HINTS & SOLUTION

1. *c)* When using "not only…but also", the verb agrees with the subject closest to it. "Faculty members" is plural, so it should be "were held responsible".

2. *b)* In indirect questions, the structure should be "what I was doing there", not interrogative form.

3. *b)* "Hardly" is followed by "when", not "than". Correct: Hardly had she finished…when the manager…

4. *b)* "Scarcely" is also followed by "when", not "than".

5. *b)* "Each" is singular, so it should be "was asked".

6. *c)* "are planning" → "were planning" ; "next month" → "the following month

7. *d)* "would" in indirect becomes "will" in direct.

8. *a)* "have never seen" → "had never seen".

9. *c)* "said to" becomes "asked" ; "are you doing" → "was I doing" ; "now" → "then"

10. *b)* "had been living" remains unchanged ; "he" → "I"

11. *b)* Moral means value; Morale means spirit or confidence

12. *c)* Canvas means cloth; Canvass means to solicit or campaign.

13. *a)* "Accessary means helper in crime; Accessory means additional item.

14. *c)* "Complementary means matching; Complimentary means free or praising.

15. *d)* Defer means delay; Differ means disagree.

16. *b)* Belligerent means hostile and aggressive in attitude or behavior.

17. *c)* Serpentine means having a winding or twisting shape, like a snake.

18. *a)* Startling means surprising or shocking, often in a sudden way.

19. *c)* Lucid means clear and easy to understand

20. *b)* Sumptuous means luxurious or splendid, especially in appearance or quality.

21. *a)* "Friendly" describes a manner (a noun), hence it is an adjective.

22. *b)* "Break" refers to a pause, a thing — hence, a noun.

23. *c)* "Fast" describes how he ran — adverb modifying a verb.

24. *c)* "After" here indicates when they arrived — adverb of time (not a preposition, since no noun follows).

25. *c)* "Value" is used as an action here ("we should value"), so it's a verb.

26. *c)* This is the central argument, as the passage critiques shallow, fast-paced knowledge consumption.

27. *b)* The phrase contrasts true understanding with superficial personal views.

28. *c)* The author promotes stepping back to think critically and deeply.

29. *c)* Passage mentions that content is optimized for "engagement rather than enlightenment."

30. *c)* The author critiques current information habits while urging depth and reflection.

31. *d)* T.S. Eliot defined the "objective correlative" as a set of objects, situations, or events that act as a "formulaic representation" to evoke a particular emotion in the audience, rather than expressing the emotion directly.

32. *a)* In Hamlet, madness serves both as a genuine psychological state and as a deliberate "disguise" or strategy Hamlet uses to navigate political intrigue and deception.

33. *b)* Virginia Woolf's Mrs Dalloway employs a "dialogic" stream of consciousness technique, weaving together multiple characters' inner thoughts, perceptions, and voices in a layered narrative.

34. *a)* Northrop Frye's "mythoi" includes four main narrative types: comedy, tragedy, romance, and satire — cyclical modes that reflect the archetypal narrative patterns.

35. *b)* Romanticism emphasized "nature" as a fundamental source of artistic inspiration and knowledge, opposing the Enlightenment's focus on reason and rationalism.

36. *b)* The idiom refers to studying or working hard until late at night.

37. *c)* The idiom means to describe a situation or problem exactly.

38. *a)* It refers to being less important or assisting someone in a leading role.

39. *b)* Beating about the bush means avoiding the core issue.

40. *b)* Let the cat out of the bag is to reveal a secret.

41. *b)* This is used to introduce the first point or step

42. *d)* In my opinion is used to express a personal viewpoint

43. *d)* "Moreover" adds supporting or additional information.

44. *a)* "Therefore" shows cause and effect — she missed the bus → late.

45. *c)* 'For example', introduces an illustration of the previous point.

46. *c)* Q introduces the character, P expands on his nature, S builds the narrative, and R concludes the story arc.

47. *d)* Q introduces the general theme, P gives a specific example, S makes a philosophical point, and R ties another modern example.

48. *a)* Q sets the scene, S shifts focus to a character, R emphasizes suspense, P reveals the character's contrasting behavior.

49. *a)* P is the main topic, Q compares to modern times, S expands on the functions, and R links them to modern unions.

50. *a)* Q begins the idea of pursuit, R shows its scale, P highlights the futility, S ends with philosophical reflection.

