HINTS & SOLUTION

1. *b)* “Amount of people” is incorrect. “People” is countable; it should be number of people.

2. *b)* With “neither…nor,” the verb agrees with the noun closest to it. “Faculty” is singular, so it should be was informed, not were.

3. *c)* “Would have certainly attend” is grammatically incorrect. It should be would have certainly attended.

4. *c)* “Those who claims” is wrong. “Those” is plural; verb must be claim, not claims.

5. *b)* Verb agreement error — the subject closer to the verb is “advisors” (plural), so the verb should be were, not was.

6. *a)* The sentence implies that though he claimed neutrality, his speech was full of bias. “Saturated” means deeply filled or soaked, fitting this context perfectly.

7. *a)* The report avoids firm recommendations—“equivocal” means ambiguous or unclear, which suits the sentence’s idea of avoidance and indecision.

8. *b)* Though her argument was stylish, it lacked real substance. “Undermined” conveys that lack of evidence weakened it.

9. *a)* Authenticity is hard to find in a world of manufactured online personas. “Scarce” indicates something rare and valued, as described.

10. *c)* The diplomat avoids provocation and communicates carefully—“circumspect” means cautious and prudent, especially in speech.

11. *d)* "is watching" becomes "was watching"
Reporting verb in past tense changes present continuous accordingly.

12. *c)* "They had been waiting" → "We had been waiting" (pronoun + tense match)
No need to change past perfect continuous.

13. *a)* "Can" becomes "could"
"tomorrow" becomes "the next day"
"Said to" → "asked" in questions.

14. *c)* "Alas!" shows emotion (sorrow) → use "exclaimed with sorrow"
Present perfect "have lost" → past perfect "had lost"

15. *c)* Imperative sentence in indirect speech → base verb form in direct speech.
Use of reporting verb "ordered" matches the command.

16. *c)* Principal is a noun or adjective meaning main or head (person).
Principle is a noun meaning a rule or moral belief.

17. *b)* Stationary = not moving
Stationery = items like pens, paper, envelopes

18. *b)* Compliment is a positive remark or praise.
Complement means to enhance or complete something well.

19. *b)* Prescribe = recommend (like medicine or rule)
Proscribe = forbid by law

20. *c)* Flaunt = to show off something proudly
Flout = to openly disobey or mock rules

21. *b)* "Left the keys" is transitive (has a direct object), while "left the room" acts intransitively with "the room" as an adverbial phrase of place.

22. *b)* "That" introduces a relative clause modifying "book" → relative pronoun.

23. *c)* "Light" here refers to a general substance or condition → mass noun.

24. *c)* Objected (verb) becomes objection (noun). A classic case of nominalization.

25. *b)* Down from the shelf → preposition; sat down → adverb modifying verb "sat".

26. *b)* Both idioms involve disrupting plans or causing unexpected problems. "Spanner in the works"; "rain on your parade" is its closest cultural twin in English.

27. *b)* This idiom is used in contexts where someone chooses to ignore the truth or wrongdoing.

28. *d)* While "over the moon" and "on cloud nine" are options, "tickled pink" is more equivalent to the "chuffed to bits."

29. *b)* Though meant optimistically, it's used with sarcasm or irony, especially after clear failure.

30. *d)* While not identical, this idiom reflects how louder or more visible people (like a "squeaky wheel") often receive more attention—even if not deserved.

31. *c)* The entire conversation revolves around slowing down, appreciating the present, and redefining success beyond external validation.

32. *b)* Alex is criticizing how people ignore present experiences while constantly chasing future ones.

33. *b)* Maya is introspective, agreeing with Alex, and adding her own perspective on modern discontent.

34. *b)* Maya's line contains a paradox — chasing moments while ignoring them — to highlight the irony of modern life.

35. *c)* Alex admires the old man's peaceful state, suggesting he's found happiness in simplicity.

36. *b)* Baudrillard's theory suggests reality is masked or substituted by signs, making distinctions illusory.

37. *b)* The author suggests that traditional objectivity loses relevance in postmodern epistemology.

38. *b)* The sentence implies intellectual challenges and uncertainties, best captured by "ambiguities".

39. *b)* This matches the critical, reflective nature the passage advocates, as opposed to dogma or passivity.

