events from Human origins to Early civilisations (6MYA to ICE) (In class notebook)
ENGLISH	<p>READING:</p> <ul style="list-style-type: none"> ➤ Do the given unseen passages in your notebook and paste the sheets also. ➤ Write the character sketches of the chapters done in the class:- <ul style="list-style-type: none"> • The Portrait of a lady- Khushwant Singh, Grand mother • We're not afraid to die- Author, Marry, Suzzane, Jonathan • The summer of the beautiful horse- Aram, Mourad • The Address- The Author ➤ Read the newspaper daily and paste the followings in your notebooks <ul style="list-style-type: none"> • Advertisement (5) • Posters (5) <p>Project Work(any one)</p> <ul style="list-style-type: none"> • History, Climate, Food, Culture, Festivals of Lakshadweep Island. • History, Climate, Food, Culture, Festivals of Andaman and Nicobars Islands. <p>NOTE:</p> <ol style="list-style-type: none"> 1. Cover of file must be decorated. 2. On A4 size sheets (maximum 10 sheets). 3. Paste pictures of each part. 4. Neat and clean. 5. Revise PT-1 syllabus.

HINDI	<p>परियोजना कार्य:-</p> <p>गद्य खंड:</p> <ol style="list-style-type: none"> 1. प्रेमचंद जी का जीवन परिचय, रचनाएं, शिक्षा, साहित्यक विशेषताएं। 2. अमरकांत जी का सम्पूर्ण जीवन परिचय, शिक्षा, जीवन ,शैली विशेषताएं। <p>काव्य खंड:-</p> <ol style="list-style-type: none"> 1. कबीर दास का सम्पूर्ण जीवन काल का वर्णन करो। 2. सूरदास का सम्पूर्ण जीवन काल का वर्णन करो। <p>अभिव्यक्ति और माध्यम तथा रचनात्मक लेखन निबंध लेखन कार्य:-</p> <ol style="list-style-type: none"> 1. साइबर सुरक्षा । 2. चुनावों में सोशल मीडिया की भूमिका । <p>पत्र लेखन :-</p> <ol style="list-style-type: none"> 1. अपने मोहल्ले में घूमने वाले आवारा कुत्तों से सुरक्षा हेतु नगर-निगम अधिकारी को पत्र । 2. आपके इलाके में असामाजिक तत्वों को नियंत्रित एवं रोकथाम के लिए पुलिस निरीक्षक को एक शिकायती पत्र लिखो।
GEOGRAPHY	<ul style="list-style-type: none"> ➤ Collect a information of 5 geographical events occurring in world during your holidays. Write all information with details in notebook. ➤ Prepare a presentation on the topic assigned to you below. Also prepare a poster on a A3 size sheet. <ul style="list-style-type: none"> • Structure of atmosphere- Pooja, Shrishti, Tanvi, Amit, Sagar • S waves shadow zone- Shubham, Dev, Riteek, Sumit, Hemant • P waves shadow zone- others
PHYSICAL EDUCATION	<ul style="list-style-type: none"> ➤ Prepare 50 quiz on Olympic games on A4 sheets. ➤ Prepare a poster mentioning 10 points on what not to say to a person with disability. Make it captivating using pictures or by depicting a situation. ➤ Write a complete report on 2024 Khelo India games on A3 size sheet.



B.M. BHARTI MODEL SCHOOL

(A Senior Secondary School)
(Recognized and Affiliated to CBSE)

Majri, Delhi – 110081

Ph. No. : 9899507287

Website : www.bmbhartschool.com

Email ID: bmbhartimdl@gmail.com

SUMMER HOLIDAYS HOMEWORK
SESSION 2024-25
CLASS-XI
ACCOUNTANCY
WORKSHEET

Ques 1. Answer the following questions.

1. Define Accounting.
2. Mention 3 functions of Accounting.
3. Mention 2 Differences between accounting and accountancy.
4. Mention the types of accounting.
5. Draw a flow chart of the users of Accounting?
6. Accounting is the language of business. Justify the statement.
7. Giving examples, explain each of the following accounting terms:
 - Fixed assets
 - Revenue
 - Expenses
 - Short-term liability
 - Capital
8. Define revenues and expenses.
9. Differentiate between profit and gain.
10. Fill in the blanks
 - a. The document certifying the purchase or sale of goods or any monetary transaction is called
 - b. The things or properties which help in the smooth functioning of the business and which are owned by the business are called of the business.
 - c. The unsold goods left at the end of the year are called
 - d. represents the excess of assets over liabilities.

Practical questions:

11. Show an Accounting Equation for the following transactions:

- (i) D. Mahapatra commenced business with cash ₹ 50,000 and ₹ 1,00,000 by cheque ; goods ₹ 60,000; machinery ₹ 1,00,000 and furniture ₹ 50,000.
- (ii) 1/3rd of above goods sold at a profit of 10% on cost and half of the payment is received in cash.
- (iii) Depreciation on machinery provided @ 10%.
- (iv) Cash withdrawn for personal use ₹ 10,000.
- (v) Interest on drawings charged @ 5%.
- (vi) Goods Sold to Gupta for ₹ 10,000 and received a Bill Receivable for the same amount for 3 months.
- (vii) Received ₹ 10,000 from Gupta against the Bills Receivable on its maturity.

Ques 2. Show an Accounting Equation on the basis of the following transactions:

i.	Sunil started business with cash	1,50,000
ii.	Opened a Bank Account by depositing ₹ 25,000 out of cash	
iii.	He sold his personal car for ₹ 50,000 and deposited the amount in the firm's Bank Account	
iv.	He purchased a building and furniture for	1,00,000
v.	He purchased goods from Ram on credit	50,000
vi.	He paid cartage	500
vii.	He sold to Shyam on credit goods costing ₹ 6,000 for	9,000
viii.	Received rent from tenants	1,000
ix.	Received security deposit from tenants	1,500
x.	Purchased stationery for cash	100
xi.	Invested in shares (personal)	50,000
xii.	Received interest in cash	200
xiii.	Introduced fresh capital	25,000
xiv.	Goods destroyed by fire	500

Ques 3. Prepare an accounting equation from the following

1. Started business with cash 50,000
2. Paid salary 5,000
3. Rent outstanding 1,000
4. Accrued Intrest 1,500
5. Interest on capital
6. Bought goods for cash 30,000 and on credit for 50,000.
7. Goods costing 10,000 sold at a profit of 25% out of which 7,000 received in cash.
8. Purchased a television for personal use 2,500

Ques 4. Prepare an accounting equation from the following information:

1. 1-4-2011 Business started with Cash ₹1,50,000.
2. 1-4-2011 Goods purchased from Manisha 236,000.
3. 1-4-2011 Stationery purchased for cash ₹2,200.
4. 2-4-2011 opened a bank account with SBI for ₹32,000.
5. 3-4-2011 Goods sold to Priya for ₹16,000.
6. 5-4-2011 Purchased goods from Namita for ₹20,000.
7. 10-4-2011 Insurance paid by cheque ₹2,250.
8. 11-4-2011 Cash withdrawn for household purpose 25,000.
9. 13-4-2011 Interest received ₹250 in cash.
10. 14-4-2011 Rent paid in advance ₹550.