51. *a)* Introduced Bicameralism, Federal Court, and three legislative lists — all later adopted in the Indian Constitution. Dyarchy at the Centre was proposed but never implemented.

52. *a)* Executions of Kartar Singh Sarabha and others; suppression under Defence of India Act; revolutionary network led to formation of Rowlatt Committee. Lala Lajpat Rai's deportation was unrelated.

53. *a)* Hindu-Muslim unity; accepted separate electorates; based on parity, not majority. It was a joint effort, not solely initiated by Jinnah.

54. *a)* Defied salt law; mass tribal and peasant participation; parallel governments formed. Gandhi consulted Congress before Gandhi-Irwin Pact — so Option 4 is incorrect.

55. *a)* Roy (communism), Bose (Forward Bloc, planning), Narendra Dev (Congress Socialist Party) — all leftist. Savarkar was right-wing, not leftist.

56. *a)* Formed with Japanese help; had an all-women regiment; entered Indian territory in Manipur and Kohima. It ended due to Japan's defeat, not mutiny.

57. *d)* Rowlatt Act, Defence of India Act, Press Act, and Public Safety Bill — all repressive tools to suppress revolutionaries and nationalists.

58. *c)* The Fifth Plan (1974–79), launched under Indira Gandhi, emphasized poverty eradication with the slogan "Garibi Hatao".

59. *d)* K.N. Raj played a significant role in the drafting of the First Five-Year Plan (1951–56), especially on investment and foreign aid.

60. *c)* Willkie, an American politician, wrote "One World" in 1943, promoting global cooperation and understanding.

61. *b)* The idea of One World emphasizes universal human values, cooperation, and dignity beyond borders, aligning with global humanism.

62. *b)* Recommended the 3-tier system (Village, Block, District) in 1957.

63. *a)* Right to form associations or unions includes cooperatives (post-97th Amendment).

64. *b)* Considered the architect of India's Community Development Programme.

65. *b)* He used the term "scientific socialism" to differentiate Marxist theory from earlier forms of socialism.

66. *c)* This phrase originates from Karl Marx's vision of a future communist society.

67. *c)* "Democratic centralism" was a key tenet of the Communist Party of the USSR.

68. *b)* Communism rejects private ownership in favor of collective ownership.

69. *b)* Marx and Engels saw the Paris Commune as a prototype of the "dictatorship of the proletariat."

70. *a)*

Statement 1 is correct: The Iqta system was a land grant system wherein Iqtadars collected revenue and maintained troops for the Sultanate.

Statement 2 is incorrect: The Battle of Talikota (1565) led to the downfall of the Vijayanagara Empire, not the Bahmani Sultanate, which had already disintegrated.

Statement 3 is correct: Ain-i-Akbari, part of the Akbarnama, is a key administrative record authored by Abul Fazl.

Statement 4 is correct: Malik Kafur indeed reached Rameswaram in his southern campaign under Alauddin Khilji.

71. *c)* Earth's spin causes outward centrifugal force, making equator bulge and poles flatten.

72. *b)* Uneven mass distribution in Earth's interior causes undulations in the geoid surface.

73. *c)* These modern techniques provide extremely high-resolution data about Earth's shape and elevation.

74. *a)* Correct progression of regional metamorphism.

75. *c)* Correct classification based on silica content and origin.

76. *b)* Main minerals in charnockite.

77. *b)* Formed from slow cooling magma with large crystals.

78. *b)* Frost wedging occurs when water enters rock cracks, freezes, expands, and causes breakage.

79. *b)* Feldspar is vulnerable to hydrolysis, forming clay minerals like kaolinite.

80. *c)* Chemical weathering dominates in hot and humid climates.

81. *b)* Oxidation of iron-bearing minerals forms rust-like compounds such as limonite.

82. *c)* Corners and edges of rocks weather faster due to chemical alteration, producing spheroidal shapes.

83. *c)* Alternating wet and dry conditions enhance both types of weathering.

84. *b)* The eye has very low pressure and subsiding (sinking) air.

85. *c)* Anticyclones feature sinking air and divergence at the surface.

86. *b)* A Bomb Cyclone undergoes explosive cyclogenesis with rapid pressure drop.

87. *d)* The transition is known as extratropical transition.

88. b*)* Dhamra Port lies near the estuary formed by the Brahmani and Baitarani rivers, not the Mahanadi.

