

Dear Parents,

The holiday season, often associated with joy and relaxation, also presents a golden opportunity through homework for meaningful engagement with learning and creative exploration. Designed to nurture creativity and critical thinking, the allocated assignments and tasks are structured to be engaging and cultivating deeper understanding.

Guidelines for completion:

1. All homework should be completed in a thin notebook (subject-wise), unless specified otherwise.
2. The work must be original. Ready-made materials should be avoided.
3. The holiday homework will be graded, and marks will be added to the subject enrichment score.

Celebrate the special Bond!

Father's Day: On Father's Day, take the opportunity to create heartfelt memories with your father. Spend time with your father, make him feel special and let him know how much he is valued and loved.

Embodying Magnanimity

Show compassion for the voiceless by placing a bowl of fresh water outside your home to offer respite to birds and stray animals in the summer heat.

Learn, create and return inspired!

Regards

Prabhat Academy



HOLIDAY HOMEWORK

GRADE IX

ENGLISH

1) Write the summary of Act 1 – Julius Caesar . (300-350 words).

2) “The Mysterious Message I Received During My Summer Vacation”

Word Limit: 300–350 words

Topic Introduction

During the summer holidays, you receive a strange message from an unknown person. The message leads you to an unexpected adventure, hidden secret, surprising discovery, or thrilling experience that changes your vacation completely.

You May Include

- Where you were spending your holidays
- How you received the message
- The clues or mystery involved
- Your feelings of fear, excitement, or curiosity
- The final surprising ending or lesson learned

>Prepare the assignment on A4 size sheets (handwritten) based on your study and submit it.

MATHEMATICS

- Do the revision worksheet on a separate thin notebook.
- Attempt all the questions neatly and in serial order.

PART A MULTIPLE CHOICE QUESTIONS

- I. ${}^3\sqrt{125} \times {}^3\sqrt{27}$ is equal to
a) ${}^3\sqrt{5 \times 3}$ b) ${}^9\sqrt{5 \times 3}$ c) 45 d) 15
- II. Decimal expansion of $\frac{1}{7}$ is
a) 2.5 b) 0.875 c) 4 d) all of these
- III. The coefficient of x^2 in $2 - x^2 + x^3$ is
a) -1 c) 1 b) 0 d) do not exists
- IV. $\frac{36}{100}$ is a
a) terminating decimal b) non-terminating decimal
c) whole number d) integer
- V. Multiplication of $6\sqrt{5}$ by $2\sqrt{5}$ gives
a) 120 b) 60 c) 30 d) 80
- VI. $Y + Y^2 + 4$ is a ----- polynomial
a) linear b) quadratic c) cubic d) constant
- VII. The degree of $2 - y^2 - y^3 + 2y^3$ is
a) 0 b) 1 c) 2 d) 3
- VIII. Which one of the following is a polynomial ?
(a) $\frac{y^2}{7} - \frac{0.5}{y^2}$ (b) $\sqrt{2p} - 4$ (c) $5m^2 + \frac{2(m)^{27}}{\sqrt{m}}$ (d) $\frac{z-7}{z+7}$

PART B

SOLVE THE FOLLOWING

- 1) Find the value of $p(x) = 5x^2 - 3x + 7$ at $x = 1$
- 2) a) Classify the following numbers as rational or irrational (1) $2 - \sqrt{5}$ (2) $\pi - 2$
(b) Simplify the expression $(\sqrt{11} - \sqrt{7})(\sqrt{11} + \sqrt{7})$
- 3) Factorise $x^3 - 23x^2 + 142x - 120$
- 4) Add $2\sqrt{2} + 5\sqrt{3}$ and $2\sqrt{2} - 3\sqrt{3}$
- 5) Without actually calculating the cubes, find the value of each of the following: (mention identity applied also)
 $(28)^3 + (-15)^3 + (-13)^3$
- 6) Write the decimal expansion of $\frac{7}{8}$

- 7) Verify whether the $y = -\frac{1}{2}$ is zero of the polynomial $P(y) = 2y^2 + 5y - 3$.
- 8) If $a + b = 12$ and $ab = 27$. Find the value of $a^3 + b^3$.
- 9) If $p^2 + q^2 + r^2 = 90$ and $p + q + r = 20$ then the value of $pq + qr + rp$
- 10) If $p(x) = x^2 - 2\sqrt{2x} + 1$. Find the value of $p(2\sqrt{2x})$.
- 11) If $x+2a$ is a factor of the polynomial $x^5 - 4a^2x^3 + 2x + 2a + 3$, then find the value of a .
- 12) Find the value of a and b in the following

$$\frac{7 + \sqrt{5}}{7 - \sqrt{5}} - \frac{7 - \sqrt{5}}{7 + \sqrt{5}} = a + \frac{7}{11}\sqrt{5}b.$$

- 13) If $a = \frac{3 + \sqrt{5}}{2}$, then find the value of $a^2 + \frac{1}{a^2}$.

