

SHREE VASISHTHA VIDHYALAYA

(English Medium, CBSE affiliated, Member-NPSC, Recipient-International School Award)

PA-III Assignment: 2026 27

Class-XI Science

DATE OF SUBMISSION: 22-10-2026 (Thursday)

1.	ENGLISH CORE
	Level 1: Easy 1. Name the author of <i>The Adventure</i> . 2. On which train, and between which two cities, does Professor Gaitonde travel? 3. Which is the first stop of the train after it leaves Pune? 4. Who is the poet of <i>Childhood</i> ? 5. What does the poet keep asking about his childhood? 6. According to the poet, where can childhood still be found? 7. Rearrange the words to form a meaningful sentence: a / our / organised / road-safety / rally / school 8. Fill in the blank: In the history Professor Gaitonde knows, the East India Company was _____ after 1857. 9. Name any four things a good poster must contain. 10. Which battle, won by the Marathas, changed the course of history in the story? Level 2: Intermediate 11. Why does Professor Gaitonde decide to go to a big library in Bombay? 12. Mention two differences between the Jijamata Express journey and the Pune–Bombay journey the professor knew. (30–40 words) 13. How did the Maratha victory at Panipat affect the East India Company? (30–40 words) 14. What does the poet realise when he finds that Hell and Heaven cannot be located in Geography? What does this show about growing up? (30–40 words) 15. Why does the poet ask the same question about his childhood again and again? What does it suggest about the way we grow up? (30–40 words) 16. Rearrange the words to form a meaningful sentence: unless / we / conserve / water / the / shortage / will / worsen 17. Your school is organising a Book Fair from 20 to 22 November 2026. As the Library Secretary, draft a notice in not more than 50 words. 18. Design a poster in not more than 50 words for a 'Say No to Plastic' campaign in your school. Include a slogan, two tips, and the organiser's name. 19. Describe in 40–50 words how Professor Gaitonde's feelings change from the time he reaches Bombay to the time he finishes reading in the library. 20. Is childhood completely lost, according to the poem? Explain in 40–50 words with reference to the poem. Level 3: Advanced 21. Rearrange the words to form a meaningful sentence: not / only / did / the / professor / lose / his / way / but / he / also / lost / his / certainty / about / history 22. Rearrange the words to form a meaningful sentence: hardly / had / the / speaker / finished / when / the / audience / broke / into / applause 23. Rearrange the words to form a meaningful sentence: had / he / not / been / rushed / to / hospital / he / would / not / have / survived 24. " <i>The Adventure</i> shows that history is shaped more by chance than by choice." Do you agree? Support your answer with evidence from the story. (100–120 words) 25. Compare Professor Gaitonde's attitude towards the India he sees at the beginning of the story with his attitude at the end. What causes the change? (100–120 words)