Ques 5. Show the accounting equation on the basis of the following transactions:

1. Shri Ganesh commenced business with cash ₹35,000, goods ₹8,000 and furniture ₹7,000.
2. Bought furniture from M/s Mohan Furnitures on credit for ₹23,000.
3. Purchased goods from Sohan for cash ₹35,000.
4. Sold goods to Shyam for cash ₹40,000 (costing ₹30,000).
5. Bought goods from Ramesh ₹30,000.
6. Sold goods to Shyam costing ₹30,000 for ₹50,000.
7. Received ₹49,500 from Shyam in full settlement.
8. Paid ₹29,700 to Ramesh in full settlement.
9. Paid half the amount owed to M/s Mohan.
10. Withdrew ₹21,000 for personal use.
11. Withdrew goods for personal use (cost ₹500, sale price ₹600).
12. Purchased household goods for ₹15,000 giving ₹5,000 in cash and the balance through a loan.
13. Paid cash ₹500 for loan and ₹300 for interest.
14. Goods destroyed by fire (cost ₹500, sale price ₹600)
15. Paid salary \$500 and salary outstanding ₹100.
16. Paid rent in advance ₹22,000.
17. Accrued interest ₹ 500.

18. Commission received in advance ₹ 1,000.
19. Charged depreciation of ₹400 on furniture.

POLITICAL SCIENCE

WORKSHEET -1

1. Explain all Fundamental Rights in detail (with their articles).
2. Which of the following fundamental right is in your opinion, the most important right? Summarize its provision and give argument to show why it is important.
3. Constitution is a living document. Explain.
4. What is the difference between politician and Political Theory?
5. What is political theory?
6. Discuss the importance of fundamental rights and directive principle in the development of India democracy and people welfare.
7. Explain fundamental rights of constitutional remedies. Why it is called as the heart and soul of the constitution by Dr. BR Ambedkar.
8. Explain the 'harm principle' as given by J.S. Mill .
9. Putting Political Theory to practice is very difficult. Elaborate it with the reference to the fact that "right to equity doesn't guarantee equal opportunity"
10. "Liberty and Equality maybe complementary as well as opposed to each other". Justify.
11. Trace the development of the meaning of the concept of freedom. How it has affected Society.
12. "Indian Constitution in neither too flexible and nor to rigid". Justify.

❖ Read this given situation and answer the following question:-

Astha likes sharing locations on social media, like website wherever Astha goes to a restaurant, travel, visiting friends or family. She is in habit of adding location one day Astha noticed someone following. She got scared and enters a shop for the protection. A few days later this happened again.

1. Is the given situation safe or unsafe?
2. What would you do if you were in a similar situation?

WORKSHEET-1
CHEMISTRY

SOME BASIC CONCEPTS OF CHEMISTRY

I. Multiple Choice Questions (Type-I)

1. Two students performed the same experiment separately and each one of them recorded two readings of mass which are given below. Correct reading of mass is 3.0 g. On the basis of given data, mark the correct option out of the following statements.

Student	Readings	
	(i)	(ii)
A	3.01	2.99
B	3.05	2.95

- (i) Results of both the students are neither accurate nor precise.
(ii) Results of student A are both precise and accurate.
(iii) Results of student B are neither precise nor accurate.
(iv) Results of student B are both precise and accurate.
2. A measured temperature on Fahrenheit scale is 200 °F. What will this reading be on Celsius scale?
- (i) 40 °C
(ii) 94 °C
(iii) 93.3 °C
(iv) 30 °C
3. What will be the molarity of a solution, which contains 5.85 g of NaCl(s) per 500 mL?
- (i) 4 mol L⁻¹
(ii) 20 mol L⁻¹

- (iii) 0.2 mol L^{-1}
(iv) 2 mol L^{-1}
4. If 500 mL of a 5M solution is diluted to 1500 mL, what will be the molarity of the solution obtained?
(i) 1.5 M
(ii) 1.66 M
(iii) 0.017 M
(iv) 1.59 M
5. The number of atoms present in one mole of an element is equal to Avogadro number. Which of the following element contains the greatest number of atoms?
(i) 4g He
(ii) 46g Na
(iii) 0.40g Ca
(iv) 12g He
6. If the concentration of glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) in blood is 0.9 g L^{-1} , what will be the molarity of glucose in blood?
(i) 5 M
(ii) 50 M
(iii) 0.005 M
(iv) 0.5 M
7. What will be the molality of the solution containing 18.25 g of HCl gas in 500 g of water?
(i) 0.1 m
(ii) 1 M
(iii) 0.5 m
(iv) 1 m
8. One mole of any substance contains 6.022×10^{23} atoms/molecules. Number of molecules of H_2SO_4 present in 100 mL of 0.02M H_2SO_4 solution is _____.
(i) 12.044×10^{20} molecules
(ii) 6.022×10^{23} molecules
(iii) 1×10^{23} molecules
(iv) 12.044×10^{23} molecules
9. What is the mass percent of carbon in carbon dioxide?
(i) 0.034%

- (iii) 3.4%
- (iv) 28.7%

10. The empirical formula and molecular mass of a compound are CH_2O and 180 g respectively. What will be the molecular formula of the compound?

- (i) $\text{C}_9\text{H}_{18}\text{O}_9$
- (ii) CH_2O
- (iii) $\text{C}_6\text{H}_{12}\text{O}_6$
- (iv) $\text{C}_2\text{H}_4\text{O}_2$

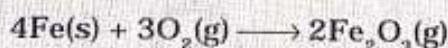
11. If the density of a solution is 3.12 g mL^{-1} , the mass of 1.5 mL solution in significant figures is _____.

- (i) 4.7g
- (ii) $4680 \times 10^{-3}\text{g}$
- (iii) 4.680g
- (iv) 46.80g

12. Which of the following statements about a compound is incorrect?

- (i) A molecule of a compound has atoms of different elements.
- (ii) A compound cannot be separated into its constituent elements by physical methods of separation.
- (iii) A compound retains the physical properties of its constituent elements.
- (iv) The ratio of atoms of different elements in a compound is fixed.

13. Which of the following statements is correct about the reaction given below:



- (i) Total mass of iron and oxygen in reactants = total mass of iron and oxygen in product therefore it follows law of conservation of mass.
- (ii) Total mass of reactants = total mass of product; therefore, law of multiple proportions is followed.
- (iii) Amount of Fe_2O_3 can be increased by taking any one of the reactants (iron or oxygen) in excess.
- (iv) Amount of Fe_2O_3 produced will decrease if the amount of any one of the reactants (iron or oxygen) is taken in excess.

14. Which of the following reactions is not correct according to the law of conservation of mass.

- (i) $2\text{Mg(s)} + \text{O}_2\text{(g)} \longrightarrow 2\text{MgO(s)}$
- (ii) $\text{C}_3\text{H}_8\text{(g)} + \text{O}_2\text{(g)} \longrightarrow \text{CO}_2\text{(g)} + \text{H}_2\text{O(g)}$
- (iii) $\text{P}_4\text{(s)} + 5\text{O}_2\text{(g)} \longrightarrow \text{P}_4\text{O}_{10}\text{(s)}$
- (iv) $\text{CH}_4\text{(g)} + 2\text{O}_2\text{(g)} \longrightarrow \text{CO}_2\text{(g)} + 2\text{H}_2\text{O(g)}$

15. Which of the following statements indicates that law of multiple proportion is being followed.

- (i) Sample of carbon dioxide taken from any source will always have carbon and oxygen in the ratio 1:2.
- (ii) Carbon forms two oxides namely CO_2 and CO , where masses of oxygen which combine with fixed mass of carbon are in the simple ratio 2:1.
- (iii) When magnesium burns in oxygen, the amount of magnesium taken for the reaction is equal to the amount of magnesium in magnesium oxide formed.
- (iv) At constant temperature and pressure 200 mL of hydrogen will combine with 100 mL oxygen to produce 200 mL of water vapour.

II. Multiple Choice Questions (Type-II)

In the following questions two or more options may be correct.