- 14) If $\sqrt{5} = 2.236$ and $\sqrt{10} = 3.162$, find the value of $\frac{\sqrt{2} + 1}{\sqrt{5}}$.

- 15) Simplify: $2^4\sqrt[4]{81} - 8^3\sqrt[3]{216} + 15^5\sqrt[5]{32} + \sqrt[4]{225} - \sqrt[4]{16}$.

- 16) Express $0.6 + 0.7 + 0.4\overline{7}$ in the form $\frac{p}{q}$, where p and q are integers, $q \neq 0$.

- 17) Evaluate: $(2x - y + 3z)(4x^2 + y^2 + 9z^2 + 2xy + 3yz - 6xz)$

- 18) The polynomial $p(x) = ax^3 - 3x^2 + 4$ and $g(x) = 2x^3 - 5x + a$ when divided by

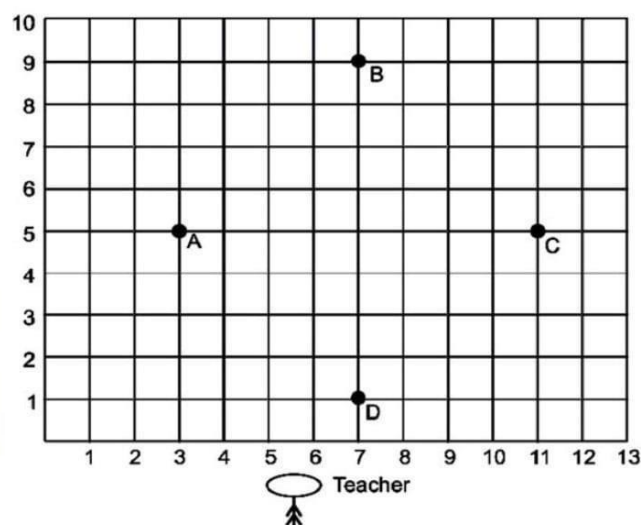
$(x - 2)$ and $(x - 3)$ leave the remainder p and q , respectively. If $p - 2q = 4$, then find the value of a .

- 19) If a, b and c are all non-zero and $a + b + c = 0$, prove that

$$\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab} = 3$$

- 20) Read the following text carefully and answer the questions that follow:

Students of a school are standing in rows and columns in their playground for a drill practice. A, B, C and D are the positions of four students as shown in the figure.



- (a) What are the coordinates of A and B respectively?
- (b) What are the coordinates of C and D respectively?
- (c) What is the distance between B and D?

SCIENCE

TASK-I

The following are the three project options provided for the assignment.
Each student is required to complete one of the **three projects**.

Please find the project details below:

PHYSICS

Make a list of top 5 advance military aircrafts used by Indian air force. Write about their speed, origin and mechanism.

CHEMISTRY

Pocket Dictionary for the first 20 elements of Chemistry list each element's name, symbol and atomic number in a concise format.

BIOLOGY

Tissues Around Us: Photography Project

Take photos (at home, in gardens, etc.) of examples of tissues — like tree bark (protective tissue), leaves (photosynthetic tissue), trees, flowers, etc., and explain them in a short write-up with photographs on A5 page.



