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PA-II Assignment: 2026 27

Class-XI Science

DATE OF SUBMISSION: 11-07-2026 (Saturday)

1.	ENGLISH
	<u>Beginner Level</u> 1. What season is described at the beginning of the poem? 2. Why does the laburnum tree appear silent and lifeless before the bird arrives? 3. Which bird visits the laburnum tree? 4. What happens to the tree when the goldfinch enters it? 5. Why does the tree become silent again at the end of the poem? 6. Who is the narrator of the story? 7. Who was Mrs. Dorling? 8. Why does the narrator visit Mrs. Dorling's house? 9. How does Mrs. Dorling behave when the narrator first meets her? 10. Why does the narrator decide not to visit Mrs. Dorling again? 10. Who discovered King Tut's tomb? 11. Why is King Tut famous in history? 12. What was the main purpose of conducting the CT scan on King Tut's mummy? 13. Where was King Tut's mummy kept before the CT scan? 14. Why did the work stop briefly during the CT scan? <u>Intermediate Level</u> 15. How does the poet contrast the appearance of the laburnum tree before and after the arrival of the goldfinch? 16. Explain the significance of the phrase "a machine starts up" in the context of the poem. 17. Why does the poet compare the movement of the goldfinch to "a lizard"? What effect does this comparison create? 18. What role do the young birds play in bringing the laburnum tree to life? Support your answer with examples from the poem. 19. How does the ending of the poem reinforce the theme of the relationship between nature and life? 20. Why does the narrator hesitate before visiting Mrs. Dorling's house after the war? 21. Describe the contrast between the narrator's memories of her home and what she experiences at Mrs. Dorling's house. 22. How does Mrs. Dorling's behaviour reflect her attitude towards the narrator and her family's belongings? 23. Why does the narrator decide to leave the household items with Mrs. Dorling instead of claiming them? 24. Explain how the story conveys the idea that memories are more valuable than material possessions. 25. Why did archaeologists decide to perform a CT scan on King Tut's mummy despite earlier examinations? 26. Describe the difficulties faced by the team while carrying out the CT scan of King Tut's mummy. 27. How did the discovery of King Tut's tomb change the world's interest in ancient Egypt? 28. Why has the death of King Tut remained a mystery despite years of research? 29. Explain how modern technology has helped historians and archaeologists learn more about King Tut. <u>Advanced Level (HOTS)</u> 30. The laburnum tree appears lifeless until the goldfinch arrives. How does the poet use this transformation to comment on the interdependence of living beings in nature? 31. The goldfinch is described as both energetic and cautious. Analyse how the poet uses the bird's behaviour to symbolize the responsibilities of parenthood. 32. The poem begins and ends with silence. Evaluate how this structural pattern contributes to the poem's overall meaning and emotional impact. 33. The laburnum tree may be viewed as a symbol rather than merely a natural object. Critically examine what the tree could represent in the context of life, relationships, or society.