89. *b)* Kamarajar Port, formerly Ennore Port, is the first corporatized major port in India.

90. *b)* Gangavaram Port is the deepest port in India, with a depth of over 21 meters, suitable for capesize vessels.

91. *b)* Amrit Mohan Prasad, a senior IPS officer, was appointed as the Director General of the Sashastra Seema Bal (SSB) in December 2024. The SSB is a border guarding force under the Ministry of Home Affairs, responsible for securing India's borders with Nepal and Bhutan.

92. *c)* Recent inductees include MS Dhoni, Matthew Hayden, Hashim Amla, Graeme Smith, Daniel Vettori, Sana Mir, and Sarah Taylor.

93. *a)* India launched "Operation Sadbhav" to provide relief to Laos, Myanmar, and Vietnam after Typhoon Yagi in 2024. The name reflects India's tradition of naming humanitarian missions with terms of goodwill, similar to past operations like Operation Maitri.

94. *a)* Govindarajan Padmanabhan, an eminent biochemist known for his work on malaria, received the first Vigyan Ratna Award in 2024. This prestigious science award was instituted by the Central Government to honor scientific contributions.

95. *b)* Sangram Singh, a Commonwealth Heavyweight Champion wrestler, became the first Indian to win an

MMA match in 2024, marking a historic transition from wrestling to mixed martial arts.

96. *a)* The Guru Ghasidas National Park and Tamor Pingla Wildlife Sanctuary are in Chhattisgarh. In 2024, the state government approved their merger into a tiger reserve, making it India's third largest after Nagarjunasagar-Srisailam and Manas.

97. *b)* Randhir Singh, a former shooter and sports administrator, was elected the first Indian President of the Olympic Council of Asia (OCA) in 2024, a significant milestone for Indian sports governance.

98. *b)* The West Bengal government introduced the 'Aparajita' bill in 2024 to enhance women's safety, including provisions for the death penalty for rape convicts, in response to rising crimes against women in the state.

99. *a)* Chenab Rail Bridge is located in Jammu & Kashmir.

100. *d)* Igatpuri Lake is in Igatpuri, Maharashtra, within the Western Ghats. Central Railway installed a 10 MW floating solar plant there in 2024, a step toward sustainable energy for Indian Railways.

101. *a)* The nasal septum is primarily composed of hyaline cartilage, making it entirely cartilaginous. The larynx has a framework of cartilage but also includes muscles and membranes. The glottis is a space between the vocal cords, not a structure, and the trachea has C-shaped cartilage rings but is not entirely cartilage due to its posterior membranous portion.

102. *d)* Malignant tertian malaria, known for its severe and potentially fatal nature, is caused by Plasmodium falciparum. This species has a 48-hour cycle (tertian) and is responsible for the most dangerous form of malaria. P. vivax and P. ovale cause benign tertian malaria, while P. malariae causes quartan malaria.

103. *a)* In humans, cleavage is holoblastic (the entire egg divides), equal (resulting blastomeres are of similar size), and indeterminate (early blastomeres can develop into any part of the embryo, allowing for identical twins). Determinate cleavage is seen in some other species where cell fate is fixed early.

104. *b)* A typical menstrual cycle follows this sequence: Menstrual phase (days 1-5, shedding of the uterine lining), Follicular phase (days 1-13, follicle development), Ovulatory phase (day 14, release of the egg), and Secretory phase (days 15-28, preparation of the uterus for implantation). The other options list incorrect sequences.

105. *c)* Ethylene, a plant hormone, promotes leaf abscission, inhibits root hair growth (reducing water and mineral absorption), and stimulates epinasty (downward leaf curling). However, the growth of adventitious roots during flooding is primarily an action of auxin, not ethylene, making this the correct choice for an action ethylene does not perform.

106. *a)* Secondary productivity refers to the rate at which consumers (herbivores, carnivores, etc.) assimilate food energy into their biomass. Gross primary productivity and net primary productivity are terms associated with producers (plants), not consumers, making them incorrect in this context.

107. *a)* The ability to sense and respond to environmental stimuli is a universal and complex feature of all living organisms, from simple bacteria to complex animals. While reproduction, growth, and organ systems are important, they are not as universally defining or complex across all life forms as responsiveness to the environment.