16. One mole of oxygen gas at STP is equal to _____.

- (i) 6.022×10^{23} molecules of oxygen
- (ii) 6.022×10^{23} atoms of oxygen
- (iii) 16 g of oxygen
- (iv) 32 g of oxygen

17. Sulphuric acid reacts with sodium hydroxide as follows :



When 1L of 0.1M sulphuric acid solution is allowed to react with 1L of 0.1M sodium hydroxide solution, the amount of sodium sulphate formed and its molarity in the solution obtained is

- (i) 0.1 mol L^{-1}
- (ii) 7.10 g
- (iii) 0.025 mol L^{-1}
- (iv) 3.55 g

18. Which of the following pairs have the same number of atoms?

- (i) 16 g of $\text{O}_2(\text{g})$ and 4 g of $\text{H}_2(\text{g})$
- (ii) 16 g of O_2 and 44 g of CO_2
- (iii) 28 g of N_2 and 32 g of O_2
- (iv) 12 g of $\text{C}(\text{s})$ and 23 g of $\text{Na}(\text{s})$

19. Which of the following solutions have the same concentration?

- (i) 20 g of NaOH in 200 mL of solution
- (ii) 0.5 mol of KCl in 200 mL of solution

(iii) 40 g of NaOH in 100 mL of solution

(iv) 20 g of KOH in 200 mL of solution

20. 16 g of oxygen has same number of molecules as in

(i) 16 g of CO

(ii) 28 g of N₂

(iii) 14 g of N₂

(iv) 1.0 g of H₂

21. Which of the following terms are unitless?

(i) Molality

(ii) Molarity

(iii) Mole fraction

(iv) Mass percent

22. One of the statements of Dalton's atomic theory is given below:

"Compounds are formed when atoms of different elements combine in a fixed ratio"

Which of the following laws is **not** related to this statement?

(i) Law of conservation of mass

(ii) Law of definite proportions

(iii) Law of multiple proportions

(iv) Avogadro law

STRUCTURE OF ATOM

I. Multiple Choice Questions (Type-I)

- Which of the following conclusions could not be derived from Rutherford's α -particle scattering experiment?
 - Most of the space in the atom is empty.
 - The radius of the atom is about 10^{-10} m while that of nucleus is 10^{-15} m.
 - Electrons move in a circular path of fixed energy called orbits.
 - Electrons and the nucleus are held together by electrostatic forces of attraction.
- Which of the following options does not represent ground state electronic configuration of an atom?
 - $1s^2 2s^2 2p^6 3s^2 3p^6 3d^8 4s^2$
 - $1s^2 2s^2 2p^6 3s^2 3p^6 3d^9 4s^2$
 - $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^1$
 - $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^1$
- The probability density plots of 1s and 2s orbitals are given in Fig. 2.1:

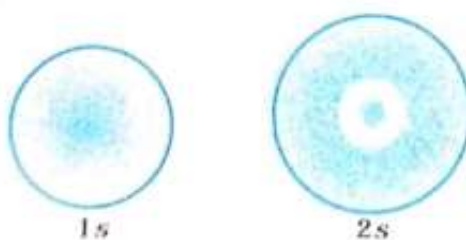


Fig. 2.1

The density of dots in a region represents the probability density of finding electrons in the region.

On the basis of above diagram which of the following statements is incorrect?

- (i) $1s$ and $2s$ orbitals are spherical in shape.
- (ii) The probability of finding the electron is maximum near the nucleus.
- (iii) The probability of finding the electron at a given distance is equal in all directions.
- (iv) The probability density of electrons for $2s$ orbital decreases uniformly as distance from the nucleus increases.

4. Which of the following statement is **not** correct about the characteristics of cathode rays?

- (i) They start from the cathode and move towards the anode.
- (ii) They travel in straight line in the absence of an external electrical or magnetic field.
- (iii) Characteristics of cathode rays do not depend upon the material of electrodes in cathode ray tube.
- (iv) Characteristics of cathode rays depend upon the nature of gas present in the cathode ray tube.

5. Which of the following statements about the electron is incorrect?

- (i) It is a negatively charged particle.
- (ii) The mass of electron is equal to the mass of neutron.
- (iii) It is a basic constituent of all atoms.
- (iv) It is a constituent of cathode rays.

6. Which of the following properties of atom could be explained correctly by Thomson Model of atom?

- (i) Overall neutrality of atom.
- (ii) Spectra of hydrogen atom.
- (iii) Position of electrons, protons and neutrons in atom.
- (iv) Stability of atom.

7. Two atoms are said to be isobars if.

- (i) they have same atomic number but different mass number.
- (ii) they have same number of electrons but different number of neutrons.
- (iii) they have same number of neutrons but different number of electrons.
- (iv) sum of the number of protons and neutrons is same but the number of protons is different.

8. The number of radial nodes for $3p$ orbital is _____.

- (i) 3
- (ii) 4
- (iii) 2
- (iv) 1

9. Number of angular nodes for $4d$ orbital is _____.
- (i) 4
 - (ii) 3
 - (iii) 2
 - (iv) 1
10. Which of the following is responsible to rule out the existence of definite paths or trajectories of electrons?
- (i) Pauli's exclusion principle.
 - (ii) Heisenberg's uncertainty principle.
 - (iii) Hund's rule of maximum multiplicity.
 - (iv) Aufbau principle.
11. Total number of orbitals associated with third shell will be _____.
- (i) 2
 - (ii) 4
 - (iii) 9
 - (iv) 3
12. Orbital angular momentum depends on _____.
- (i) l
 - (ii) n and l
 - (iii) n and m
 - (iv) m and s
13. Chlorine exists in two isotopic forms, Cl-37 and Cl-35 but its atomic mass is 35.5. This indicates the ratio of Cl-37 and Cl-35 is approximately
- (i) 1:2
 - (ii) 1:1
 - (iii) 1:3
 - (iv) 3:1
14. The pair of ions having same electronic configuration is _____.
- (i) Cr^{3+} , Fe^{3+}
 - (ii) Fe^{3+} , Mn^{2+}
 - (iii) Fe^{3+} , Co^{3+}
 - (iv) Sc^{3+} , Cr^{3+}
15. For the electrons of oxygen atom, which of the following statements is correct?
- (i) Z_{eff} for an electron in a $2s$ orbital is the same as Z_{eff} for an electron in a $2p$ orbital.
 - (ii) An electron in the $2s$ orbital has the same energy as an electron in the $2p$ orbital.

- (iii) Z_{eff} for an electron in $1s$ orbital is the same as Z_{eff} for an electron in a $2s$ orbital.
- (iv) The two electrons present in the $2s$ orbital have spin quantum numbers m_s but of opposite sign.
16. If travelling at same speeds, which of the following matter waves have the shortest wavelength?
- Electron
 - Alpha particle (He^{2+})
 - Neutron
 - Proton

II. Multiple Choice Questions (Type-II)

In the following questions two or more options may be correct.