	26. Is the poet's attitude in <i>Childhood</i> nostalgic, critical of the adult world, or both? Justify your answer with reference to the poem. (100–120 words) 27. Both <i>The Adventure</i> and <i>Childhood</i> deal with a movement from the familiar to the unfamiliar. Discuss how each lesson presents this idea. (100–120 words) 28. A heavy downpour has flooded the main road near your school, and several vehicles have stalled. As a reporter for a local daily, write a news report in 100–120 words. Include a headline, byline, an eyewitness quote and the measures being demanded by residents. 29. Design a poster in not more than 50 words to spread awareness among parents and students about online fraud. Include a slogan, two precautions, the date and venue of an awareness session, and the organiser's name. 30. Due to a sudden state-wide holiday, your school has to postpone the Periodic Test III scheduled for 14 October 2026. As the Examination In-charge, draft a notice in not more than 50 words informing students and parents, and stating the revised date will be announced soon.
2.	PHYSICS
	Q1. Two particles of masses 2 kg and 3 kg are placed at $x = 0$ m and $x = 5$ m, respectively. The centre of mass of the system is located at: (a) 2 m (b) 3 m (c) 2.5 m (d) 5 m Q2. The moment of inertia of a thin uniform rod of mass M and length L about an axis passing through its centre and perpendicular to its length is: (a) $ML^2/3$ (b) $ML^2/12$ (c) $ML^2/2$ (d) ML^2 Q3. Why is it easier to open a door by applying force at its handle rather than near its hinges? Explain using the concept of torque. Q4. Why does a spinning ice skater rotate faster when they pull their arms closer to their body? Q5. Three particles of masses 1 kg, 2 kg and 3 kg are placed at coordinates (0, 0), (2, 0) and (0, 4) metres, respectively. Calculate the coordinates of the centre of mass. Q6. A force of 10 N acts perpendicular to a wheel of radius 0.5 m. If the moment of inertia of the wheel is 2 kg m^2, calculate: (a) The torque acting on the wheel. (b) The angular acceleration produced. Q7. A solid disc of mass 4 kg and radius 0.5 m rotates at 10 rad/s about its central axis. Calculate: (a) Its moment of inertia. (b) Its rotational kinetic energy. Q8. If the distance between two masses is doubled, the gravitational force between them becomes: (a) Twice the original force (b) Half the original force (c) One-fourth the original force (d) Four times the original force Q9. The value of acceleration due to gravity at a height equal to Earth's radius above its surface is approximately: (a) g (b) $g/2$ (c) $g/4$ (d) $2g$ Q10. Why does the value of acceleration due to gravity decrease as we go deep inside the Earth? Assume the Earth has uniform density. Q11. Astronauts inside an orbiting satellite appear weightless. Does this mean that Earth's gravitational force on them is zero? Explain. Q12. Two objects of masses 10 kg and 20 kg are separated by a distance of 2 m. Calculate the gravitational force between them. Given: $G = 6.67 \times 10^{-11} \text{ N m}^2/\text{kg}^2$. Q13. Calculate the escape velocity from the surface of Earth. Given: $g = 9.8 \text{ m/s}^2$ $R = 6.4 \times 10^6 \text{ m}$ Q14. A satellite revolves in a circular orbit at a height equal to Earth's radius above the surface. Calculate its orbital velocity. Given: $g = 9.8 \text{ m/s}^2$ and $R = 6.4 \times 10^6 \text{ m}$. Q15. Derive the expression for acceleration due to gravity at a height h above Earth's surface. Hence, show that when $h = R$, the acceleration due to gravity becomes $g/4$.

	Q16. Derive the expression for gravitational potential energy of a body of mass m at a distance r from the centre of Earth, taking potential energy to be zero at infinity. What is its value at Earth's surface? Q17. The SI unit of stress is: A. Newton (N) B. Pascal (Pa) C. Joule (J) D. Metre (m) Q18. Young's modulus of a material is defined as the ratio of: A. Strain to stress B. Stress to strain C. Force to extension D. Extension to original length Q19. Differentiate between elastic deformation and plastic deformation. Give one example of each. Q20. Why are bridges and buildings designed using materials with suitable elastic properties? Explain the importance of the elastic limit. Q21. A wire of length 2 m and cross-sectional area $1 \times 10^{-6} \text{ m}^2$ extends by 1 mm when a force of 100 N is applied. Calculate Young's modulus of the material. Q22. A wire of length 1 m and cross-sectional area $2 \times 10^{-6} \text{ m}^2$ is stretched by 1 mm under a gradually applied force. If Young's modulus is $2 \times 10^{11} \text{ Pa}$, calculate the elastic potential energy stored in the wire. Q23. Derive the expression for the extension produced in a wire when a tensile force is applied. Hence, show that $\Delta L = \frac{FL}{AY}$ where F is the applied force, L is the original length, A is the cross-sectional area and Y is Young's modulus. Q24. Two wires made of the same material have equal lengths. Wire A has twice the cross-sectional area of wire B. If equal tensile forces are applied within the elastic limit, compare their extensions. Q25. A solid sphere rolls without slipping down an inclined plane from a vertical height of 1.4 m. Calculate its speed at the bottom.
3.	CHEMISTRY
	Chapter 5: Thermodynamics and Chapter 6: Equilibrium CBSE Pattern Intermediate to Difficult Level Theory + Numericals Instructions for Students 1. Attempt all questions. 2. Show complete calculations, formulae, substitutions and units for numerical problems. 3. Use appropriate significant figures wherever necessary. Section A: Thermodynamics — 15 Questions Part I: Conceptual and Application-Based Questions Q1. Define a system, surroundings and boundary. Differentiate between open, closed and isolated systems with one example of each. Q2. State the first law of thermodynamics. Explain the sign conventions for heat (q) and work (w) using the relation: $\Delta U = q + w$ Q3. Differentiate between state functions and path functions. Classify internal energy, enthalpy, heat and work accordingly. Q4. Explain the difference between exothermic and endothermic reactions. Draw schematic enthalpy diagrams for both types of reactions. Q5. State Hess's law of constant heat summation. Explain how it helps in calculating the enthalpy change of a reaction that cannot be measured directly. Q6. Define standard enthalpy of formation and standard enthalpy of combustion. Why is the standard enthalpy of formation of an element in its most stable standard state taken as zero? Q7. Explain the relationship between enthalpy change (ΔH) and internal energy change (ΔU) for reactions involving ideal gases. Write the relevant equation and explain each term. Q8. What is entropy? Explain why the entropy of a system generally increases when a solid changes

