



MOUNT COLUMBUS SCHOOL
DAKSHINPURI, NEW DELHI – 62
CLASS X

WORKSHEET (JULY)

ENGLISH

I. Answer the following questions in 30–40 words each:

1. Why did Anne Frank decide to write in her diary? Why did she name it 'Kitty'?
2. How did the young seagull finally overcome his fear of flying?
3. Why does Amanda wish to be an orphan or a mermaid in the poem Amanda!/?
4. What message do you learn from Two Stories about Flying?

II. Fill in the blanks with the correct form of the verbs given in brackets.

1. Every morning, Anne _____ (write) in her diary before going to school.
2. The young seagull _____ (feel) frightened when he looked down from the ledge.
3. Amanda _____ (dream) of a carefree life while her mother was scolding her.
4. The pilot _____ (fly) through the storm when he suddenly saw another aeroplane.

III. You are Aarav/Aarohi, a resident of Green Park, New Delhi. The increasing use of mobile phones while driving has become a major cause of road accidents in your city. Write a letter to the Editor of a national daily expressing your concern and suggesting measures to create awareness about road safety.

Reflect on Your Learning

Tick (✓) the option that best describes your understanding.

Statement	Confident	Need More Practice	Need Help
I can understand the ideas and message of From the Diary of Anne Frank.	☐	☐	☐
I can answer questions based on Two Stories about Flying and Amanda!.	☐	☐	☐
I can write a Letter to the Editor using the correct format and appropriate language.	☐	☐	☐

HINDI

I. निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़कर पूछे गए प्रश्नों के उत्तर लिखिए-

प्रजातंत्र के तीन मुख्य अंग हैं-कार्यपालिका, विधायिका और न्यायपालिका। प्रजातंत्र की सार्थकता एवं दृढ़ता को ध्यान में रखते हुए और जनता के प्रहरी होने की भूमिका को देखते हुए मीडिया (दृश्य, श्रव्य और मुद्रित) को प्रजातंत्र के चौथे स्तंभ के रूप में देखा जाता है। समाचार-माध्यम या मीडिया को पिछले वर्षों में पत्रकारों और समाचार-पत्रों ने एक विश्वसनीयता प्रदान की है और इसी कारण विश्व में मीडिया एक अलग शक्ति के रूप में उभरा है। कार्यपालिका और विधायिका की समस्याओं, कार्य-प्रणाली और विसंगतियों की चर्चा प्रायः होती रहती है और सर्वसाधारण में वे विशेष चर्चा के विषय रहते ही हैं। इसमें समाचार-पत्र, रेडियो और टी०वी० समाचार अपनी टिप्पणी के कारण चर्चा को आगे बढ़ाने में योगदान करते हैं, पर न्यायपालिका अत्यंत महत्वपूर्ण होने के बावजूद उसके बारे में चर्चा कम ही होती है। ऐसा केवल अपने देश में ही नहीं, अन्य देशों में भी कमोबेश यही स्थिति है। स्वराज-प्राप्ति के बाद और एक लिखित संविधान के देश में लागू होने के उपरांत लोकतंत्र के तीनों अंगों के कर्तव्यों, अधिकारों और दायित्वों के बारे में जनता में जागरूकता बढ़ी है। संविधान-निर्माताओं का उद्देश्य रहा है कि तीनों अंग परस्पर ताल-मेल से कार्य करेंगे। तीनों के पारस्परिक संबंध भी संविधान द्वारा निर्धारित, फिर भी समय के साथ-साथ कुछ समस्याएँ उठ खड़ी होती हैं। आज लोकतंत्र यह महसूस करता है कि न्यायपालिका में भी अधिक पारदर्शिता हो, जिससे उसकी प्रतिष्ठा और सम्मान बढ़े। 'जिस देश में पंचों को परमेश्वर मानने की परंपरा, वहाँ न्यायमूर्तियों पर आक्षेप दुर्भाग्यपूर्ण है।'

(क) लोकतंत्र का चौथा अंग किसे माना जाता है?

(i) मीडिया

(ii) कार्यपालिका

(iii) विधायिका

(iv) न्यायपालिका

(ख) 'पारदर्शिता' से क्या तात्पर्य है?