	34. If the poem had been narrated from the perspective of the goldfinch instead of an observer, how might the message and emotional appeal have changed? Justify your answer with suitable arguments. 35. The narrator ultimately chooses to leave her family's belongings behind. Do you think this decision reflects strength or helplessness? Give reasons to support your opinion. 36. How does Marga Minco use ordinary household objects to explore the long-lasting psychological effects of war? Explain with examples from the story. 37. Mrs. Dorling's actions can be interpreted in different ways. Evaluate whether she should be judged as selfish, practical, or a victim of circumstances. 38. The story suggests that material possessions cannot restore lost relationships. To what extent do you agree with this idea? Support your answer with evidence from the text. 39. Imagine the narrator had successfully recovered all her belongings. Would it have provided her with emotional closure? Critically justify your viewpoint. 40. Modern scientific methods have transformed historical research. Evaluate how technology has changed our understanding of King Tut while also raising ethical concerns about disturbing ancient remains. 41. The mystery surrounding King Tut's death has remained unsolved despite decades of investigation. What does this suggest about the limitations of science in reconstructing history? 42. Howard Carter's discovery made King Tut one of the most famous pharaohs. Analyse whether historical fame depends more on achievements during life or discoveries made after death. 43. If you were a member of the research team conducting King Tut's CT scan, what ethical principles would guide your decisions? Explain how you would balance scientific curiosity with respect for cultural heritage. 44. You are the Head Boy/Head Girl of your school. You have been invited to deliver a speech during the morning assembly on the topic "Technology: A Boon or a Bane for Students?" Write the speech in 120–150 words. 45. Your school is organizing a Wellness Week. As the Cultural Secretary, you have been asked to deliver a speech on "The Importance of Mental Well-being in Student Life." Write the speech in 120–150 words highlighting the need for emotional health, stress management, and maintaining a healthy balance between studies and personal life.
2.	PHYSICS
	1) Position of a particle in a rectangular-co-ordinate system is (3, 2, 5). Then its position vector will be a) $3\hat{i} + 5\hat{j} + 2\hat{k}$ b) $3\hat{i} + 2\hat{j} + 5\hat{k}$ c) $5\hat{i} + 3\hat{j} + 2\hat{k}$ d) None of these 2) If a particle moves from point P (2,3,5) to point Q (3,4,5). Its displacement vector be a) $\hat{i} + \hat{j} + 10\hat{k}$ b) $\hat{i} + \hat{j} + 5\hat{k}$ c) $\hat{i} + \hat{j}$ d) $2\hat{i} + 4\hat{j} + 6\hat{k}$ 3) The expression $\frac{1}{\sqrt{2}}\hat{i} + \frac{1}{\sqrt{2}}\hat{j}$ is a a) Unit vector b) Null vector c) A vector of magnitude $\sqrt{2}$ d) Scalar 4) If for two vectors $\vec{A}$ and $\vec{B}$, $\vec{A} \times \vec{B} = 0$, the vectors a) Are perpendicular to each other b) Are parallel to each other c) Act at an angle of 60° d) Act at an angle of 30° 5) A river is flowing from east to west at a speed of 5 m/min. A man on south bank of river, capable of swimming 10m/min in still water, wants to swim across the river in shortest time. He should swim a) Due north b) Due north east c) Due north east with double the speed of river d) None of these Page 2 of 11 6) A body is moving in a circular path with a constant speed. It has a) A constant velocity b) A constant acceleration c) An acceleration of constant magnitude d) An acceleration which varies with time 7) A particle moves with constant speed but in constantly varying direction. The path of particle will be a) Elliptical b) Linear c) Circular d) parabolic 8) A body travels along the circumference of a circle of radius 2 m with a linear velocity of 6 m/s. Then its angular velocity is a) 6 rad/s b) 3 rad/s c) 2 rad/s d) 4 rad/s 9) A stone tied to a string is rotated in a circle. If the string is cut, the stone flies away from the circle because a) A centrifugal force acts on the stone b) A centripetal force acts on the stone c) Of its inertia d) Reaction of the centripetal force 10) If $A \cdot B = AB$, then is the angle between A and B. a) 0° b) 30° c) 60° d) 90° 11) Three particles A, B and C are projected from the same point with the same initial speeds making angles 30°, 45° and 60° respectively with the horizontal. Which of the following statements is correct? a) A, B and C have unequal ranges b) Ranges of A and C are equal and less than that of B c) Ranges