17. Identify the pairs which are **not** of isotopes?

- ${}^{12}_6\text{X}$, ${}^{13}_6\text{Y}$
- ${}^{35}_{17}\text{X}$, ${}^{37}_{17}\text{Y}$
- ${}^{14}_6\text{X}$, ${}^{14}_7\text{Y}$
- ${}^8_4\text{X}$, ${}^8_5\text{Y}$

18. Out of the following pairs of electrons, identify the pairs of electrons present in degenerate orbitals :

- $n = 3$, $l = 2$, $m_l = -2$, $m_s = -\frac{1}{2}$
 - $n = 3$, $l = 2$, $m_l = -1$, $m_s = -\frac{1}{2}$
- $n = 3$, $l = 1$, $m_l = 1$, $m_s = +\frac{1}{2}$
 - $n = 3$, $l = 2$, $m_l = 1$, $m_s = +\frac{1}{2}$
- $n = 4$, $l = 1$, $m_l = 1$, $m_s = +\frac{1}{2}$

(iv) (a) $n = 3, l = 2, m_l = +2, m_s = -\frac{1}{2}$

(b) $n = 3, l = 2, m_l = +2, m_s = +\frac{1}{2}$

19. Which of the following sets of quantum numbers are correct?

	n	l	m_l
(i)	1	1	+2
(ii)	2	1	+1
(iii)	3	2	-2
(iv)	3	4	-2

20. In which of the following pairs, the ions are iso-electronic?

- (i) $\text{Na}^+, \text{Mg}^{2+}$
- (ii) $\text{Al}^{3+}, \text{O}^-$
- (iii) $\text{Na}^+, \text{O}^{2-}$
- (iv) N^{3-}, Cl

21. Which of the following statements concerning the quantum numbers are correct?

- (i) Angular quantum number determines the three dimensional shape of the orbital.
- (ii) The principal quantum number determines the orientation and energy of the orbital.
- (iii) Magnetic quantum number determines the size of the orbital.
- (iv) Spin quantum number of an electron determines the orientation of the spin of electron relative to the chosen axis.

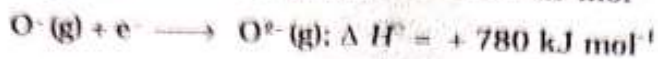
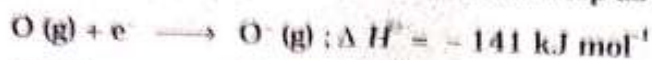
Classification of Elements and Periodicity in Properties

I. Multiple Choice Questions (Type-I)

1. Consider the isoelectronic species, Na^+ , Mg^{2+} , F^- and O^{2-} . The correct order of increasing length of their radii is _____.
 - (i) $\text{F}^- < \text{O}^{2-} < \text{Mg}^{2+} < \text{Na}^+$
 - (ii) $\text{Mg}^{2+} < \text{Na}^+ < \text{F}^- < \text{O}^{2-}$
 - (iii) $\text{O}^{2-} < \text{F}^- < \text{Na}^+ < \text{Mg}^{2+}$
 - (iv) $\text{O}^{2-} < \text{F}^- < \text{Mg}^{2+} < \text{Na}^+$
2. Which of the following is not an actinoid?
 - (i) Curium ($Z = 96$)
 - (ii) Californium ($Z = 98$)
 - (iii) Uranium ($Z = 92$)
 - (iv) Terbium ($Z = 65$)
3. The order of screening effect of electrons of s , p , d and f orbitals of a given shell of an atom on its outer shell electrons is:
 - (i) $s > p > d > f$
 - (ii) $f > d > p > s$
 - (iii) $p < d < s > f$
 - (iv) $f > p > s > d$
4. The first ionisation enthalpies of Na, Mg, Al and Si are in the order:
 - (i) $\text{Na} < \text{Mg} > \text{Al} < \text{Si}$
 - (ii) $\text{Na} > \text{Mg} > \text{Al} > \text{Si}$

- (iii) $\text{Na} < \text{Mg} < \text{Al} < \text{Si}$
(iv) $\text{Na} > \text{Mg} > \text{Al} < \text{Si}$
5. The electronic configuration of gadolinium (Atomic number 64) is
(i) $[\text{Xe}] 4f^3 5d^5 6s^2$
(ii) $[\text{Xe}] 4f^2 5d^2 6s^1$
(iii) $[\text{Xe}] 4f^7 5d^1 6s^2$
(iv) $[\text{Xe}] 4f^8 5d^0 6s^2$
6. The statement that is **not** correct for periodic classification of elements is:
(i) The properties of elements are periodic function of their atomic numbers.
(ii) Non metallic elements are less in number than metallic elements.
(iii) For transition elements, the $3d$ -orbitals are filled with electrons after $3p$ -orbitals and before $4s$ -orbitals.
(iv) The first ionisation enthalpies of elements generally increase with increase in atomic number as we go along a period.
7. Among halogens, the correct order of amount of energy released in electron gain (electron gain enthalpy) is:
(i) $\text{F} > \text{Cl} > \text{Br} > \text{I}$
(ii) $\text{F} < \text{Cl} < \text{Br} < \text{I}$
(iii) $\text{F} < \text{Cl} > \text{Br} > \text{I}$
(iv) $\text{F} < \text{Cl} < \text{Br} < \text{I}$
8. The period number in the long form of the periodic table is equal to
(i) magnetic quantum number of any element of the period.
(ii) atomic number of any element of the period.
(iii) maximum Principal quantum number of any element of the period.
(iv) maximum Azimuthal quantum number of any element of the period.
9. The elements in which electrons are progressively filled in $4f$ -orbital are called
(i) actinoids
(ii) transition elements
(iii) lanthanoids
(iv) halogens
10. Which of the following is the correct order of size of the given species:
(i) $\text{I} > \text{I}^- > \text{I}^+$
(ii) $\text{I}^+ > \text{I}^- > \text{I}$
(iii) $\text{I} > \text{I}^+ > \text{I}^-$
(iv) $\text{I}^- > \text{I} > \text{I}^+$

11. The formation of the oxide ion, $O^{2-}(g)$, from oxygen atom requires first an exothermic and then an endothermic step as shown below:



Thus process of formation of O^{2-} in gas phase is unfavourable even though O^{2-} is isoelectronic with neon. It is due to the fact that,

- (i) oxygen is more electronegative.
 - (ii) addition of electron in oxygen results in larger size of the ion.
 - (iii) electron repulsion outweighs the stability gained by achieving noble gas configuration.
 - (iv) O^- ion has comparatively smaller size than oxygen atom.
12. Comprehension given below is followed by some multiple choice questions. Each question has one correct option. Choose the correct option.

In the modern periodic table, elements are arranged in order of increasing atomic numbers which is related to the electronic configuration. Depending upon the type of orbitals receiving the last electron, the elements in the periodic table have been divided into four blocks, viz. *s*, *p*, *d* and *f*. The modern periodic table consists of 7 periods and 18 groups. Each period begins with the filling of a new energy shell. In accordance with the Aufbau principle, the seven periods (1 to 7) have 2, 8, 8, 18, 18, 32 and 32 elements respectively. The seventh period is still incomplete. To avoid the periodic table being too long, the two series of *f*-block elements, called lanthanoids and actinoids are placed at the bottom of the main body of the periodic table.

- (a) The element with atomic number 57 belongs to
 - (i) *s*-block
 - (ii) *p*-block
 - (iii) *d*-block
 - (iv) *f*-block
- (b) The last element of the *p*-block in 6th period is represented by the outermost electronic configuration.
 - (i) $7s^2 7p^6$
 - (ii) $5f^{14} 6d^{10} 7s^2 7p^0$
 - (iii) $4f^{14} 5d^{10} 6s^2 6p^6$
 - (iv) $4f^{14} 5d^{10} 6s^2 6p^4$
- (c) Which of the elements whose atomic numbers are given below, cannot be accommodated in the present set up of the long form of the periodic table?
 - (i) 107
 - (ii) 118

(iii) 126

(iv) 102

(d) The electronic configuration of the element which is just above the element with atomic number 43 in the same group is _____.

(i) $1s^2 2s^2 2p^6 3s^2 3p^4 3d^5 4s^2$

(ii) $1s^2 2s^2 2p^6 3s^2 3p^4 3d^5 4s^3 4p^6$

(iii) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^6 4s^2$

(iv) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^7 4s^2$

(e) The elements with atomic numbers 35, 53 and 85 are all _____.