40. *a)* Innovation often brings instability or risk, especially in evolving academic disciplines.

41. *b)* CBAD

42. *d)* BCAD

43. *a)* ABCD

44. *b)* CABD

45. *c)* BACD

46. *b)* The foundation of social capital is trust.

47. *c)* Language reveals power asymmetry in discourse structure.

48. *d)* Democracy without participation is an illusion of consent.

49. *a)* Game theory is a critique of economic rationality.

50. *a)* The new age of surveillance is data determinism.

51. *a)* $R = \sqrt{(P^2 + Q^2 + 2PQ\cos\theta)} = P \Rightarrow$ Solve and simplify $\Rightarrow \cos\theta = P / Q$

52. *c)* $\tan\varphi = (F_2 \sin\theta) / (F_1 + F_2 \cos\theta)$, and $F_1 = F_2 = F$ $\Rightarrow \tan\varphi = \sin\theta / (1 + \cos\theta)$

53. *d)* Buoyant force = 50 g $\Rightarrow$ volume displaced = 50 $cm^3 \Rightarrow$ shell material vol = 20 $cm^3 \Rightarrow$ mass = 200 g $\Rightarrow$ density = 200/20 = 10

54. *c)* Speed of sound depends on the medium's properties, not the wave's frequency.

55. *d)* Intensity is proportional to square of amplitude and frequency, not directly dependent on wavelength in a given medium (since).

56. *a)* Didgeridoo can produce frequencies below 20 Hz (infrasonic) with long air columns and slow pulses.

57. *a)* Refractive power is ~60D, but most of it (~43D) is due to the cornea, not the lens. Eye works under Gaussian/paraxial optics within small angles.

58. *d)* Cooling without phase change involves sensible heat, not latent heat.

59. *a)* Net heat exchange leads to melting of ice and thermal balance at 0°C after calculations.

60. *d)* As pressure is same, only relative changes matter $\Rightarrow$ h doubles.

61. *c)* A lightning conductor works by enhancing the electric field at its sharp tip, causing corona discharge that neutralizes atmospheric charge. Copper ensures efficient charge flow, while deep grounding safely dissipates current and reduces step potential. It also provides electrostatic shielding, protecting nearby structures from charge buildup.

62. *a)* Reflection (periscope), pressure differential (siphon, pump, cooker), resonance (gramophone), and electromagnetic induction (telegraph/telephone).

63. *b)* When two plane mirrors are placed perpendicular to each other, the number of images formed is given by the formula $(360°/\theta) - 1$, where θ is the angle between the mirrors. Here, $\theta = 90°$, so the number of images = $(360°/90°) - 1 = 4 - 1 = 3$. Since the object is at the angular bisector, it does not affect the image count.

64. *d)* To draw maximum energy from a cell of voltage V, the resistance of the circuit should match the internal resistance of the cell (if any), but since only the arrangement of four identical resistances is considered, the maximum power transfer occurs when the total resistance is minimized. This happens in a parallel arrangement, where the equivalent resistance is the lowest. Among the given options, arrangement 4 (all four resistances in parallel) provides the minimum equivalent resistance (R/4, where R is the resistance of one resistor), thus maximizing the current and energy drawn.

65. *c)* To maximize net resistance, the current path should be through the maximum number of resistances in series. Between P and R, the current can pass through all six resistances in series via the outer path (P-Q-R or vice versa).

66. *d)* For light to not pass through the glass slab, it must undergo total internal reflection at the prism-glass interface. The critical angle (θ_c) is given by $\sin(\theta\_c) = 1/\mu$, where $\mu = 1.5$. Thus, $\sin(\theta\_c) = 1/1.5 = 0.6667$, so $\theta\_c \approx 41.8°$. The angle of incidence at the interface depends on θ. For $\theta = 30°$ or $37°$, the

incidence angle exceeds θ_c, causing total internal reflection. For θ = 45°, it does not. Hence, the possible values are 30° and 37°, i.e., option 4 (Both 1 & 2).

67. *d)* A large non-conducting sheet S with uniform charge density creates a uniform electric field. Uncharged metal rods A and B will polarize in this field, with opposite charges induced on their near and far ends. S will attract both A and B due to this polarization. A and B, being similarly polarized, will attract each other. However, S will not repel A.