	of A and C are equal and greater than that of B d) A, B and C have equal ranges 12) A force of 4N makes an angle 30 degree with x-axis. The y component of force is a) $2\sqrt{3}$ N b) 4 N c) $2/\sqrt{3}$ N d) 2 N 13) Time of flight of a projectile is 10 sec and its range is 500m. The maximum height reached by it is a) 50 m Page 3 of 11 b) 80 m c) 100 m d) 125 m 14) Show that when the horizontal range is maximum, height attained by the body is one fourth the maximum range in the projectile motion. 15) A gunman always keeps his gun slightly tilted above the line of sight while shooting. Why? 16) State the conditions for a projectile to achieve maximum range 17) Derive an expression for the time of flight and horizontal range of a projectile when launched at an angle θ with the horizontal. 18) Two forces 5 kgwt and 10 kgwt are acting with an inclination of 120° between them. What is the angle which the resultant makes with 10 kgwt? 19) Two bodies are projected at an angle Θ and $(\pi/2 - \Theta)$ to the horizontal with the same speed. Find the ratio of their time of flight. 20) A ball is thrown with an initial velocity of 20 m/s at an angle of 30 degrees above the horizontal. Calculate: a) The time taken for the ball to reach its maximum height. b) The maximum height reached by the ball. c) The horizontal range of the ball. 21) A cannonball is fired from a cannon at ground level. The cannonball follows a parabolic trajectory and hits a target located 500 meters away horizontally. The initial speed of the cannonball is 100 m/s. Determine: a) The angle at which the cannonball was launched. b) The maximum height reached by the cannonball. c) The time taken for the cannonball to reach the target. d) The velocity of the cannonball just before hitting the target. 22) A body is thrown horizontally from the top of a tower and strikes the ground after three seconds at an angles of 45° with the horizontal. Find the height of the tower and the speed with which the body was projected. Take $g=9.8\text{m/s}^2$.
3.	CHEMISTRY
	LEVEL 1 1. State the de Broglie equation and define each term. 2. What is the Heisenberg Uncertainty Principle? 3. Define atomic orbital. 4. What are the four quantum numbers? 5. State the Pauli Exclusion Principle. 6. What is the maximum number of electrons present in the: (a) K shell (b) L shell 7. Differentiate between an orbit and an orbital. 8. Write the electronic configuration of oxygen ($Z = 8$). 9. Which quantum number determines the shape of an orbital? 10. Name the orbital having spherical shape. 11. State the Modern Periodic Law. 12. Define atomic radius. 13. What is ionization enthalpy? 14. What is electron gain enthalpy? 15. Define electronegativity. LEVEL 2 1. Explain the significance of principal quantum number. 2. Why can no two electrons in an atom have the same set of four quantum numbers? 3. State Hund's Rule of Maximum Multiplicity with an example. 4. Write the electronic configuration of Fe ($Z = 26$) using the Aufbau Principle. 5. Calculate the maximum number of electrons present in the $n = 4$ shell. 6. Differentiate between s, p and d orbitals on the basis of shape and orientation. 7. Why is 4s orbital filled before 3d orbital?

8. Explain the trend in atomic radius across a period.
9. Why does ionization enthalpy generally increase across a period?
10. Explain why noble gases have high ionization enthalpy.
11. Arrange the following in increasing order of atomic radius:
Na, Mg, Al, Si
12. Arrange the following in increasing order of first ionization enthalpy:
Li, Be, B, C
13. Explain why fluorine has the highest electronegativity.
14. Why does atomic size increase down a group?
15. Distinguish between ionization enthalpy and electron gain enthalpy.