into a liquid and then into a gas.

Q9. Define Gibbs energy and explain its significance in predicting the spontaneity of a process at constant temperature and pressure.

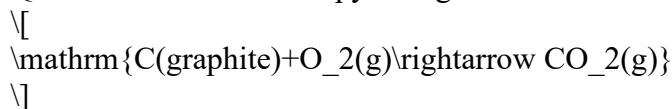
Part II: Numerical Problems

Q10. A system absorbs 500 J of heat and performs 200 J of work on its surroundings. Calculate the change in internal energy of the system.

Q11. A gas expands against a constant external pressure of 2.0 bar from 5.0 L to 12.0 L. Calculate the work done on the system in joules.

Given:).

Q12. Calculate the enthalpy change for the reaction:



Given the standard enthalpies of formation:

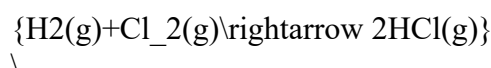
$$\Delta_f H^\circ\{\text{CO}_2\} = -393.5 \text{ kJ mol}^{-1}$$

$$\Delta_f H^\circ\{\text{C}\} = 0$$

$$\Delta_f H^\circ\{\text{O}_2\} = 0$$

Q13. For a reaction, $\Delta U = -150 \text{ kJ mol}^{-1}$ and $\Delta n_g = -2$ at 300 K. Calculate ΔH .

Q14. Calculate the enthalpy of the reaction below using the given bond enthalpies:



Bond Bond enthalpy

H–H 436 kJ mol^{–1}

Cl–Cl 243 kJ mol^{–1}

H–Cl 431 kJ mol^{–1}

Q15. For a reaction at 298 K, $\Delta H = +40 \text{ kJ mol}^{-1}$ and $\Delta S = +150 \text{ J mol}^{-1} \text{ K}^{-1}$.

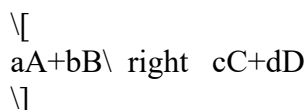
Calculate ΔG and determine whether the reaction is spontaneous under these conditions.

Section B: Equilibrium — 15 Questions

Part I: Conceptual and Application-Based Questions

Q1. Define chemical equilibrium. Explain why chemical equilibrium is described as dynamic rather than static.

Q2. State the law of mass action. Write the general expression for the equilibrium constant K_c for the reaction:



Q3. Differentiate between K_c and K_p . Derive the relationship:

$$K_p = K_c(RT)^{\Delta n_g}$$

Q4. Explain Le Chatelier's principle. Discuss the effects of changes in concentration, pressure and temperature on a system at equilibrium.