68. *c)* The horizontal distance x is derived from the exit velocity v = sqrt(2g(H – D)) and time of flight. Using standard fluid dynamics, x = 2*sqrt(D(H – D)) accounts for the initial velocity component.

69. *a)* The initial horizontal velocity component determines the horizontal range of the projectile. Ignoring air effects, a greater horizontal range indicates a higher initial horizontal velocity. From the figure, path 1 has the longest range, followed by 2, 3, and 4.

70. *a)* The weight of an object decreases with increasing altitude due to reduced gravitational acceleration. Thus, W_1 (coal mine, below sea level) > W_2 (sea level) > W_3 (top of mountain).

71. *c)* For rolling without slipping, friction provides torque. The moment of inertia is lower for a sphere ($2/5\ MR^2$) than a cylinder ($1/2\ MR^2$), requiring less friction for the sphere.

72. *a)* Kinetic energy imparted rate = $(1/2)mv^2$ per unit time. Mass flow rate = ρAv, so kinetic energy rate = $(1/2)(\rho Av)v^2 = \frac{1}{2} A\rho v^3$.

73. *b)* Moment of inertia has the dimensional formula $[M\ L^2]$, whereas moment of a force (torque) has the dimensional formula $[M\ L^2\ T^{-2}]$. Since their dimensions are different, they do not form an identical pair. All other pairs in the options have identical dimensions.

74. *b)* The body falls under gravity, and the distance fallen in time t/2 is $s = (1/2)\cdot g\cdot(t/2)^2 = (1/4)\cdot g\cdot t^2$. Since the total height $h = (1/2)\cdot g\cdot t^2$, the body has fallen h/4 in t/2 seconds. So, the distance from the ground is h – h/4 = 3h/4, which means it is at h/4 from the ground.

75. *a)* Each bullet has momentum = mv. If n bullets are fired per second, the total momentum imparted per second (rate of change of momentum) is nmv. According to Newton's second law, force = rate of change of momentum, So the reaction offered by the wall is nmv.

76. *c)* She was appointed in October 2024 as the first woman to head the tri-service DGAFMS.

77. *b)* As per the 2025 Global Gender Gap Report, India ranked 131 out of 146 countries.

78. *a)* India's gender gap remains largest in political representation, despite improvements in other indices.

79. *b)* The Hemis Festival is celebrated in Hemis Monastery, Ladakh, to honor the birth of Guru Padmasambhava.

80. *a)* Global Hunger Index – Concern Worldwide & Welthungerhilfe, Emissions Gap Report – UNEP, World Energy Outlook – IEA, Global Financial Stability Report – IMF

81. *a)* He won the French Open 2025 Men's Singles title, defeating Jannik Sinner.

82. *a)* He defeated Jannik Sinner (not Djokovic), becoming the first Spaniard since Nadal and won his third Slam.

83. *b)* INS Sandhayak is India's advanced indigenous survey vessel for maritime data. It was commissioned in February 2024.

84. *b)* Mandatory local sourcing and data localization norms for wind turbines

85. *c)* Justice Julia Sebutinde, from Uganda, became Acting President of the ICJ in 2025.

86. *b)* Electrolysis of molten NaCl, thermal decomposition of $CaCO_3$, and photolysis of AgBr all involve breaking strong chemical bonds using energy, resulting in new substances, hence are chemical changes. Boiling ethanol is a physical change.

87. *a)* Sublimation of dry ice, gas expansion in vacuum, and nitrogen boiling are entropy-driven, involving increased randomness without significant enthalpy change, appearing energetically neutral.

88. a*)* Hydrogen forms ionic (like NaH) and covalent (like H_2) bonds, and can gain an electron to form H^- like halides, reflecting both alkali and halogen-like behavior. H_3O^+ formation is due to proton donation, not complete H.

89. *a)* Water-gas shift hydrogen is impure, electrolytic hydrogen is highly pure, and blue hydrogen is produced from methane with CO_2 capture. Fuel cells are not internal combustion systems.

90. *a)* Lewis acids are electron pair acceptors. BF_3, $AlCl_3$, and SO_3 accept electron pairs. NH_3 is a base under Lewis theory.

91. *d)* All given pairs are valid conjugate acid-base pairs as per Brønsted–Lowry theory, involving proton transfer.