LEVEL 3

1. Explain why the Heisenberg Uncertainty Principle rules out the existence of definite electron orbits proposed by Bohr.
2. An electron has quantum numbers:
 $n = 3, l = 2, m = -1, s = +\frac{1}{2}$
Identify:
 - the subshell,
 - the orbital, and
 - the maximum number of electrons possible in that subshell.
3. An atom has the electronic configuration:
 $1s^2 2s^2 2p^6 3s^2 3p^4$
Determine:
 - the element,
 - number of unpaired electrons,
 - and its magnetic nature.
4. Explain why 2s orbital is lower in energy than 2p orbital although both belong to the same shell.
5. Compare the energies of the following orbitals:
3d, 4s, 4p, 5s
Arrange them in increasing order and justify.
6. Why are d-orbitals absent in the first energy level?
7. Explain why chromium and copper show exceptional electronic configurations.
8. Explain the anomalous behaviour of the first element of a group with suitable examples.
9. Despite having a higher nuclear charge, oxygen has lower first ionization enthalpy than nitrogen. Explain.
10. Why does fluorine have less negative electron gain enthalpy than chlorine?
11. Predict and justify the order of atomic radius among:
 $Na^+, Mg^{2+}, Al^{3+}, Ne$
12. An unknown element has:
 - three shells,
 - one electron in the outermost shell.
 Identify:
 - the period,
 - the group,
 - and predict two of its chemical properties.
13. Explain how effective nuclear charge influences periodic properties.
14. Predict the formula of the oxide and chloride formed by an element having electronic configuration **2, 8, 3**. Justify your answer.
15. "Periodic properties are a consequence of electronic configuration rather than atomic mass." Justify this statement with suitable examples.

4. MATHEMATICS

Chap 3. Trigonometric Function

1. Find the radius of the circle in which a central angle of 60° intercepts an arc of length 37.4 cm (use $\pi =$

	22/7). 2. A wheel makes 360 revolutions in one minute. Through how many radians does it turn in one second? 3. Show that $\tan 3x \tan 2x \tan x = \tan 3x - \tan 2x - \tan x$. 4. Prove that: $\cos^{-2} x + \cos^{-2} \left(x + \frac{\pi}{3}\right) + \cos^2 \left(x - \frac{\pi}{3}\right) = \frac{3}{2}$ 5. Find the value of $\cos 570^\circ \sin 510^\circ + \sin (-330^\circ) \cos (-390^\circ)$. 6. Show that $2 \sin^2 \beta + 4 \cos (\alpha + \beta) \sin \alpha \sin \beta + \cos 2 (\alpha + \beta) = \cos 2 \alpha$. 7. Prove that: $\frac{\sec 8 \theta - 1}{\sec 4 \theta - 1} = \frac{\tan 8 \theta}{\tan 2 \theta}$ 8. Prove that $\cot 4x (\sin 5x + \sin 3x) = \cot x (\sin 5x - \sin 3x)$. 9. Find the value of $\tan 225^\circ \cot 405^\circ + \tan 765^\circ \cot 675^\circ$. 10. Prove that: $(\cos x + \cos y)^2 + (\sin x + \sin y)^2 = 4 \cos^2 \frac{x+y}{2}$ 11. If θ lies in the first quadrant and $\cos \theta = 8/17$, then find the value of $\cos (30^\circ + \theta) + \cos (45^\circ - \theta) + \cos (120^\circ - \theta)$. 12. Find the value of θ the equation $5 \cos^2 \theta + 7 \sin^2 \theta - 6 = 0$. 13. Find the value of $\sqrt{3} \operatorname{cosec} 20^\circ - \sec 20^\circ$. 14. The value of $\cos 1^\circ \cos 2^\circ \cos 3^\circ \dots \cos 179^\circ$ is (a) $1/\sqrt{2}$ (b) 0 (c) 1 (d) -1 15. The value of $\sin 50^\circ - \sin 70^\circ + \sin 10^\circ$ is equal to (a) 1 (b) 0 (c) $\frac{1}{2}$ (d) 2
5.	BIOLOGY Section A – Below Average Level (10 × 1 = 10 Marks) 1. Define a biomolecule. 2. Which is the most abundant biomolecule present in living cells? (a) Protein (b) Water (c) Lipid (d) Nucleic acid 3. Name the monomer of proteins. 4. Which carbohydrate is commonly known as grape sugar? (a) Sucrose (b) Fructose (c) Glucose (d) Lactose 5. Name the bond that joins two amino acids. 6. Which biomolecule stores hereditary information? 7. Expand ATP. 8. Which of the following is a polysaccharide? (a) Maltose (b) Glucose (c) Starch (d) Ribose 9. Which element is absent in carbohydrates? 10. Match: Glycogen, Cellulose, Starch, DNA with Animal storage carbohydrate, Plant cell wall, Plant storage carbohydrate, Genetic material. Section B – Average Level (10 × 2 = 20 Marks) 11. Differentiate between monosaccharides and polysaccharides with one example each. 12. Explain why lipids are insoluble in water. 13. State any two functions of proteins. 14. Differentiate between DNA and RNA (any two points). 15. What is denaturation of proteins? Mention one factor responsible. 16. Draw and label the general structure of an amino acid. 17. Differentiate between reducing and non-reducing sugars with one example each. 18. Why is ATP called the energy currency of the cell? 19. Explain the significance of hydrogen bonds in DNA. 20. Complete: Protein—; Starch—; DNA—; Lipid—. Section C – HOTS (10 × 3 = 30 Marks) 21. Why do proteins lose their function at high temperatures while carbohydrates generally do not? 22. A person follows a fat-free diet for several months. Predict two possible health consequences. 23. Explain why cellulose cannot be digested by humans but can be digested by cows. 24. A DNA molecule undergoes mutation. How can this affect protein synthesis? 25. Why are enzymes considered highly specific? Explain with an example. 26. A food sample gives a positive Biuret test and another gives a positive Iodine test. Identify the biomolecules. 27. Compare starch, glycogen, and cellulose based on structure and function. 28. During prolonged fasting, which biomolecules are utilized first, second, and third for energy? Explain. 29. Explain how phospholipids help form the plasma membrane. 30. "Structure determines function." Justify using any two biomolecules.