(i) noble gases

(ii) halogens

(iii) heavy metals

(iv) light metals

13. Electronic configurations of four elements A, B, C and D are given below :

(A) $1s^2 2s^2 2p^6$ (B) $1s^2 2s^2 2p^4$

(C) $1s^2 2s^2 2p^6 3s^1$ (D) $1s^2 2s^2 2p^5$

Which of the following is the correct order of increasing tendency to gain electron :

(i) $A < C < B < D$

(ii) $A < B < C < D$

(iii) $D < B < C < A$

(iv) $D < A < B < C$

II. Multiple Choice Questions (Type-II)

In the following questions two or more options may be correct.

14. Which of the following elements can show covalency greater than 4?

(i) Be

(ii) P

(iii) S

(iv) B

15. Those elements impart colour to the flame on heating in it, the atoms of which require low energy for the ionisation (i.e., absorb energy in the visible region of spectrum). The elements of which of the following groups will impart colour to the flame?

(i) 2

- (iii) 1
- (iv) 17

16. Which of the following sequences contain atomic numbers of only representative elements?

- (i) 3, 33, 53, 87
- (ii) 2, 10, 22, 36
- (iii) 7, 17, 25, 37, 48
- (iv) 9, 35, 51, 88

17. Which of the following elements will gain one electron more readily in comparison to other elements of their group?

- (i) S (g)
- (ii) Na (g)
- (iii) O (g)
- (iv) Cl (g)

18. Which of the following statements are correct?

- (i) Helium has the highest first ionisation enthalpy in the periodic table.
- (ii) Chlorine has less negative electron gain enthalpy than fluorine.
- (iii) Mercury and bromine are liquids at room temperature.
- (iv) In any period, atomic radius of alkali metal is the highest.

19. Which of the following sets contain only isoelectronic ions?

- (i) Zn^{2+} , Ca^{2+} , Ga^{3+} , Al^{3+}
- (ii) K^+ , Ca^{2+} , Sc^{3+} , Cl^-
- (iii) P^{3-} , S^{2-} , Cl^- , K^+
- (iv) Ti^{4+} , Ar , Cr^{3+} , V^{5+}

20. In which of the following options order of arrangement does **not** agree with the variation of property indicated against it?

- (i) $\text{Al}^{3+} < \text{Mg}^{2+} < \text{Na}^+ < \text{F}^-$ (increasing ionic size)
- (ii) $\text{B} < \text{C} < \text{N} < \text{O}$ (increasing first ionisation enthalpy)
- (iii) $\text{I} < \text{Br} < \text{Cl} < \text{F}$ (increasing electron gain enthalpy)
- (iv) $\text{Li} < \text{Na} < \text{K} < \text{Rb}$ (increasing metallic radius)

21. Which of the following have no unit?

- (i) Electronegativity
- (ii) Electron gain enthalpy
- (iii) Ionisation enthalpy
- (iv) Metallic character

MATHEMATICS
WORKSHEET-1

(Q1 to Q10) There are four options against each question. Choose the option which you consider the most appropriate as your answer.

1. If $a \in N$, N is set of natural numbers such that $aN = \{ ax : x \in N \}$ then $3N \cap 7N =$

- (a) $10N$ (b) $4N$ (c) $21N$ (d) none

2. A and B are two sets with $n(A) = 16$, $n(B) = 14$ and $n(A \cup B) = 25$ then $n(A \cap B) =$

- (a) 30 (b) 5 (c) 6 (d) 2

3. For any two sets A and B, $A \cup B = A$ iff,

- (a) $B \subseteq A$ (b) $A \subseteq B$ (c) $B \neq A$ (d) $A = B$

4. For any set A, $A \cup A = A$ is called

- (a) Idempotent Law (b) Associative Law (c) Identity Law (d) none

5. $A = \{x : x \text{ is a prime number } < 10\}$ and $B = \{y : y \text{ is an odd number } < 10\}$ then

- (a) $A \subseteq B$ (b) $B \subseteq A$ (c) $A = B$ (d) none

6. In throw of a dice Which one of the following is a null set:

- (a) $A = \{x : x \text{ is prime outcome}\}$ (b) $B = \{y : y \text{ is an odd outcome}\}$
(c) $C = \{z : z \mid \text{a divisor of } 7\}$ (d) $D = \{u : u \text{ is a multiple of } 7\}$

8. If $X = \{1, 2, p, 4, q\}$ the cardinality of $P(X)$ is=

- (a) 32 (b) 16 (c) 64 (d) 15

9. Two finite sets have m and n elements. The number of elements in power set of first is

48 more than number of elements in power set of the other, values of m and n are:

- (a) 7, 6 (b) 6, 3 (c) 4, 6 (d) 7, 4

10. If $A = \{1, 3, 5, B\}$ and $B = \{4, 6, 5\}$ then

- (a) $4 \subset A$ (b) $4 \in A$ (c) $\{4\} \subset A$ (d) none

11. Write the following in set builder form

(a) $\{ 7, 14, 21, 28, \dots \}$

(b) $\{ 1, 4, 9, 16, 25, \dots, 100 \}$

12. Write in tabular/Roster Form

(a) $B = \{ x : x \text{ is a letter from word MATHEMATICS} \}$

(b) $X = \{ a : a \text{ is a month of year not having 31 days} \}$

13. Define Equal, Equivalent, Universal and Power sets.

14. Represent the following by Venn diagram for sets A, B and C

(a) $A - B$

(b) $A \cap B'$

(c) $A \cup B$

(d) $A \cap B$

(e) $A \cap B \cap C$

15. Show that $A - B = A \cap B'$

16. In a committee 50 people speak Spanish, 10 speaks both Spanish and French, how many speak at least one of the two languages?

17. Let A, B & C are three sets such that $A \cup B = A \cup C$ and $A \cap B = A \cap C$, then show that $B = C$.

18. If $A \subset B$, then $C - B \subset C - A$

19. Show that $A = B$, if $A \cap X = B \cap X = \emptyset$ and $A \cup X = B \cup X$.

20. In a survey it was found that 21 people like product A, 26 like product B and 29 like product C. If 14 like product A and B, 12 like product C and A, 14 like B and C and 8 like all three product. How many like product B only.

WORKSHEET-2

1 The range of the real function $f(x) = |x|$ is

- A) $[0, \infty)$ B) $(0, \infty)$ C) \mathbb{R} D) $[-1, 1]$

2 If $f(x) = 4x - x^2$, $x \in \mathbb{R}$, then the value of $f(a+1) - f(a-1)$ is

- A) $4(a-2)$ B) $2(a+2)$ C) $4a$ D) $4(2-a)$

3 The domain of the function $f(x) = \sqrt{x-1} + \sqrt{3-x}$ is

- A) $[1, \infty)$ B) $(-\infty, 3]$ C) $(1, 3)$ D) $[1, 3]$

4 The range of the function $f(x) = x|x|$ is

- A) $\mathbb{R} - \{0\}$ B) $\mathbb{R} - \{-1, 1\}$ C) $\{-1, 1\}$ D) $[0, 1]$

5 Which one of the following is not a function?

- A) $\{(x, y) : x, y \in \mathbb{R}, x^2 = y\}$ B) $\{(x, y) : x, y \in \mathbb{R}, y^2 = x\}$
C) $\{(x, y) : x, y \in \mathbb{R}, x = y^3\}$ D) $\{(x, y) : x, y \in \mathbb{R}, y = x^3\}$

6 If $f(x) = (x-a)^2(x-b)^2$, then $f(a+b)$ is

- A) $4a^2 b^2$ B) $a^2 b^2$ C) $(a+b)^2$ D) $a^2 + b^2$

7 The value of $[3.8] + [-3.8]$ is

- A) 8 B) 0 C) 7 D) -1

8 The domain of the function $x^2 + 2x + 3 / x^2 - 5x + 6$ is

Two marks questions

11 Find the domain and range of the function $f(x) = \sqrt{16 - x^2}$

12 Let $A = \{9, 10, 11, 12, 13\}$ and let $f: A \rightarrow \mathbb{N}$ be defined by $f(n)$ = the highest prime factor of n . Find the range of f .