92. *a)* Buffers resist pH change, blood is a natural buffer, and pH = pKa when acid and base concentrations are equal. A strong acid + its base doesn't usually form a buffer.

93. *a)* Graphene, graphite, and fullerenes have sp^2 hybridization, enabling π bonding. Diamond is sp^3 hybridized.

94. *a)* Diamond has a 3D tetrahedral lattice, lacks delocalized electrons, and shows very high thermal conductivity. Graphite conducts electricity; diamond does not.

95. *a)* Fullerenes are cage-like, CNTs have exceptional strength, and graphene has zero bandgap. Diamond is not a good conductor, making option 4 invalid.

96. *d)* These key experiments contributed to modern atomic theory: photoelectric effect (quantization), Davisson–Germer (wave-particle duality), Millikan's (charge of electron), and Rutherford's gold foil (nucleus).

97. *d)* The quantum model defines orbitals as probability clouds, with quantum numbers determining energy, shape, and uniqueness of electron states.

98. *a)* Cr violates Aufbau with [Ar] $3d^5\ 4s^1$ for half-filled stability. Cr^{3+} becomes [Ar] $3d^3$. In ground state, Cr has unpaired electrons.

99. *a)* $l = 2$ indicates d-orbital, for $n = 3 \rightarrow l = 0,1,2$ are allowed, and $m = +3$ exists for f-orbitals ($l = 3$). But $s = +1$ is invalid; spin is only $\pm ½$.

100. *d)* Anomalies in ionization energy arise from electronic configurations: Be > B, N > O, and across periods IE increases, while Li > Na due to electron being closer to the nucleus in Li.

101. *a)* Living organisms show homeostasis and convert energy via metabolism (1), and unlike non-living things, they can grow, reproduce, and metabolize. Crystals (2) can grow but don't show metabolism or reproduction, hence not living. Complex reactions (3) can be performed in labs with non-living matter (like catalytic reactions), but that doesn't make them alive. Statement 4 is incorrect as some living organisms (like mules) do not reproduce yet are considered living.

102. *a)* Protoplasm is called the physical basis of life (1), includes both cytoplasm and nucleus (3), and behaves like a colloid enabling movement and streaming (4). However, it is found in both prokaryotic and eukaryotic cells, so statement 2 is incorrect.

103. *a)* Prokaryotes lack membrane-bound organelles (1), plant cells have chloroplasts and large vacuoles (3), and mitochondria are found in both plant and animal cells (4). Animal cells do not have cell walls (2), so that statement is incorrect.

104. *a)* Xylem and phloem transport water and food respectively (1,2), and epithelial tissue protects and secretes (4). Muscular tissue does not transmit impulses (that's a function of nervous tissue), so 3 is incorrect.

105. *a)* Pollination usually precedes fertilization in plants (2), and vegetative propagation is an asexual method in plants (4). Binary fission is asexual, not sexual (1 incorrect), and many animals reproduce asexually (e.g., hydra), so 3 is also incorrect.

106. *a)* The liver detoxifies blood (2), produces bile (3), and helps regulate blood glucose via glycogen storage (4). However, insulin is produced by the pancreas, not liver, so statement 1 is incorrect.

107. *a)* Kidneys remove waste (A-2), lungs exchange gases (B-3), pancreas produces digestive enzymes (C-1), and the brain coordinates neural functions (D-4), making option 1 the correct match.

108. *a)* Epidemics involve sudden case spikes (1), endemic diseases are regularly occurring in specific areas (2), and vector-borne diseases like malaria can become epidemics (4). Pandemics are global, not localized (3 is incorrect).

109. *a)* Vaccination (1), vector control (2), and isolating infected individuals (4) are valid strategies. However, indiscriminate antibiotic use (3) can lead to resistance and is not recommended for all fevers.

110. *a)* Connective tissue includes bones and blood (1), nervous tissue transmits impulses (2), and muscle tissue can be voluntary (skeletal) or involuntary (cardiac/smooth) (3). Epithelial tissue is also found externally (e.g., skin), not just internal (4 is incorrect).

111. *b)* Fire altars at Kalibangan show pre-Vedic ritual culture. Ploughed fields are unique here.