108. *a)* In single-celled organisms like bacteria or amoeba, growth (increase in cell size) and

reproduction (division into more cells) are closely linked, often making the distinction unclear (Statement I). Statement II explains this by stating that reproduction in such organisms is synonymous with growth, as both result in an increase in cell number, making this the correct choice.

109. *d)* Centrioles are non-membrane-bound organelles found exclusively in animal cells, involved in cell division (mitosis and meiosis). Sphaerosomes and glyoxysomes are plant-specific organelles, and peroxisomes are present In both plant and animal cells, making centriole the correct answer.

110. *a)* Proteins are the largest constituent of the erythrocyte (red blood cell) membrane by function and are responsible for most of its roles, such as transport (e.g., via the protein Band 3 for anion exchange), structural integrity, and signaling. While lipids form the bilayer structure, proteins embedded in or on the membrane perform the majority of its functional roles.

111. *d)* Ethanol, an alcohol, doesn't form a salt with HCl, unlike sodium hydroxide, ammonia, and calcium carbonate, which all produce salts.

112. *c)* Acid with metal carbonate forms salt, CO_2 (effervescence), and water, but pH doesn't increase; it stays acidic or neutral.

113. *a)* Starch hydrolysis yields glucose as the final product, not fructose or maltose (an intermediate).

114. *c)* A gene in DNA provides instructions for protein synthesis, not nucleotides, nucleosides, or ribose (an RNA component).

115. *c)* Fructose is the sweetest sugar, surpassing sucrose, glucose, and maltose in sweetness.

116. *d)* In alkaline medium, $KMnO_4$ is reduced to MnO_2 (Mn^{7+} to Mn^{4+}, a 3-electron change). KI is oxidized to KIO_3 (I^- to I^{5+}, a 6-electron change). One mole of KI provides 6 electrons, reducing 2 moles of $KMnO_4$ (2 × 3 electrons).

117. *d)* At ice-liquid equilibrium, adding heat melts ice without changing temperature or pressure, as the system remains at the melting point in a sealed container.

118. *a)* Crystallization decreases entropy (ordered state). Rusting, melting, and vaporization increase entropy due to disorder.

119. *d)* Covalent character decreases with decreasing anion size ($I^- > Br^- > Cl^- > F^-$) due to lower polarizability, following Fajans' rule.

120. *c)* At constant P and T, a reaction proceeds to minimize Gibbs energy ($\Delta G < 0$), determining spontaneity.

121. *a)* Electronegativity increases across a period due to increasing nuclear charge. Electropositivity decreases, reactivity varies, and ionization energy (I.E.) increases.

122. *c)* Metallic character increases with more shells and fewer valence electrons. Z (potassium) with 4 shells and 1 valence electron is the most metallic.

123. *a)* In the photoelectric effect, K.E. vs. frequency gives a straight line with slope h and intercept -φ (work function), not parallel to the x-axis.

124. *b)* X-rays are emitted from inner shell transitions or high-energy processes, not the electronic structure of atoms. UV, visible light, and radio waves are emitted by electronic transitions.

125. *b)* Moles = mass/molar mass. 2g H_2 (molar mass 2) = 1 mole, 7g N_2 (28) = 0.25 moles, 16g NO_2 (46) ≈ 0.35 moles, 16g O_2 (32) = 0.5 moles. H_2 has the most molecules (1 mole).

126. *d)*
The circuit has an 8V battery, a 5Ω resistor (B to C), and a 1Ω resistor (E to D) in series, with point C grounded (0V). Total resistance is 5Ω + 1Ω = 6Ω. Current I = 8V / 6Ω = 4/3 A.
Voltage drop across the 1Ω resistor (E to D): V_ED = I × 1Ω = (4/3) × 1 = 4/3 V. Point D to C has no resistance, so D is at 0V (same as C). Thus, point E is at 4/3 V relative to D (which is 0V).
Therefore, the potential at point E is 4/3 V.

127. *c)* For a meter bridge, the balance condition is x/10 = l_x/l_10. The tapping key is at 52 cm. With end corrections of 1 cm at A and 2 cm at B, the effective length of the wire becomes 103 cm. The corrected length from A to the tapping point is 52 – 1 = 51 cm, and from the tapping point to B is (100 – 52) + 2 = 50 cm. Adjusting for effective lengths, the ratio becomes (52 + 1)/(51 + 2) = 53/50. Thus, x = 10 × (53/50) = 10.6 Ω. Among the given options, the closest value, considering typical rounding, is 10.8 Ω.