Q5. What is the reaction quotient Q_c ? Explain how comparing Q_c with K_c predicts the direction in which a reaction proceeds.

Q6. Explain the effect of a catalyst on a chemical equilibrium. Does a catalyst change the equilibrium constant? Justify your answer.

Q7. Define acids and bases according to the Brønsted–Lowry theory. Identify the conjugate acid–base pairs in the reaction:

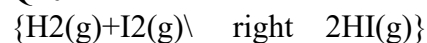


Q8. Define pH and pOH. Derive the relationship between them at 25°C, given that $K_w = 1.0 \times 10^{-14}$

Q9. Explain the common-ion effect with a suitable example. How does it affect the ionisation of a weak electrolyte?

Part II: Numerical Problems

Q10. For the reaction:



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At equilibrium, the concentrations are:

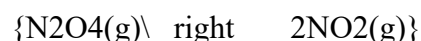
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$$[\text{H}_2] = 0.20 \text{ M}, [\text{I}_2] = 0.20 \text{ M}$$

$$[\text{HI}] = 1.60 \text{ M}$$

Calculate K_c .

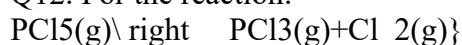
Q11. For the equilibrium:



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The equilibrium concentrations are $[\text{N}_2\text{O}_4] = 0.40 \text{ M}$ and $[\text{NO}_2] = 0.20 \text{ M}$. Calculate K_c .

Q12. For the reaction:



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At a particular temperature, $K_c = 0.040$. Calculate K_p at 300 K.

Q13. Write the characteristics of equilibrium constant

Q14. Calculate the pH of a 0.010 M solution of a weak acid HA if its acid dissociation constant is $K_a = 1.0 \times 10^{-5}$. Assume that the ionisation is small compared with the initial concentration.

Q15. State the Le Chatelier's principle.

4. MATHEMATICS

Q1. Expand the following $(1 - x + x^2)^4$.

Q2. Show that $2^{4n+4} - 15n - 16$, where $n \in \mathbb{N}$ is divisible by 225.

Q3. Which of the following is larger? $99^{50} + 100^{50}$ or 101^{50} .

Q4. The number of terms in the expansion of $(a + b + c)^n$, where $n \in \mathbb{N}$ is _____.

Q5. Case Study:

For a binomial $(a + b)^n$, the expansion is given by

$$(a + b)^n = {}^nC_0 a^n + {}^nC_1 a^{n-1} b + {}^nC_2 a^{n-2} b^2 + \dots + {}^nC_n b^n = \sum_{r=0}^n {}^nC_r a^{n-r} b^r;$$

where ${}^nC_r a^{n-r} b^r$ is the general term i.e., $(r+1)^{\text{th}}$ term in the expansion.

Based on the above information, answer the following questions.

(a) Find the binomial coefficient of 16th term in the binomial $(24x + 35y)^{63}$.

(b) In the binomial $(a + b)^6$, find the fourth term.

(c) In the binomial expansion of $(a + b)^7$, which term is $35a^4 b^3$?

(d) Find the coefficient of x^{40} in the expansion of $(1 + 2x + x^2)^{27}$.

Q6. Which term of the GP 2, 8, 32, 128, ... is 131072?

Q7. If a, b, c, d are in GP, prove that $(a^2 + b^2 + c^2)(b^2 + c^2 + d^2) = (ab + bc + cd)^2$.