112. *a)* Atharvaveda mentions "krishna ayas" (black metal = iron); Satapatha Brahmana explains its use.

113. *d)* Arikamedu, Muziris, Sopara, and Kaveripattinam were major ancient Indian ports known to Greeks/Romans.

114. *a)* Nagarjunakonda inscriptions contain early reference to Avalokiteshvara, Mahayana deity.

115. *a)* Dandin's Dashakumaracharita depicts corrupt officials, caste fluidity, and city decadence.

116. *b)* Satish Samanta ran "Tamluk National Government" during Quit India movement.

117. *a)* The 1857 Gagging Act and 1910 Indian Press Act curbed nationalist writing; 1878 Vernacular Press Act targeted Indian-language papers.

118. *a)* Sandhya (BB Upadhyay), Sudharak (Agarkar), Indian Sociologist (SK Varma); Kesari was Bal Gangadhar Tilak's, not Lajpat Rai's.

119. *a)* Ghadar was multilingual: Urdu, Punjabi, English to reach Indian diaspora.

120. *a)* Azad Hind govt under Bose was recognised diplomatically, had its own currency/stamps, and military.

121. *a)* 1st Amendment limited free speech, enabled reservation, protected land reforms via 9th Schedule.

122. *a)* "Secular" and "Socialist" added in 42nd Amendment (1976); "Cabinet" not mentioned originally.

123. *a)* 42nd Amendment added 48A (environment), 51A (duties), 39A (legal aid), and strengthened DPSPs via 31C.

124. *a)* Andhra, Karnataka, and Bengal had Panchayati Raj laws before 1992.

125. *a)* Vinoba Bhave began Bhoodan at Pochampally (Telangana, 1951) when a landlord donated land.

126. *a)* The 1954 Rural Credit Survey recommended bank nationalisation and cooperative–credit linkage.

127. *a)* Kepler didn't invent heliocentrism (Copernicus did). Others matched correctly.

128. *a)* Henry – naval school; Dias – Cape; Drake – circumnavigation; Vespucci – SA coast.

129. *a)* "Middle Passage" was the Atlantic slave trade route from Africa to Americas.

130. *a)* Botticelli painted Birth of Venus (not Mona Lisa, which was by Da Vinci).

131. *a)* GPS uses ellipsoids, not geoids. Mean sea level ignores gravity variations. Geoid is idealized for gravitational modeling.

132. *a)* 66.5°S has polar night in June. Longitude affects time; same longitudes can have different solar times due to elevation or terrain.

133. *a)* Longitude, DST, and political zones affect time. Elevation has no direct impact.

134. *a)* IDL is a human-made conceptual line; not a great circle and deviates for political convenience.

135. *a)* Standard time assumes Earth's rotation and regional zones; both collapse if Earth stops or single time zone is forced.

136. *a)* Tidal theory doesn't explain retrograde motion. Accretion theory is modern and includes exoplanets.

137. *b)* Oyashio-Kuroshio form North Pacific gyre. Humboldt is cold; Agulhas affects monsoons.

138. *a)* Bore tides occur in estuaries, not trenches. The rest are correctly matched.

139. *a)* Equatorial bulge affects satellite paths, not tide range. Coastal shape, Sun-Moon alignment, and depth affect tides.

140. *a)* Chennai and Paradip are man-made; Mumbai and Cochin are natural harbors.

141. *a)* Panama Canal is not a major energy choke point; the others are.

142. *d)* Himalayas limit overflights; political airspace issues and jet streams complicate routes.

143. *c)* West coast is closer to Middle East, has deep waters, historical links, and economic hubs.

144. *c)* Mangalore is not major for iron ore export; Kandla is mainly for dry cargo and oil, not refining.

145. *a)* GQ is for roads, not air; East-West Corridor, DFCs, NH-44 are correct.

146. *a)* Thermohaline drives deep currents. Coriolis force is minimal at depth.

147. *c)* Angular difference, Earth's tilt (seasonal shift), and time policies all affect observed solar time.

148. *a)* Piracy, icebergs, sanctions, and seabed topography all constrain trade.

149. *b)* IST = UTC+5:30. It passes through 5 states. NE India unofficially uses a different time.

150. *b)* Shape affects gravity, sunlight distribution, and satellite orbits. Centrifugal force is lower at poles, not higher.