(i) दूर तक देखना

(ii) पार देखने की क्षमता

(iii) आर-पार दिखाई देना या संदेह में न रखना

(iv) जो पार देख सकता हो

(ग) मीडिया के कोई दो उदाहरण दीजिए।

(i) रेडियो और टेलिस्कोप

(ii) समाचार-पत्र और रेडियो

(iii) टेलीविज़न और पुस्तक

(iv) धार्मिक ग्रंथ

(घ) लोकतंत्र में मीडिया की भूमिका स्पष्ट कीजिए।

(ङ) अत्यंत महत्वपूर्ण अंग होने के बावजूद न्यायपालिका के बारे में मीडिया में कम चर्चा क्यों होती है?

II. निम्नलिखित प्रश्नों के उत्तर लिखिए-

1. यदि आपके सामने कोई जरूरतमंद व्यक्ति सहायता माँगे, तो 'मनुष्यता' कविता से प्रेरणा लेकर आप क्या करेंगे?
2. यदि मीरा आज के समय में होतीं, तो वे युवाओं को क्या संदेश देतीं?
3. यदि आप 'डायरी का एक पन्ना' के समय उपस्थित होते, तो स्वतंत्रता आंदोलन में आपकी क्या भूमिका होती?
4. क्या आधुनिक तकनीक ने लोगों को संवेदनशील बनाया है या संवेदनहीन? कारण सहित लिखिए।
5. क्या आज भी 'मनुष्यता' कविता का संदेश उतना ही आवश्यक है? अपने विचार दीजिए।
6. प्रकृति संरक्षण के लिए विद्यार्थी किन पाँच उपायों को अपनाकर 'पर्वत प्रदेश में पावस' कविता के संदेश को सार्थक बना सकते हैं?
7. क्या आज भी 'मनुष्यता' कविता का संदेश उतना ही आवश्यक है? अपने विचार दीजिए।
8. 'मनुष्यता' कविता के आधार पर आदर्श नागरिक के गुण लिखिए।
9. पर्वत प्रदेश में पावस' कविता के प्रकृति-चित्रण की विशेषताएँ लिखिए।
10. 'पर्वत प्रदेश में पावस' कविता पढ़कर आपको कौन-सा दृश्य सबसे अधिक प्रभावित करता है? कारण सहित लिखिए।

MATHEMATICS

1. If $7x^2 - (2p^2 - 8)x + 16 = 0$ has two roots which are equal in magnitude but opposite in sign then find p.
2. Find the roots of the quadratic equation $\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$
3. Find the value of p for which the quadratic equation $(2p + 1)x^2 - (7p + 2)x + (7p - 3) = 0$ has equal roots. Also find these roots.
4. A train travels at a certain average speed for a distance of 63 km and then travels at a distance of 72 km at an average speed of 6 km/hr more than its original speed. If it takes 3 hours to complete total journey, what is the original average speed?
5. The difference of two natural numbers is 5. If the difference of their reciprocals is $\frac{1}{110}$, find the two numbers.
6. If the equation $(1 + m^2)x^2 + 2mcx + c^2 - a^2 = 0$ has equal roots, show that $c^2 = a^2(1 + m^2)$.
7. Solve the following pair of equations:
$$\frac{5}{x-1} + \frac{1}{y-2} = 2$$
$$\frac{6}{x-1} - \frac{3}{y-2} = 1$$
8. A two digit number is obtained by either by multiplying the sum of the digits by 8 and then subtracting 5 or by multiplying the difference of the digits by 16 and then adding 3. Find the number.
9. Check whether following quadratic equations has real roots. If yes, then find them :
a) $3x^2 + 2x + 1 = 0$ b) $2x^2 - 5x + 3 = 0$
10. The diagonal of a rectangular field is 40 meters more than the shorter side. If the longer side is 20 meters more than the shorter side, find the sides of the field.
11.
$$\sqrt{\frac{\sec\theta-1}{\sec\theta+1}} + \sqrt{\frac{\sec\theta+1}{\sec\theta-1}} = 2\operatorname{cosec}\theta$$
12. If $\cos\theta + \sin\theta = \sqrt{2}\cos\theta$, show that $\cos\theta - \sin\theta = \sqrt{2}\sin\theta$.
13. Prove that :
$$\frac{\sin\theta - \cos\theta + 1}{\sin\theta + \cos\theta - 1} = \frac{1}{\sec\theta - \tan\theta}$$
14. A circus artist is climbing a 20 m long rope, which is tightly stretched and tied from the top of a vertical pole to the ground. Find the height of the pole, if the angle made by the rope with the ground level is 30° .
15. The incomes of A and B are in the ratio 8:7 and their expenditures are in the ratio 19:16. If each saves Rs.1250, find the income of each A and B.