	Q8. Find the GP whose 4th and 7th terms are $\frac{1}{18}$ and $\frac{-1}{486}$ respectively. Q9. If a and b are the roots of $x^2 - 3x + p = 0$ and c and d are the roots of $x^2 - 12x + q = 0$, where a, b, c, d form a GP, prove that $(q + p) : (q - p) = 17:15$. Q10. The product of three numbers in GP is 216. If 2, 8, 6 be added to them in that order, we get an AP. Find the numbers. Q11. If a, b, c are three consecutive terms of an A.P. and x, y, z are three consecutive terms of a G.P. Then prove that $x^{b-c} \cdot y^{c-a} \cdot z^{a-b} = 1$ Q12. In a G.P. of even number of terms, the sum of all terms is 5 times the sum of the odd terms. Find the common ratio of the G.P. Q13. If in an A.P., $S_n = q n^2$ and $S_m = qm^2$, where S_r denotes the sum of r terms of the A.P., then find the value of S_q Q14. A G.P. consists of an even number of terms. If the sum of all the terms is 5 times the sum of terms occupying odd places, then find the common ratio. Q15. In an A.P., the first term is 2 and the sum of the first five terms is one-fourth of the next five terms. Show that 20th term is -112. Q16. The ratio of the A.M. and G.M. of two positive numbers a and b, is m: n. Show that $a : b = (m + \sqrt{m^2 - n^2}) : (m - \sqrt{m^2 - n^2})$. Q17. If the m^{th} term of an A.P be $\frac{1}{n}$, and $n^{th} = \frac{1}{m}$ then show that its $(mn)^{th}$ term is 1. Q18. In an A.P, it is being given that $\frac{T_4}{T_7} = \frac{2}{3}$. Find $\frac{T_7}{T_{10}}$. Q19. Find the value of x such that $1 + 4 + 7 + \dots + x = 715$. Q20. Find the equation of the line passing through (2, -1) with slope 4. Q21. Find the equation of the line passing through (2, 3) and perpendicular to $x + 2y - 6 = 0$. Q22. Find the angle between the two lines $y=2x+1$ and $y=-x+4$. Q23. Find the equation of the line passing through the intersection of $x+y=5$, $2x-y=1$ and parallel to the line $3x+2y-7=0$.
5.	BIOLOGY
	Three-Level Question Bank Chapters covered: Respiration in Plants; Photosynthesis in Higher Plants; Exchange of Gases and Breathing; Body Fluids and Circulation. Total: 30 questions — 10 Basic, 10 Standard and 10 HOTS questions. Questions from all four chapters are included at each level. LEVEL 1 – BASIC Focus: Recall, definitions and fundamental concepts Respiration in Plants 1. What is cellular respiration? 2. Define glycolysis. 3. Where does glycolysis occur in a cell? Photosynthesis in Higher Plants 4. Define photosynthesis. 5. Name the cell organelle in which photosynthesis occurs. 6. What is photolysis of water? Exchange of Gases and Breathing 7. Define tidal volume. 8. What is the role of alveoli in the lungs? Body Fluids and Circulation 9. Name the four chambers of the human heart. 10. What is the function of platelets?

LEVEL 2 – STANDARD

Focus: Conceptual understanding, comparisons and application

Respiration in Plants

1. Differentiate between aerobic respiration and anaerobic respiration.
2. Explain why glycolysis is a common pathway for aerobic and anaerobic respiration.
3. Calculate the respiratory quotient when 6 molecules of CO_2 are released and 6 molecules of O_2 are consumed.

Photosynthesis in Higher Plants

4. Differentiate between cyclic and non-cyclic photophosphorylation.
5. Describe the three major phases of the Calvin cycle.
6. Differentiate between C_3 and C_4 plants with respect to the first stable product and primary CO_2 acceptor.

Exchange of Gases and Breathing

7. Explain how changes in thoracic volume and pressure cause inspiration.
8. Describe the transport of carbon dioxide in human blood.

Body Fluids and Circulation

9. Why is the wall of the left ventricle thicker than that of the right ventricle?
10. Explain the pathway of blood through the human heart, beginning with the venae cavae.

LEVEL 3 – HOTS

Focus: Reasoning, data interpretation and competency-based application

Respiration in Plants

1. A poison inhibits the mitochondrial electron transport system. Predict its effect on ATP production and explain why.
2. A germinating seed has a respiratory quotient of approximately 0.7. Predict the predominant respiratory substrate and justify your answer.