13 Let $f = \{(-1, -8), (1, -2), (2, 1), \dots\}$ be a function from \mathbb{Z} to \mathbb{Z} defined by $f(x) = px + q$, for some integers p and q . Determine p and q .

14 Let $f: \mathbb{R} \rightarrow \mathbb{R}$ be given by $f(x) = x^2 + 3$. Find (i) $\{x : f(x) = 28\}$ (ii) The pre-images of 39 and 2 under 'f'.

15 Determine the domain and the range of the relation R , where $R = \{(x, x^3) : x \text{ is a prime number less than } 10\}$.

16 Find the domain and range of $f(x) = \frac{x-2}{x-1}$.

Four marks questions

17 Determine the domain and range of the function $f(x) = \{(x, 1/x) : 0 < x < 6; x \in \mathbb{N}\}$

18 Find the domain and the range of the real function f defined by $f(x) = \sqrt{2x-1}$.

19 Find the domain of the functions a) $f(x) = x^2 + 2x + 1$ b) $f(x) = x^2 - 8x + 12$

20 Draw the graph of $f(x) = |x-2|$, $x \in \mathbb{R}$. What are the domain and range of $f(x) = |x-2|$?

WORKSHEET-3

$$1. \sqrt{\frac{1 - \cos 2x}{1 + \cos 2x}} = \tan x$$

$$2. \frac{\sin 2x}{1 - \cos 2x} = \cot x$$

$$3. \frac{\sin 2x}{1 + \cos 2x} = \tan x$$

$$4. \sqrt{2 + \sqrt{2 + 2 \cos 4x}} = 2 \cos x, 0 < x < \frac{\pi}{4}$$

$$5. \frac{1 - \cos 2x + \sin 2x}{1 + \cos 2x + \sin 2x} = \tan x$$

$$6. \frac{\sin x + \sin 2x}{1 + \cos x + \cos 2x} = \tan x$$

$$7. \frac{\cos 2x}{1 + \sin 2x} = \tan\left(\frac{\pi}{4} - x\right)$$

$$8. \frac{\cos x}{1 - \sin x} = \tan\left(\frac{\pi}{4} + \frac{x}{2}\right)$$

$$9. \cos^2 \frac{\pi}{8} + \cos^2 \frac{3\pi}{8} + \cos^2 \frac{5\pi}{8} + \cos^2 \frac{7\pi}{8} = 2$$

$$10. \sin^2 \frac{\pi}{8} + \sin^2 \frac{3\pi}{8} + \sin^2 \frac{5\pi}{8} + \sin^2 \frac{7\pi}{8} = 2$$

$$11. (\cos \alpha + \cos \beta)^2 + (\sin \alpha + \sin \beta)^2 = 4 \cos^2 \left(\frac{\alpha - \beta}{2}\right)$$

$$12. \sin^2 \left(\frac{\pi}{8} + \frac{x}{2}\right) - \sin^2 \left(\frac{\pi}{8} - \frac{x}{2}\right) = \frac{1}{\sqrt{2}} \sin x$$

$$13. 1 + \cos^2 2x = 2(\cos^4 x + \sin^4 x)$$

$$14. \cos^3 2x + 3 \cos 2x = 4(\cos^6 x - \sin^6 x)$$

$$15. (\sin 3x + \sin x) \sin x + (\cos 3x - \cos x) \cos x = 0$$

$$16. \cos^2 \left(\frac{\pi}{4} - x\right) - \sin^2 \left(\frac{\pi}{4} - x\right) = \sin 2x$$

$$17. \cos 4x = 1 - 8 \cos^2 x + 8 \cos^4 x$$

$$18. \sin 4x \approx 4 \sin x \cos^3 x - 4 \cos x \sin^3 x$$

[NCERT EXEMPLAR]

$$19. 3(\sin x - \cos x)^4 + 6(\sin x + \cos x)^2 + 4(\sin^6 x + \cos^6 x) = 13$$

$$20. 2(\sin^6 x + \cos^6 x) - 3(\sin^4 x + \cos^4 x) + 1 = 0$$

$$21. \cos^6 x - \sin^6 x = \cos 2x \left(1 - \frac{1}{4} \sin^2 2x\right)$$

$$22. \tan \left(\frac{\pi}{4} + x\right) + \tan \left(\frac{\pi}{4} - x\right) = 2 \sec 2x$$

$$23. \cot^2 x - \tan^2 x = 4 \cot 2x \operatorname{cosec} 2x$$

$$24. \cos 4x - \cos 4\alpha = 8(\cos x - \cos \alpha)(\cos x + \cos \alpha)(\cos x - \sin \alpha)(\cos x + \sin \alpha)$$

$$25. \sin 3x + \sin 2x - \sin x = 4 \sin x \cos \frac{x}{2} \cos \frac{3x}{2}$$

[NCERT]

**ENGLISH
WORKSHEET-1**

SECTION – A : READING SKILLS

(20 Marks)

1. Read the passage given below:

- (1) I know many friends of mine who drink coffee regularly but do not know that coffee exists in different forms other than instant coffee. There are many who swear by Flora café classic or Coco gold, which they consider premium coffee. I may sound offensive but instant coffee is not the only way; in fact, it's a very bad way of making coffee! Instant coffee cannot match up to brewed coffee's flavour nor does it have Arabica beans. It uses Robusta beans that are lower in flavour. Don't know the difference?! Read on...
- (2) That plant might be a genius! It created a chemical that would keep pests away. Fortunately for us and unfortunately for the plant – that plan did not work the way it was intended to. The chemical might have averted a few pest attacks, but attracted a far greater threat – human beings. The plant I am talking about is coffee and the chemical is caffeine.
- (3) To begin from the beginning – coffee is from a more mature part of the tree – the seed – unlike other stimulants. The ripe berry is picked and de-pulped leaving us with a seed called 'green bean' or 'green coffee'. Green bean is uncharacteristically bland with a taste nowhere close to that of coffee, but it is valued for its higher antioxidant levels.
- (4) It's an interesting phenomenon to see how this bland green bean turns to a flavourful coffee bean. Coffee bean is a seed and like any other seed is rich in proteins, fats, and all necessary ingredients for giving birth to a new plant. When exposed to heat, the fats and carbohydrates in the bean turn into essential oils, which give the characteristic taste and aroma to the coffee bean. The degree of roasting depends on the need or purpose of use.

- (5) These beans are ground so that the surface area of the bean is increased, which makes extraction easier. The bean can be ground or crushed but making the particles uniform will ensure equal extraction, or else the smaller particle will get over extracted and the larger one under extracted. Hence, the burr grinder is used to ensure that the coffee bean gets ground in a uniform way in which all particles are of similar sizes.
- (6) Does under extraction give a lighter coffee and over extraction a stronger one? No. For lighter or stronger coffee less or more coffee powder has to be used. Why? Under extraction will not get all the flavors of the coffee as the water runs too quickly. It will not get what you want – it will taste sour. Over-extraction will bring out all unnecessary flavours rendering the taste bitter.