SCIENCE

Answer the following questions.

Q1. A jewellery maker prefers gold and silver for ornaments instead of sodium and potassium.

Explain two reasons for this choice.

Q2. A farmer planted potato tubers and sugarcane stems in different parts of his field. After some time, new plants developed without using seeds.

- Name the type of reproduction.
- Which part of potato develops into a new plant?
- Why is this method advantageous?
- Give one more example of vegetative propagation.

Q3. A science teacher placed four metal strips in separate solutions.

Metal Strip	Solution	Observation
Iron	Copper sulphate	Brown coating formed
Copper	Zinc sulphate	No change
Zinc	Silver nitrate	Grey deposit formed
Silver	Iron sulphate	No change

- Which metal is the most reactive among the four?
 - Which metal is the least reactive?
 - Why did copper not react with zinc sulphate?
 - Name the type of reaction taking place in the first and third experiments.
- Q4. A couple visited a doctor after learning about human reproduction. The doctor explained the following process: Ovulation occurs, Fertilisation takes place, The zygote divides repeatedly, The embryo gets implanted.

- Where does fertilisation occur?
- Where does implantation occur?
- What is formed immediately after fertilisation?
- Why is implantation important?

Q5. A gardener wants to multiply jasmine plants without using seeds. Suggest one suitable method. Explain why this method is preferred over seed reproduction.

Q6. Give reasons for the following

- Zinc oxide is considered an amphoteric oxide.
- Non-metals in general do not displace hydrogen from dilute acids.
- Metals conduct electricity.

Q7. Copper is extracted from its sulphide ore (Copper glance, Cu_2S). During extraction, the concentrated ore is heated in the presence of air. This process converts part of the copper sulphide into copper oxide. The copper oxide then reacts with the remaining copper sulphide to produce copper.

- Why is the sulphide ore heated in the presence of air? Name the process used for heating the sulphide ore in air.
- Write the chemical equation for the conversion of copper sulphide into copper oxide.
- Write the equation showing the extraction of copper from copper oxide and copper sulphide.
- What is anode mud?

Q8. Draw the structure of Magnesium chloride formed by transfer of ions.

Q9. a. In the human body what is the role of seminal vesicles, and prostate gland?

- List two functions performed by testis in human beings.

Q10. Explain any two methods of contraception giving one example of each.

SOCIAL SCIENCE

A. Complete the following statements with appropriate word(s).

1.was known as 'Lion of Punjab'.
2. Mahatma Gandhi return to India in 1915 from
3. Due to a violent incident in, Gandhiji called off the Non-cooperation Movement.
4. In movement, women participated in large numbers for the first time.
5. Gandhiji called Dalits as

B. Read each of the following statements and write true or false.

1. Colonial exploitation under the British rule was the important factor of nationalism in Europe.
2. Baba Ramchandra led the Civil Disobedience movement.
3. Alluri Sitaram Raju was the leader of militant Guerilla Movement in the Gudem Hills.
4. The Rowlatt Act gave the British Government power to suppress political activity.
5. 300 miles were covered in Gandhiji's Salt March.

C. Answer the following questions:

1. List six factors which have led to the decline in India's biodiversity.
2. Write four most important causes of environmental destruction/degradation.
3. "The destruction of biodiversity is highly correlated with the loss of cultural diversity." Give four facts to support this statement.
4. Why do we need to conserve our biodiversity?
5. List various provisions made by "The Indian Wildlife (Protection) Act 1972" for protecting habitats.
6. Which agency manages forests in India? Name three broad categories in which the forests are classified.
7. What is biodiversity? Why is biodiversity important for human lives? Give three points.
8. Write a brief note on 'Project Tiger'.
9. Explain how water becomes a renewable resource?
10. Give an estimate of India's renewable water resources.
11. Write three sources of fresh water.
12. What is water scarcity? Write the main reasons for water scarcity.
13. Explain any three problems faced by local communities due to the construction of large dams.
14. Compare the advantages and disadvantages of multipurpose river valley projects.
15. Give an example of an inter-state water dispute.
16. Give a brief description of the 'Narmada Bachao Andolan'.
17. Name the unique irrigation system prevalent in Meghalaya.
18. Name two states where rooftop rainwater harvesting is common practice.
19. Mawsynram is the region of highest rainfall, yet it faces acute water shortage. Why?
20. Give suggestions for judicious use of water resources.