Photosynthesis in Higher Plants

3. A plant receives bright light but very little carbon dioxide. Predict the effect on its photosynthetic rate and identify the limiting factor.
4. A C_3 plant and a C_4 plant are exposed to high temperature and limited water availability. Which is likely to maintain higher photosynthetic efficiency? Justify your answer.

Exchange of Gases and Breathing

5. A person has a tidal volume of 500 mL and breathes 14 times per minute. Calculate the approximate volume of air breathed per minute.
6. Explain why carbon monoxide poisoning severely reduces oxygen transport even if the lungs are functioning normally.

Body Fluids and Circulation

7. A person's heart rate is 72 beats/min and stroke volume is 70 mL/beat at rest. During exercise these become 120 beats/min and 100 mL/beat. Calculate cardiac output in both conditions and the percentage increase.
8. A patient has a very low platelet count. Explain how this may affect haemostasis and the risk of bleeding.

6.**INFORMATICS PRACTICES**

1. Define a database and a DBMS. Give one example of a DBMS.
2. Write any two advantages of using a DBMS.
3. Differentiate between data and information.
4. Differentiate between a record and a field.
5. What is a primary key? State any two properties.
6. Differentiate between a primary key and a foreign key.
7. Differentiate between primary key and alternate key.
8. What are the advantages of DBMS?
9. Differentiate between data and information.
10. What is a candidate key? Give an example.

11. `b = "Computer Science and Technology"`

`a = list(b)`

Predict the output of the following statements:

- a. `print(a)`
- b. `print(len(a))`
- c. `print(a[2:9])`
- d. `print(a[:8])`
- e. `print(a[4:14:2])`
- f. `print(a[-1:-8:-1])`
- g. `print(a[::-4])`
- h. `print(a[-2:-12:-2])`
- i. `print(a[9:22])`
- j. `print(a[14:4:-1])`
- k. `print(a[-7:])`
- l. `print(a[:-4])`
- m. `print(a[3:-3])`
- n. `print(a[::-1])`
- o. `print(a[1:20:3])`

12. Given the following list:

`python`

`L4 = [100, 200, ["Sun", "Moon"], 300, 400, ["Star", "Sky"], 500]`

Predict the output of the following statements:

- (a) `L4[-1]`
- (b) `L4[2:7:2]`
- (c) `L4[2][1]`
- (d) `L4[2][0][0:2]`
- (e) `L4[5][0]`
- (f) `L4[0:5:2]`

13. Given the following list:

`python`

`L5 = [11, 22, ["Laptop", "Mouse"], 33, 44, ["Keyboard", "Monitor"], 55, 66]`

Predict the output of the following statements:

- (a) `L5[-2]`
- (b) `L5[2:7:2]`
- (c) `L5[2][0]`
- (d) `L5[2][0][2:5]`
- (e) `L5[5][1]`
- (f) `L5[1:8:3]`

14. WAPP to find the number of occurrences of each character present in the city inputted by the user.

15. WAPP to find the number of occurrences of each character present in the fruit name inputted by the user.

16. Write the program to input a name of an employees and their salaries detailed like basic salary house rent and convenience allowance. Calculate the total salary of each employee and display it.

17. Write a program to input and names and phone numbers to store in a dictionary and print the phone numbers of the particular name.

18. Write a function to convert a number entered by the user into the corresponding number in words. For example if the input is 985, then the output should be "Nine Eight Five".