128. *d)* When the temperature of the magnetic needle is increased by 500°C, it likely exceeds the Curie temperature of the material (e.g., for iron, it's around 770°C, but the needle could already be at a high temperature). Above the Curie temperature, the needle loses its magnetic properties, stopping its vibration in the Earth's magnetic field.

129. *a)* To convert Fahrenheit to Kelvin, use the formula:
T(K) = (T(°F) - 32) × 5/9 + 273.15
For 100°F:
T(K) = (100 - 32) × 5/9 + 273.15
= 68 × 5/9 + 273.15
= 37.78 + 273.15
= 310.93 K

130. *b)* Radiation is the fastest mode of heat transfer because it occurs via electromagnetic waves, which travel at the speed of light (3 × 10^8 m/s). Conduction and convection require a medium and involve slower processes like molecular collisions or fluid movement, making them less rapid than radiation.

131. *c)* Soft iron with high permeability is an excellent magnetic shield because it can redirect external magnetic fields around the instrument, minimizing interference. Materials like teak wood and plastic have low magnetic permeability and cannot shield magnetic fields effectively. A metal with high conductivity might shield against electromagnetic waves but is less effective against static magnetic fields compared to soft iron.

132. *b)* Archimedes uplift, or buoyancy, relies on gravity through the equation F_b = ρ V g. A reduced g lowers this force. Viscous and electrostatic forces do not depend on gravity.

133. *d)* The kinetic energy (KE) of a particle can be expressed using momentum (p) and mass (m). The formula for kinetic energy is KE = (1/2)mv^2. Since momentum p = mv, we can solve for velocity v = p/m. Substituting v into the kinetic energy formula: KE = (1/2)m(p/m)^2 = (1/2)m * (p^2/m^2) = p^2/(2m). Thus, the correct answer is option 4: p^2/(2m).

134. *b)* Momentum is always conserved in both elastic and inelastic collisions (no external forces). Kinetic energy is conserved only in elastic collisions, not in inelastic ones, where it transforms into other forms like heat.

135. *d)* Total internal reflection involves light reflecting completely within a medium, as in diamonds, mirages, and optical fibers. The difference between real and apparent depth of a pond is due to refraction, not total internal reflection.

136. *b)* The force-extension graph for a rubber band typically shows a non-linear relationship, often with hysteresis. Statement I ("easier to compress than expand") cannot be deduced since the graph only shows extension (positive force), not compression. Statement II ("does not return to its original length") can be deduced if the graph shows hysteresis, indicating permanent deformation. Statement III ("gets heated") relates to energy loss (hysteresis loop area), which can also be deduced. Thus, statements II and III can be inferred from the graph.

137. *c)* The left magnet (S on top, N at bottom) creates a magnetic field at point P directed downward (from S to N). The right magnet (S on left, N on right) creates a field at P directed to the right (from S to N). The resultant field is the vector sum of these two. Since the downward component from the left magnet and the rightward component from the right magnet combine, the net field at P points diagonally downward and to the right. Among the options, "downward" (option 3) is the closest approximation.

138. *c)* A small spherical solid ball in a viscous liquid accelerates initially but soon reaches a constant terminal velocity as viscous drag balances gravity. Curve C shows velocity rising quickly then leveling off, which matches this behavior.

139. *d)* In a frictionless duct with a varying cross-section, Bernoulli's principle governs the flow. As the cross-section narrows, the velocity of the water increases, leading to a decrease in pressure (Venturi effect). As the duct widens again, the velocity decreases, and the pressure increases. Therefore, the pressure profile along the axis x will decrease to a minimum at the narrowest point and then increase, matching the behavior in option D.

140. *a)* In an elastic collision between two objects of the same mass, where one is initially at rest, the first object (A) transfers all its velocity to the second object (B) and comes to rest. Since bob A is released from an angle and swings down, it has a certain velocity just before collision. After the elastic collision, A stops, and B moves with the velocity A had.

141. *a)* The capillary rise formula is $h = (2T \cos \theta) / (\rho g r)$. Given T, h, and r are the same, $\cos \theta \propto 1/\rho$. Since $\rho 1 > \rho 2 > \rho 3$, we have $\cos \theta 1 < \cos \theta 2 < \cos \theta 3$. As $\cos \theta$ decreases when θ increases (for $0 \leq \theta < \pi$), $\theta 1 > \theta 2 > \theta 3$. For capillary rise ($h > 0$), $\cos \theta > 0$, so $0 \leq \theta < \pi/2$.