6.	INFORMATICS PRACTICES
	Q1. Identify Valid Identifiers Analyze the list of variables below. List which ones are valid in Python. For any variable that is invalid, explicitly state the naming rule it violates: • student_name • 3rd_period • while • total\$Amount Q2. Expression Evaluation Evaluate the final math result and determine the resulting data type (e.g., int, float) for the following Python expressions: (i) <code>20 // 6 + 20 % 6</code> (ii) <code>10 / 4</code> Q3. Loop Execution Tracer Carefully trace the execution of the loop below. State how many times the loop will execute, and write down its exact output: <pre>count = 10 while count > 2: print(count, end=" ") count -= 3</pre> Q4. Range Function Sequences Convert the following range() functions into their equivalent structural sequence of numbers (e.g., written out like [1, 2, 3]): (i) <code>range(5, 20, 5)</code> (ii) <code>range(4, -1, -1)</code> Q5. Short Code Debugging The script below is meant to accept an integer input and check if it is positive. Find and correct the three errors (syntax or logical) preventing it from working correctly: <pre>num = input("Enter a number") if num > 0 print("Number is positive")</pre> Q6. Number Categorizer Write a Python program that asks the user to input an integer. • If the number is greater than 0, print "Positive". • If the number is less than 0, print "Negative". • If the number is exactly 0, print "Zero". Q7. Multiplication Table Generator Write a Python program using a for loop that takes an integer input N from the user and prints its multiplication table up to 10. Q8. Case-Based Loop Analysis A temperature monitoring system inside a server room records data continuously. The system uses a loop to track live temperatures. If the temperature hits 45°C or above, it must immediately sound an alarm and stop monitoring.
7.	PHYSICAL EDUCATION
	Easy Level (7 Questions) 1. What are the three core values of the Olympic Movement? 2. Who is known as the founder of the modern Olympic Games? 3. What is the Olympic motto? 4. What does CWSN stand for? 5. Define inclusive education in physical education. 6. Name any two benefits of sports for CWSN. 7. What is the importance of fair play in sports? Medium Level (7 Questions) 8. Explain the importance of Olympic values in daily life. 9. Differentiate between integration and inclusion in physical education. 10. Describe the role of physical education teachers in promoting inclusive sports. 11. Explain any four benefits of physical activities for children with special needs. 12. What are the barriers faced by CWSN in participating in sports? 13. Discuss the significance of the Olympic symbol and Olympic flag. 14. Suggest four measures to encourage participation of CWSN in sports. Hard Level (6 Questions) 15. Explain the philosophy of Olympism and its contribution to world peace and human development. 16. Discuss the educational values of the Olympic Movement with suitable examples. 17. Explain the different types of disabilities covered under CWSN and the adaptations required in physical education. 18. Analyze the role of inclusive sports in the social, emotional, and physical development of CWSN.