19. Dictionary Operations

Find the output of the following statements:

- (a) `print(stateCapital.get("Goa"))`
- (b) `print(stateCapital.keys())`
- (c) `print(stateCapital.values())`

	<pre>(d) print(stateCapital.items()) (e) print(len(stateCapital)) (f) print("gujarat" in stateCapital) (g) print(stateCapital.get("Punjab")) (h) del stateCapital["Kerala"] print(stateCapital)</pre> 20. Consider the following dictionary: fruit = {"Apple": 100, "Banana": 40, "Mango": 80, "Orange": 60} Find the output of the following statements: (a) print(fruit.get("Mango")) (b) print(fruit.keys()) (c) print(fruit.values()) (d) print(fruit.items()) (e) print(len(fruit)) (f) print("Grapes" in fruit) (g) print(fruit.get("Apple")) (h) del fruit["Banana"] print(fruit)
7.	PHYSICAL EDUCATION
	Level 1: Easy Questions 1 mark each Basic concepts and definitions 1. Define physical fitness. 2. What is meant by wellness? 3. Define sports training. 4. What is doping in sports? 5. What is the meaning of training load? 6. Name any two components of physical fitness. 7. What is warming-up? 8. What is adaptation in sports training? 9. Write the full form of PRICE in first aid. 10. What is meant by recovery in sports training? 11. State one disadvantage of doping. 12. Name any two qualities of a good sports leader. Level 2: Intermediate Questions 2–3 marks each Understanding and application 13. Differentiate between health and wellness. 14. Explain any three principles of sports training. 15. Differentiate between health-related and skill-related components of physical fitness. 16. Explain the importance of recovery after strenuous exercise. 17. Describe any three dimensions of wellness. 18. Differentiate between warming-up and limbering down. 19. Explain any three disadvantages of doping in sports. 20. How do traditional Indian games promote physical fitness and social well-being? 21. Differentiate between skill and technique with suitable examples. 22. Explain the relationship between overload, adaptation, and recovery. 23. Describe any three qualities of effective leadership in sports.

	24. Explain the importance of regular physical activity in maintaining a healthy lifestyle. Level 3: Advanced Questions 5 marks each Analysis, detailed answers and case studies 25. Explain the relationship between physical fitness, health, and wellness. Discuss how regular sports participation contributes to all three. 26. Discuss the major principles of sports training. Explain how a coach can apply these principles while preparing an athlete for competition. 27. Differentiate between health-related and skill-related fitness components. Explain their importance in improving overall physical fitness and sports performance. 28. Explain training load, overload, adaptation, and recovery. How can improper management of these factors affect an athlete's performance? 29. Discuss the importance of warming-up and limbering down. Explain their role in preparing the body for physical activity and supporting recovery. 30. Explain doping in sports and discuss its harmful effects on an athlete's physical health, mental well-being, career, and sporting ethics. 31. A Class 11 student spends long hours studying, sleeps irregularly, and rarely exercises. The student also feels tired during sports practice. Identify the possible problems and suggest five measures to improve physical fitness and wellness. 32. A football player increases training intensity suddenly and skips recovery sessions. After a few days, the player experiences fatigue and reduced performance. Analyse the situation using the principles of overload, adaptation, and recovery, and suggest suitable corrective measures. 33. Explain how traditional and regional games can promote physical fitness, leadership, teamwork, and social wellness among school students. 34. A young athlete is advised by a friend to take a performance-enhancing substance to improve competition results. Explain why this decision is harmful and suggest ethical ways to improve performance through proper training and recovery. 35. Explain the role of physical education teachers and coaches in promoting wellness, preventing doping, and developing responsible sporting behaviour among students. 36. Case study: A school organises a fitness programme involving running, yoga, traditional games, and team sports. One student follows a regular training schedule, while another trains excessively, ignores rest, and considers using prohibited substances to improve performance. Answer the following: (a) Identify two benefits of the school fitness programme for wellness. (b) Explain why recovery is important for the student who trains excessively. (c) State two disadvantages of doping. (d) Suggest two measures that can help students improve performance safely and ethically.
8.	PSYCHOLOGY
	Level 1: Simple 1. What is learning? Explain any two characteristics of learning. 2. Differentiate between learning and performance. 3. What is classical conditioning? 4. Who conducted the famous experiment on classical conditioning using dogs? 5. Define the following terms: - Unconditioned stimulus 6. What is operant conditioning? 7. Who proposed the theory of operant conditioning? 8. What is reinforcement? 9. Differentiate between positive reinforcement and negative reinforcement. 10. What is punishment in the context of learning? 11. Define observational learning.