PHYSICS WORKSHEET

1. (a) Identify the kind of motion in the following cases:
 - (i) A car moving with constant speed turning around a curve.
 - (ii) An electron orbiting around nucleus.(b) An artificial satellite is moving in a circular orbit of radius 36,000 km. Calculate its speed if it takes 24 hours to revolve around the earth.
2. (a) Define average speed.
(b) A bus travels a distance of 120 km with a speed of 40 km/h and returns with a speed of 30 km/h. Calculate the average speed for the entire journey.
3. Define uniform and non-uniform motion. Write one example for each.
4. What does the odometer of an automobile measure? Which of the following is moving faster? Justify your answer.
 - (i) A scooter moving with a speed of 300 m per minute.
 - (ii) A car moving with a speed of 36 km per hour.
5. A car travels from stop A to stop B with a speed of 30 km/h and then returns back to A with a speed of 50 km/h. Find
 - (i) displacement of the car.
 - (ii) distance travelled by the car.
 - (iii) average speed of the car.
6. Velocity-time graph for the motion of an object in a straight path is a straight line parallel to the time axis.
 - (a) Identify the nature of motion of the body.
 - (b) Find the acceleration of the body.
 - (c) Draw the shape of distance-time graph for this type of motion.
7. Draw the shape of the distance-time graph for uniform and non-uniform motion of object. A bus of starting from rest moves with uniform acceleration of 0.1 ms^{-2} for 2 minutes. Find
 - (a) the speed acquired.
 - (b) the distance travelled.
8. (a) Define uniform acceleration. What is the acceleration of a body moving with uniform velocity?
(b) A particle moves over three quarters of a circle of radius r . What is the magnitude of its displacement?
9. A bus accelerates uniformly from 54 km/h to 72 km/h in 10 seconds. Calculate

- (i) acceleration in m/s^2
 - (ii) distance covered by the bus in metres during this interval.
10. A car moves with a speed of 30 km/h for half an hour, 25 km/h for one hour and 40 km/h for two hours. Calculate the average speed of the car.
11. A car is travelling at 20 km/h, it speeds upto 60 km/h in 6 seconds. What is its acceleration?
12. A circular track has a circumference of 3140 m with AB as one of its diameter. A scooter moves from A to B along the circular path with a uniform speed of 10 m/s. Find
- (a) distance covered by the scooter,
 - (b) displacement of the scooter, and
 - (c) time taken by the scooter in reaching from A to B.
13. (a) Differentiate between uniform linear and uniform circular motion.
- (b) Write any four examples of uniform circular motion.
 - (c) Is uniform circular motion accelerated motion?
14. (a) Differentiate between speed and velocity.
- (b) When is a body said to have uniform velocity?
 - (c) How can we describe the position of an object? Illustrate with suitable example.
15. A train starting from rest attains a velocity of 72 km/h in 5 minutes. Assuming the acceleration is uniform, find
- (i) the acceleration.
 - (ii) the distance travelled by the train for attaining this velocity.

CHEMISTRY WORKSHEET

Q1. The property to flow is unique to fluids. Which one of the following statements is correct?

- (a) Only gases behave like fluids.
- (b) Gases and solids behave like fluids.
- (c) Gases and liquids behave like fluids.
- (d) Only liquids are fluids.

Q2. Seema visited a Natural Gas Compressing Unit and found that the gas can be liquefied under specific conditions of temperature and pressure. While sharing her experience with friends she got confused. Help her to identify the correct set of conditions.

- (a) Low temperature, low pressure
- (b) High temperature, low pressure
- (c) Low temperature, high pressure
- (d) High temperature, high pressure

Q3. S.I. unit of temperature is:

- (a) Pascal
- (b) Newton

- (c) Kelvin
- (d) Celsius

Q4. Boiling point of water is 100°C . Can we make it boil at 98°C or at 102°C ? How?

Q5. If two ice cubes are pressed hard between the palms, what will happen when pressure is released after sometime? Give reason.

Q6. Difference between a gas and a vapour.

Q7. Nayara and Smeera went for shopping in summers. Smeera was interested in buying a dress for herself which was made of synthetic fabric. Nayara advised her to choose a dress made of cotton fabric.

(i) Why did Nayara preferred cotton fabric dress?

(ii) What is the difference between synthetic and cotton fabric?

Q8. Give reasons:

(i) Sponge is a solid, yet we are able to compress it.

(ii) Sugar when kept in Jars of different shapes adopts the shape of the jar, yet we call it solid.

Q9. If a substance does not show sharp melting point, what does it mean and why?

Q10. (a) Identify the solute and solvent in tincture of iodine.

(b) Why particles in a true solution cannot be seen with naked eye?

BIOLOGY WORKSHEET

SECTION A: MULTIPLE CHOICE QUESTIONS (1 mark each)

1. Which These contain their own DNA and ribosomes
 - A. Mitochondria
 - B. Golgi apparatus
 - C. Plastids
 - D. a & c
2. The proteins essential for building the cell membrane are manufactured by
 - A. Rough endoplasmic reticulum
 - B. Plasma membrane
 - C. Mitochondria
 - D. Golgi apparatus
3. X is a double membrane organelle that oxidizes food present in the cell to release energy. X is:
 - A. Nucleus
 - B. Endoplasmic reticulum
 - C. Mitochondrion
 - D. Chloroplast
4. In summer, the leaves of a potted plant droop when the soil becomes dry. Which cell organelle makes the leaves droop?
 - A. Nucleus, as it stops making DNA.