On the basis of your understanding of the above passage, answer the questions given below:
10×1=10

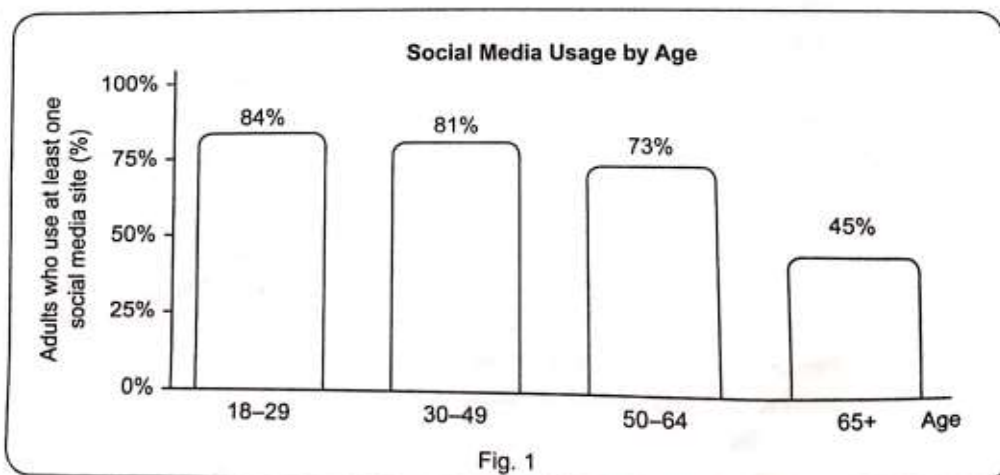
- (i) Complete the sentence by choosing an appropriate option.
The author complained that his friends _____ .
(a) consumed only Flora classics.
(b) were not aware of different forms of coffee.
(c) were severely addicted to drinking coffee.
(d) considered Coco gold as premium coffee.
- (ii) Comment on the writer's reference to the unique feature of the coffee plant. (paragraph 2)
- (iii) List the reason why the author refers to humans as 'great threat to coffee' plants.
- (iv) Select an option that conveys the same meaning as "'energiser' from words used in paragraph 3.
(a) bland (b) mature
(c) antioxidant (d) stimulants
- (v) Complete the given sentence with an appropriate inference with respect to the following :
Fats and carbohydrates turn into essential oils leading to _____ .
- (vi) Comment on the writer's reference to the interesting phenomenon in paragraph 4.
- (vii) Over-extraction does not give a stronger coffee. Based on your understanding of paragraph 6, list one method to get stronger coffee.
- (vi) The writer would not agree with the given statements based on paragraph five EXCEPT
(a) The burr grinder grinds coffee beans uniformly.
(b) Less surface area makes extraction easier.
(c) Grinding gives stronger aroma.
(d) Good coffee is a mix of smaller and bigger particles.
- (ix) Why is it fair to say that the right degree of extraction of coffee is important?
- (x) Select the most suitable title for the above passage.
(a) The Art of Coffee Making
(b) Benefits of Consuming Coffee
(c) Green Coffee – The perfect antioxidant
(d) The Coffee Addict

Read the passage given below.

(1) News – If you can't remember the last time, you saw a teenager reading a book, newspaper or magazine, you're not alone. In recent years, less than 20 percent of teens report reading a book, magazine or newspaper daily for pleasure. More than 80 percent say they use social media every day, according to research published by the World Psychological Association.

Scanned with OKEN Scanner

- (2) "Compared with previous generations, teens in the 2010s spent more time online and less time with traditional media, such as books, magazines and television", said lead author of the book yGen and professor of psychology at ABC University. "Time on digital media has displaced time once spent enjoying a book or watching TV."
- (3) Swaner and her colleagues analysed data concluded from an ongoing study of a nationally representative sample of approximately 50,000 eighth, tenth, and twelfth grade students annually. They looked at survey results from 1976 to 2016, representing more than 1 million teenagers. While the study started with only twelfth-graders in the 1970s, eighth- and tenth-graders were added in 1991.
- (4) Use of digital media increased substantially from 2006 to 2016. Among twelfth-graders, internet use during leisure time doubled from one to two hours per day during that period. It also increased 75 percent for tenth-graders and 68 percent for eighth-graders.
- (5) "In the mid-2010s, the average twelfth-grader reported spending approximately two hours a day texting, just over two hours a day on the internet – which included gaming – and just under two hours a day on social media," said Swaner. That's a total of about six hours per day on just three digital media activities during their leisure time."
- (6) In comparison, tenth-graders reported a total of five hours per day and eighth-graders reported four hours per day on those three digital activities. Consequently the spent time in the digital world is seriously degrading the time they spend on more traditional media such as print book and newspapers.
- (7) The decline in reading print media was especially steep. In the early 1990s, 33 percent of tenth-graders said they read a newspaper almost every day. By 2016, that number was only 2 percent. In the late 1970s, 60 percent of twelfth-graders said they read a book or a magazine almost every day; by 2016, only 16 percent did. Twelfth-graders also reported reading fewer books each year in 2016 compared to how much they read in 1976, and approximately one-third did not read a book (including e-books) for pleasure in the year prior to the 2016 survey.
- (8) There's no lack of intelligence among young people. However due to over dependence on digital media they find it difficult to focus for long periods of time and to read long-form text. Subsequently, they find it challenging to understand complex issues and develop critical thinking skills.



On the basis of your understanding of the passage, answer the questions given below: 10×1=10

- (i) Does the following statement agree with the information given in paragraph 1?
The writer believes that very few teens indulge in reading as a pleasurable activity.
Select from the following:
True: if the statement agrees with the information.
False: if the statement contradicts the information.
Not given: if there is no information on this.
- (ii) Select the option that displays the most likely reason for this research.
In order to find out...
- (a) reading choices of teenagers.
 - (b) digital competency of teenagers.
 - (c) speed of reading text.
 - (d) the decline of time spent on traditional media.
- (iii) Complete the statement based on the following statement:
Traditional media has been replaced by digital media, we can say this because _____
- (iv) Do you think that the researchers of study added tenth and eighth graders to the survey deliberately?
Support your answer with reference to the text.
- (v) Complete the given sentence by selecting the most appropriate option:
The concluding sentence of the text makes a clear case for _____ by listing it as a core competency for analysis and application.
- (a) following social media
 - (b) reading long texts
 - (c) building focus and concentration
 - (d) developing constructive habits
- (vi) Complete the given sentence by selecting the most appropriate option:
The digital activities that the twelfth-graders indulge in are _____
- (a) texting, gaming, television
 - (b) texting, gaming, social media
 - (c) newspaper, books, magazine
 - (d) television, books, gaming
- (vii) Complete the sentence appropriately with one/two words:
Teens today hardly read print media for _____ .
- (viii) Based on the reading of the text, state a point to challenge the given statement:
"Time on digital media has displaced time once spent enjoying a book or watching T.V."
- (ix) What does the author mean by 'degrading the time' in para 6?
- (a) spending less time
 - (b) waste of time
 - (c) consuming more time
 - (d) saving time
- (x) As per Fig. 1, the percentage of people above 50 yrs is _____ the percentage of teenagers using social media.
- (a) greater than
 - (b) less than
 - (c) equal to
 - (d) negligible to

SECTION – A : READING SKILLS

(22 Marks)

1. Read the following text.

- 12
1. Very often, we do not take the first step towards a good cause because we say to ourselves, "The task is so big. What can I do alone?" So nothing gets done. There is much talk about environmental protection, air pollution and saving our forests. Do we really care? If we do, here are a few things we can do to make our surroundings more pleasant.
 2. It is good to adopt a two-uses-attitude! By putting an article to a second use, we are giving it a longer lease of life and using up less raw material from nature. One of the worst things we do is the abuse of paper. The clean sides of envelopes can be used to write small notes, lists and reminders around the house. The more paper we use, the more trees will have to be cut down. For the same reason, we should avoid the use of paper napkins or paper plates. Cloth napkins are just as good, for they can be washed and used over and over again.
 3. Another area which needs the most urgent attention is effective garbage disposal. People who are conscious about it follow rules and laws strictly. As a result, their neighbourhoods are clean and beautiful. Similarly, each one of us can contribute to a cleaner environment. All kitchen waste should be collected separately. Those of you who have green fingers can turn this into valuable manure. Dig a pit and put the kitchen waste into it. When the pit is a little over half full, cover it up with mud. Let nature do the rest. Within three or six months, we will have a good garden manure. It can also be done as a community project by digging a large pit in the colony. Do take help of all the members, for nothing succeeds like co-operation.
 4. A lot of people don't care about the environment because they don't understand the adverse effect that society has on it. It is important to convince people to care about the environment. The first step would be to convince people to change by providing simple alternative solutions and ways of doing things. The internet is a powerful tool and a group on social media of like-minded people can be formed. People can share environmental stories and issues, as well as pool in solutions and alternatives to educate one another. With the current state that our planet is in, it is imperative that people actively care about the environment and most importantly to act now.
- (423 words)

Answer the following questions, based on the passage above.