142. *d)* To find the force, use impulse-momentum. Mass = 100 g (0.1 kg), speed = 5 m/s, angle = 60°, contact time = 2 x 10^-3 s. Perpendicular velocity changes from 5 cos 60° = 2.5 m/s (toward wall) to -2.5 m/s (away). Change in velocity = 2.5 – (-2.5) = 5 m/s. Change in momentum = 0.1 x 5 = 0.5 kg·m/s. Force = 0.5 / (2 x 10^-3) = 250 N, directed to the left.

143. *d)* Work done in stretching the spring is $W = (1/2) k x^2$. Given: 10 N stretches the spring by 1 mm (0.001 m), so $k = F/x = 10 / 0.001 = 10000$ N/m. The spring is stretched by 40 mm (0.04 m), so x = 0.04 m. Thus, $W = (1/2) \times 10000 \times (0.04)^2 = (1/2) \times 10000 \times 0.0016 = 8$ J.

144. *a)*

Given:
Side of the square = 3 cm
Object distance, u = –25 cm
Focal length of concave mirror, f = –10 cm
Using the mirror formula:
$1/v + 1/u = 1/f$
$\Rightarrow 1/v = 1/f – 1/u = (–1/10) + (1/25) = –3/50$
$\Rightarrow v = –50/3$ cm
Magnification:
$M = v/u = (–50/3)/(–25) = 2/3$
Image Area = (Magnification)² × Original Area
$= (2/3)^2 \times 9 = 4/9 \times 9 = 4$ cm²

145. *c)*

Let the mirror of width d be mounted vertically, and the point source B be at a distance L in front of the center of the mirror. The man walks along a line parallel to the mirror at a distance 2L from it.
To find the greatest distance over which the man can see the image of B, consider the limiting rays from B that reflect off the extreme ends of the mirror and reach the man.
Using similar triangles:
$(d / 2) : L = x : 2L$
Solving for x:
$X = (d / 2) \times (2L / L) = d$
So the greatest distance over which he can see the image = $2x = 2d$

146. *b)* Since both lenses are made of glass ($\mu = 1.5$) and the space between is filled with liquid of the same refractive index ($\mu = 1.5$), the second lens becomes optically invisible (no refraction occurs). The convex surface of one lens cancels the concave surface of the other.

147. *c)*
Given:
Mass of Earth, ME = 81 MM
Radius of Earth, RE = 3.5 RM
Escape velocity formula:
$Ve = \sqrt{(2GM / R)}$
Ratio of escape velocities:
$Ve(Earth) / ve(Moon) = \sqrt{[(ME \times RM) / (MM \times RE)]}$
$= \sqrt{[(81 \times RM) / (1 \times 3.5 \times RM)]}$
$= \sqrt{(81 / 3.5)}$
$= \sqrt{23.14} \approx 4.81$

148. *a)* Gravitational potential energy, $U = -GMm / r$
$\Rightarrow |U| \propto 1 / r$
Time period, $T \propto r^{3/2} \Rightarrow T^2 \propto r^3$
Therefore, $T^2 \propto (1 / U)^3 \Rightarrow T^2 \propto 1 / U^3$

149. *a)* To find the tension at a distance y from end A, consider that the rod is in translational equilibrium under the action of two unequal forces, F_1 (applied at end A) and F_2 (applied at the other end). The tension at any point inside the rod arises due to the net effect of these external forces. At end A, the tension is maximum and equal to F_1, and at end C, it is minimum and equal to F_2. Because the rod is uniform and the forces are applied at the ends, the internal tension varies linearly along the length of the rod. Therefore, the tension at a point located a distance y from end A is given by linear interpolation between F_1 and F_2, resulting in the expression: $T(y) = F_1(1 - y/L) + F_2(y/L)$.

150. *b)* If the string is massless, the tension throughout the string is the same, so the tension vs. position graph would be a horizontal line. But the given graph shows tension increasing linearly from top to bottom, meaning tension varies along the length. This variation indicates the string has mass (massfull), because the weight of the string segment below point x adds to the tension at that point. Hence, tension increases from the free end to the fixed end.