- B. Cell wall, as it starts to shrink.
- C. Lysosome, as it is releasing the digestive enzymes.
- D. Vacuole, as it loses all the water.

5. Select the odd one out.

- A. The movement of water across a semi permeable membrane is affected by the amount of substances dissolved in it.
- B. Membranes are made of organic molecules like proteins and lipids.
- C. Molecules soluble in organic solvents can easily pass through the membrane.
- D. Plasma membranes contain chitin sugar in plants.

SECTION B: ASSERTION & REASON (1 mark each)

In each of the following questions, a statement of assertion is given, and a corresponding statement of reason is given just below it. Of the statements given below mark the correct answer as:

- A) Both the assertion and reason are true and reason is correct explanation of assertion.
- B) Both assertion and reason are true but reason is not correct explanation of assertion.
- C) If the assertion is true but the reason is false.
- D) If the assertion is false but the reason is true.

6. Assertion (A): Multicellular organisms have higher survival rate than unicellular organisms.
Reason (R): In Multicellular organism, dead cells are replaced by new cells.

7. Assertion (A): Lysosomes are known as suicidal bag of cells.
Reason (R): Lysosomes contain powerful enzymes capable of breaking down all organic material.

8. Assertion (A): Vacuoles are storage sacs for solid or liquid contents.
Reason(R): In amoeba, the vacuoles do not help in expelling excess water from the cell.

9. Assertion (A): The endoplasmic reticulum which lacks ribosomes is called smooth endoplasmic reticulum (SER).
Reason(R): SER is mainly involved in protein synthesis.

10. Assertion (A): Variations occur during meiosis.
Reason (R): There is exchange of segments between homologous chromosomes.

SECTION C: SHORT ANSWER QUESTIONS – 2 Marks

11. Why does the skin of your finger shrink when you wash clothes for a long time?

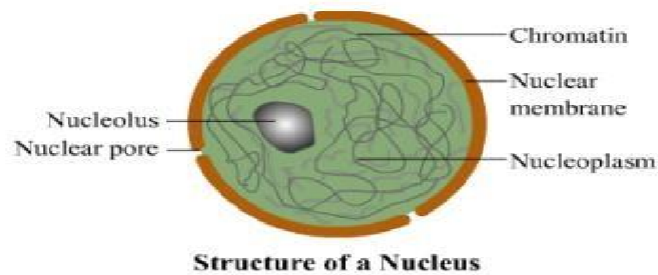
12. What is the significance of pores present on the nuclear membrane?

13. Give reason why;

- A) Plant cells possess large sized vacuole.
- B) Roots of plants have mostly leucoplasts in them than chloroplasts.

14. Look at the diagram carefully:

- A) Which part of the above diagram can carry the _hereditary material_?
- B) Why is it called the _control centre_ of the cell ?



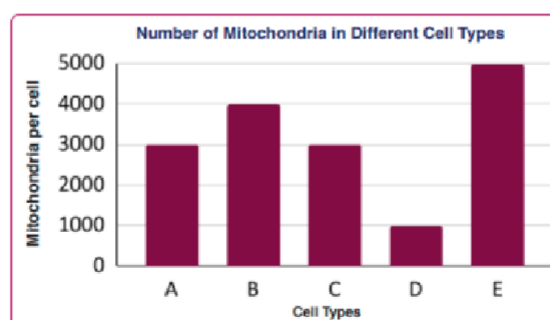
SECTION D: SHORT ANSWER QUESTIONS – 3 Marks

15. a) Write two points of difference between nuclear region of a bacterial cell and nuclear region of an animal cell.
- b) Which structure present in the nuclear region of a living cell bear genes?
- c) Why lysosomes are called suicidal bags of the cell?
16. Grass looks green, and papaya appears yellow. Which is the cell organelle responsible for this? Write the structural features of this organelle and its types.
17. Differentiate between rough and smooth endoplasmic reticulum. How is the endoplasmic reticulum important for membrane biogenesis?