- (a) Select the option that classifies the reason for not taking first step towards a good cause. 1
- (i) Because we feel that the task is too big and we cannot do anything alone.
 - (ii) Because we feel that nothing gets done anyhow.
 - (iii) Because we feel that we are not responsible for that task.
 - (iv) Because we feel that it is not our work to fulfill the task.
- (b) What is the significance of two-uses attitude in the given extract? 1
- (i) Putting an article to a second person.
 - (ii) Putting an article to a second use giving it a longer lease of life.
 - (iii) Putting less material from nature.
 - (iv) Putting the task apart itself.
- (c) Share evidence from the text, in about 40 words, to support the view that the writer's writing style is descriptive in nature. 2
- (d) Complete the sentence appropriately with a characteristic or description. 1
- The internet is a _____ and a group on social media of like-minded people can be formed.
- (e) Select the option that is similar in meaning to the word 'succeeds'. 1
- (i) triumph
 - (ii) lost
 - (iii) happy
 - (iv) sad
- (f) Explain in about 40 words, what procedure should one adopt for kitchen? 2
- (g) In the line, "...a lot of people don't care about the environment because they don't understand the adverse effect that society has on it." What does the word 'adverse' mean here? 1
- (h) How does the following impact the reader? 2
- 'There is much talk about environmental protection, air pollution and saving our forests'.*
- (i) Read the five options (1) – (5) given below. 1
- (1) More paper-less cutting of trees
 - (2) Ineffective garbage disposal
 - (3) Internet- a powerless tool
 - (4) Adopt a two-uses attitude
 - (5) Make unpleasant surrounding

Identify the option that DOES/DO corresponds with the passage.

- (i) (1) and (2)
- (ii) Only (4)
- (iii) (3) and (4)
- (iv) Only (5)

WORKSHEET-3

SECTION – A : READING SKILLS

(22 Marks)

1. Read the following text.

12

1. Self-respect is very different than relying on one's ego or False Self persona that serves as a cover to show the world only "the good stuff" of a person's personality. It is the gift we give ourselves when we become less motivated to please others in order to get their approval and more motivated to live a life of authenticity and personal integrity despite whatever anyone else thinks about us.
2. The dismal fact is that self-respect has nothing to do with the approval of others—who are, after all, deceived easily enough; has nothing to do with reputation which is something that people with courage can do without. It is to know the difference between the price of things and their value and the courage to own your mistakes.
3. In brief, people with self-respect exhibit a certain toughness, a kind of moral nerve; they display what was once called character, a quality which, although approved in the abstract, sometimes loses ground to other, more instantly negotiable virtues. Its slipping prestige is dismissed when one sees people coveting success or money or fame at all costs. Nonetheless, character—the willingness to accept responsibility for one's own life—is the source from which self-respect springs.
4. To live without self-respect is to lie awake some night, beyond the reach of warm milk, phenobarbital, and the sleeping hand on the coverlet, counting up the sins of commission and omission, the trusts betrayed, the promises subtly broken, the gifts irrevocably wasted through sloth or cowardice or carelessness. However long we postpone it, we eventually lie down alone in that notoriously uncomfortable bed, the one we make ourselves. Whether or not we sleep in it depends, of course, on whether or not we respect ourselves.
5. To have that sense of one's intrinsic worth which, for better or for worse, constitutes self-respect, is potentially to have everything: the ability to discriminate, to love and to remain indifferent. To lack it is to be locked within oneself, paradoxically incapable of either love or indifference. If we do not respect ourselves, we are on the one hand forced to despise those who have so few

resources as to consort with us, so little perception as to remain blind to our fatal weaknesses. On the other, we are peculiarly in thrall to everyone we see, curiously determined to live out—since our self-image is untenable—their false notions of us. We flatter ourselves by thinking this compulsion to please others an attractive trait: a gift for imaginative empathy, evidence of our willingness to give.

(426 Words)

Answer the following questions, based on the passage above.

- (a) Select the option that states the false self persona in a person according to the author. 1
(i) self-respect (ii) a person's true personality
(iii) unauthentic mask (iv) 'real good stuff'
- (b) The writer would not agree with the given statements based on paragraph three, EXCEPT 1
_____.
(i) self-respect is a virtue not appreciated in modern times.
(ii) it used to be a non-negotiable virtue.
(iii) self-respect has stood its ground come what may.
(iv) it is losing ground to more instantly negotiable virtues.
- (c) Why is it fair to say that the intrinsic worth of a person and self-respect have to go hand-in-hand? Answer in about 40 words. 2
- (d) Complete the given sentence with an appropriate inference, with respect to the following. 1
Character— the willingness to accept responsibility for one's life is the source _____.
- (e) Select the option that conveys the opposite of 'logical', from words used in paragraph two. 1
(i) intrinsic (ii) paradoxical
(iii) consort (iv) untenable
- (f) Comment on the writer's reference to self-respect as a gift we give ourselves. 2
- (g) In the line "... people with self-respect exhibit a certain toughness, a kind of moral nerve, they display what was once called character ...", What does the word 'nerve' mean here? 1
- (h) Based on your understanding of paragraph four, interpret the metaphor used by the author in the given statement. 2
'However long we postpone it, we eventually lie down alone in that notoriously uncomfortable bed, the one we make ourselves.'
- (i) Read the five statements (1)–(5) given below. 1
(1) If you don't stand for something, you'll fall for anything.
(2) Handsome is as handsome does.
(3) Putting backbone into someone.
(4) Neither fish, nor fowl.
(5) Rolling stone gathers no moss.
- Identify the option that displays the title/s that DOES/DO correspond with the passage.
- (i) (1) and (2) (ii) Only (1)
(iii) (2) and (3) (iv) Only (5)

ECONOMICS WORKSHEET - 1

- 1. What does the nature of economy means?**
- 2. Explain the concept of positive and normative economy with illustration?**
- 3. Why is choice essential in the study of economics?**
- 4. Explain how scarcity and choice go Together?**
- 5. What happened if resource do not have alternative use?**
- 6. How is production possibility front tire affected when resources are in efficiently employed in an economy?**
- 7. give the relation between total utility and marginal utility?**
- 8. what do you understand by a consumer equilibrium in case of single commodity?**
- 9. Explain the scope of statistic?**
- 10. Define static as a singular noun and as a plural noun?**
- 11. what are the main features of strategic as a numerical data describe any 4?**
- 12. explain the limitations of statistics?**
- 13. distinguish between primary data and secondary data?**
- 14. What are the qualities of good questionnaires'?**
- 15. write the difference between macroeconomic and microeconomic**