INFORMATION TECHNOLOGY

1. Workplace safety is essential in an organisation _____.
 - a) To avoid accidents and injury
 - b) To increase productivity
 - c) To improve work environment
 - d) All of the above
2. Which of the following is not mandatory for employee health?
 - a) Cleanliness
 - b) Food court
 - c) Clean and fresh air
 - d) Clean washroom
3. The security department is not responsible for _____.
 - a) Personal safety
 - b) Computer system safety
 - c) Electrical safety
 - d) Personal belongings

4. Proper security procedures will increase _____.
 a) Liabilities
 b) Insurance
 c) Business revenue
 d) Operational charges
5. Which type of hazards can occur in IT industry?
 a) Biological
 b) Chemical
 c) Physical
 d) Ergonomic
6. Hazards while using computers are caused by _____.
 a) Poor sitting posture
 b) Lifting heavy objects
 c) Mishandling tools
 d) Improper wiring
7. Which action can cause injury to the operator?
 a) Using a tool with loose handle
 b) Selecting right tool
 c) Wearing goggles
 d) Keeping tools sharp
8. Major causes of hazards at workplace are _____.
 a) Poor ventilation
 b) Poor lighting
 c) Poor housekeeping
 d) All of the above
9. Bright light behind display screens causes _____.
 a) Eye infection
 b) Contrast problems
 c) Hardware failure
 d) Overheating
10. Who is responsible for maintaining workplace safety?
 a) Employer
 b) Employees
 c) Both employer and employees
 d) None

Section B: Case-Based Questions

1. Rahul spends long hours on his laptop. He sits on a bed, keeps the laptop on his lap, and rarely takes breaks. After a few weeks, he experiences neck pain and eye strain.

- a) Identify any one unhealthy habit. b) Suggest one corrective measure.
2. Write any two benefits of maintaining good posture while using a computer.
3. Explain the **20-20-20 rule** and its importance.
4. Why is maintaining both physical and digital security equally important in a computer lab?
5. State any two measures to maintain workplace safety.

ARTIFICIAL INTELLIGENCE

Section A – Multiple Choice Questions.

1. What is the main purpose of evaluating an AI model?
 - a. To increase the size of the dataset
 - b. To check how well the model performs
 - c. To reduce the number of features
 - d. To create a new model
2. Which of the following is used to measure the correctness of an AI model?
 - a. Accuracy
 - b. Dataset
 - c. Feature
 - d. Algorithm

3. A model that performs very well on training data but poorly on new data is called:
 - a. Underfitting
 - b. Overfitting
 - c. Balanced fitting
 - d. Data cleaning
4. Which metric tells us the proportion of correct predictions made by the model?
 - a. Precision
 - b. Recall
 - c. Accuracy
 - d. F1 Score
5. In a confusion matrix, what does a False Positive (FP) mean?
 - a. The model predicted positive and it was actually positive
 - b. The model predicted negative and it was actually negative
 - c. The model predicted positive but it was actually negative
 - d. The model predicted negative but it was actually positive

Section B – Short Answer Questions (2 marks each)

1. Define model evaluation in Artificial Intelligence.
2. What is a confusion matrix?
3. Differentiate between training data and testing data.
4. What is meant by precision in model evaluation?
5. Explain underfitting with an example.

Section C – Long Answer Questions (5 marks each)

1. Explain the importance of evaluating an AI model. Why is it necessary before deploying a model?
2. Describe the different components of a confusion matrix with suitable examples.
3. Differentiate between accuracy, precision, recall, and F1 score with examples.
4. Explain overfitting and underfitting in detail. How can they affect the performance of an AI model?
5. A model has the following values: TP = 40, TN = 50, FP = 5, FN = 5. Calculate the accuracy of the model and show all steps.