	19. Compare the objectives of Olympic Value Education with the objectives of inclusive physical education. 20. Design a one-day inclusive sports event for CWSN, mentioning activities, safety measures, and expected learning outcomes.
8.	PSYCHOLOGY
	LEVEL – 1 Q1. What is Babinski response? Q2. What is egocentric? Q3. Define substance abuse? Q4. What is attachment? Q5. Mention Jean Piaget’s cognitive development stages? Q6. Define maturation? Q7. What is teratogens? Q8. Explain trust v/s mistrust? Q9. What is bulimia? Q10. What is motor development? LEVEL – 2 Q1. What are the major problems of adolescence? Q2. What are the factors influencing prenatal development? Q3. Difference between gross motor and fine motor skills? Q4. What are the adjustments people make when they retire? Q5. Mention the different reflex of developmental stages? Q6. What are the ways in which heredity and environment contribute in individual development? Q7. What adjustments people make when they retire? Q8. Explain trust v/s mistrust? Q9. What is Bulimia? Q10. What is Microsystem? LEVEL – 3 Q1. Describe Bronfenbrenner’s contextual view development? Q2. What are the factors influencing prenatal development? Q3. What are the problems of adolescence? Q4. Describe the developmental changes during childhood? Q5. Describe the development stages during childhood? Q6. Describe Durganand Sinha’s ecological method of development? Q7. Explain the Jean Piaget’s cognitive development model? Q8. What are the factors affecting the individual’s development Q9. What are the adjustments people make when they retire? Q10. Explain different development stages of infancy?
9.	ARTIFICIAL INTELLIGENCE
	LEVEL-1 Q1. Difference between interests and abilities. Q2. What is the importance of Grooming? Q3. What is the importance of Personal Hygiene? Q4. What are the benefits of Teamwork? Q5. What are the benefits of Networking Skills? Q6. What are the types of Motivation? Q7. Explain the features of Python. Q8. Identify the following identifiers as Valid or Invalid. If invalid, write the reason. Q9. Write a Python Program: (i) Write a Python program to input two numbers and calculate their sum. (ii) Write a Python program to calculate the area of a rectangle. (iii) Write a Python program to calculate the perimeter of a rectangle. (iv) Write a Python program to calculate the area of a circle. LEVEL-2 Q1. What are Self-management skills? Explain strengths and weaknesses. Q2. How to build Networking Skills?

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| | <p>Q3. How to build Self-Motivation?</p> <p>Q4. What are the techniques for effective Time Management?</p> <p>Q5. How to Set Goals in Self-Management Skills?</p> <p>LEVEL-3</p> <p>Q1. Enlist the different types of operators in Python. Explain any three with suitable examples.</p> <p>Q2. What are Tokens in Python? Explain the different types of tokens with examples.</p> <p>Q3. Write a Python program</p> <ul style="list-style-type: none">(i) Write a Python program to calculate the Gross Salary using HRA and DA. (HRA = 20% of Basic Salary, DA = 10% of Basic Salary)(ii) Write a Python program to calculate the Simple Interest.(iii) Write a Python program to convert Celsius into Fahrenheit.(iv) Write a Python program to calculate Total Marks and Average. |
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