SECTION F: CASE-BASED QUESTION – 4 Marks

21. Read the following information and answer the questions based on information and related studied concepts.

All living organisms are made up of cells. Depending on the function performed by an organ, it is made up of different types of cells. Eg: the cells which communicate messages across the body, called the nerve cells, have a different design and internal structure when compared to the elastic muscle cells which make up parts, like the arm biceps or the pumping machine, our heart. One of the organelles of a cell is mitochondria (singular: mitochondrion), which use oxygen to burn glucose and produce the energy required by the cells. This is why they are also called the powerhouse of the cell. A study was conducted to find a correlation between the number of mitochondria present in a cell and the cell type. The graph shown in Fig. captures this data for five different cell types.



Bar chart showing number of mitochondria per cell for different cell types.

SECTION G: LONG ANSWER – 5 Marks

22. What is cell division? Why is it necessary? State the differences between mitosis and meiosis.
23. Illustrate a plant cell as seen under an electron microscope. How is it different from animal cells?
24. Differentiate between prokaryotic and eukaryotic cell.

SST

I. Prepare a Project Report /PPT on any one of the following natural / manmade disasters: -

- Earthquake
- Deforestation
- Landslides
- Floods
- Drought
- Cloud Burst
- War

Areas to be covered: -

- Causes
- Impact
- Mitigation strategies
- Case study (Recent evidences with pictures)

Note: - The Project Report/PPT should be presented in the following order: -

- Cover page showing project title, student information and year
- List of contents
- Report should be submitted in a file (12-15 pages).
- PPT can have minimum of 12-15 slides.

II. Interdisciplinary Project:

Topics:

Natural Vegetation and Wildlife (Geography)

Forest Society and Colonialism (History)

Create a handbook providing information about:

- Different types of forests present in India
- Role of Forest Research Institute of India in forest conservation

Note: Handbook should be informative. Use of maps, related pictures, Facts and figures must be done.

The hand book can also be presented digitally in the form of PPT/ Audiovisual etc.

Kindly send the digital projects on following email ID's.

Pizone@prabhatacademy.net

HINDI

1. हमारे देश के संविधान में प्रत्येक नागरिक के लिए कुछ अधिकारों एवं कर्तव्यों को निर्धारित किया गया है। उन में से किन्हीं तीन अधिकार और कर्तव्यों का वर्णन कीजिए और यह भी लिखिए की क्या आप अपने उन कर्तव्य व अधिकारों का पालन करते हैं या नहीं।
2. "अगर आप एक दिन के लिए अपनी कक्षा के किसी भी एक विषय के शिक्षक/शिक्षिका बन जाएँ, तो उसे विषय को और सशक्त बनाने के लिए क्या-क्या निर्णय लेंगे?" किन्हीं 5 बिंदुओं का वर्णन कीजिए ।
3. अपने मनपसंद हिंदी लेखक की पुस्तक पढ़ कर उसकी पुस्तक समीक्षा कीजिए। पुस्तक पढ़ने के बाद निम्नलिखित बिंदुओं के आधार पर उसकी समीक्षा कीजिए:-

General Instructions:-

- Write all answers neatly in a separate notebook.
- Use proper headings and points.
- Draw diagrams wherever required.
- Answer should be in your own words.
- Give real-life examples where possible.
- Submit the assignment after summer vacation.

Section A: Fundamentals of Physical Education

Q.1

Define Physical Education. Explain its importance in the overall development of an individual (physical, mental, emotional, and social).

Q.2

Write short notes on any four objectives of Physical Education.

Q.3

Explain the difference between:

- Physical Education and Physical Activity
- Exercise and Sports

Section B: Health and Fitness

Q.4

What is physical fitness? Explain its components:

- Strength
- Endurance
- Flexibility
- Speed
- Coordination

Q.5

Write a detailed note on “Healthy Lifestyle”. Include:

- Balanced diet
- Regular exercise
- Proper sleep
- Hygiene

Q.6

Explain the effects of exercise on the human body (at least five points).

Section C: Sports and Games

Q.7

Choose any one game (Football, Basketball, Cricket, Volleyball) and write:

- Basic rules
- Equipment used
- Court/field dimensions (basic idea)
- Skills required

Q.8

Explain the importance of warm-up and cool-down exercises before and after sports activity.

Q.9

Write short notes on any two:

- Olympics
- Asian Games
- Paralympics

Section D: Yoga and Wellness

Q.10

Define Yoga. Explain its importance in daily life.