12. What is cognitive learning?
13. What is latent learning?
14. Explain the meaning of generalisation and discrimination in learning.
15. What is a learning disability? Mention one example.

Level 2: Intermediate

1. Explain the major principles of classical conditioning with a suitable example.
2. Differentiate between classical conditioning and operant conditioning.
3. Explain the role of reinforcement in shaping behaviour.
4. How does negative reinforcement differ from punishment? Give one example of each.
5. Explain shaping and how it can be used to develop a new behaviour.
6. Describe the role of observational learning in children's behaviour.
7. Explain the concepts of generalisation and discrimination with examples from everyday life.
8. What is preparedness for learning? Explain its importance.
9. Describe the stages involved in skill learning.
10. **Case study:** Every time the school bell rings, students immediately begin packing their bags because they associate the bell with the end of the school day.
 - a. Identify the learning process illustrated in this situation.
 - b. Identify the conditioned stimulus.
 - c. Explain how the association may have developed.

Level 3: Hard

1. "Learning is a relatively permanent change in behaviour or behavioural potential resulting from experience." Explain this statement and distinguish learning from temporary changes in behaviour.
2. Compare classical conditioning, operant conditioning, and observational learning on the basis of how learning occurs, the role of the learner, and the role of consequences.
3. Critically examine the role of reinforcement and punishment in modifying behaviour. Why might the same consequence produce different outcomes in different individuals?
4. Explain how generalisation, discrimination, extinction, and spontaneous recovery are related to classical conditioning.
5. Discuss how cognitive processes contribute to learning. Explain latent learning with a suitable example.
6. "An individual can learn a behaviour without immediately demonstrating it." Justify this statement using observational and latent learning.
7. Explain the stages of skill learning and discuss how practice and feedback contribute to the development of expertise.
8. Discuss the concept of transfer of learning. Differentiate between positive, negative, and zero transfer with suitable examples.
9. Explain the importance of biological preparedness in learning. How might it influence what an organism learns more easily?
10. **Case study:** A student feels anxious whenever a particular classroom is mentioned. Initially, the student experienced anxiety only during difficult tests in that classroom. After several experiences, merely entering the classroom begins to produce anxiety, even when no test is scheduled.
 - a. Identify the type of conditioning that may explain the student's response.
 - b. Identify the likely unconditioned stimulus, unconditioned response, conditioned stimulus, and conditioned response.
 - c. Explain how extinction might occur in this situation.
 - d. Why might the anxiety return after it has reduced?

9. ARTIFICIAL INTELLIGENCE

Level-1

1. Who is an entrepreneur?
2. What are the three types of business activities?
3. What are the different doubts and fears that come to an entrepreneur's mind?

4. What are the values that make an entrepreneur successful?
5. What does attitude mean in the context of an entrepreneur?
6. What are the key problems an entrepreneur may face while running a business?
7. What are the different ways in which an entrepreneur can think to solve problems?
8. Python Program to perform arithmetic operations based on user input.

Level-2

1. What is a Capstone Project? Explain the important skills that students develop through a Capstone Project and give some examples of Capstone Projects.
2. What is Problem Decomposition? Explain the steps involved in Problem Decomposition.
3. Explain the different steps of the Design Thinking framework.
4. Anakha has a desktop computer. She is planning to buy a new laptop for educational purposes. Create an Empathy Map for Anakha based on this situation.
5. Mr. Muthu Kumar is facing the serious problem of a high electricity bill every month. He is trying various ways to reduce his electricity consumption. Considering his problem is worth solving, draw an Empathy Map for Mr. Muthu Kumar.
6. Give some examples of use cases related to the Sustainable Development Goals (SDGs).
7. Explain the different types of Ideation techniques.