

ANSWER KEY

IBRAIN_ENG_OAV_VST_001_VST

IBRAIN | Class 5 — Full Test (VST)

MCQ Quick Reference (1-Mark Questions)

Q1. (A)	Q2. (C)	Q3. (C)	Q4. (B)
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Q29. (B)	Q30. (A)	Q31. (B)	Q32. (B)
Q33. (B)	Q34. (B)	Q35. (B)	Q36. (A)
Q37. (A)	Q38. (A)	Q39. (C)	Q40. (B)
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Q49. (B)	Q50. (A)	Q51. (C)	Q52. (B)
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Detailed solutions on next pages

DETAILED SOLUTIONS

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English

Q1. Choose the correctly spelt word for a large animal:

Answer: (A) Elephant

Explanation: E-l-e-p-h-a-n-t is the correct spelling.

Q2. What does the word '**Scooterist**' mean?

Answer: (C) A person who rides a scooter

Explanation: The suffix '-ist' denotes a person who practices or operates something; hence a scooterist is one who rides a scooter.

Q3. Complete the sentence with the appropriate preposition: Rina sat _____ Sita and Gita.

Answer: (C) Between

Explanation: 'Between' is used when placing someone in the middle of two specific persons (Sita and Gita).

Q4. Fill in the blank with the correct preposition: "The bank is _ _ _ _ _ the school."

Answer: (B) behind

Explanation: 'Behind' correctly expresses spatial location indicating position at the back of the school.

Q5. Rearrange the letters 'S I A L' to form a meaningful word.

Answer: (A) SAIL

Explanation: Arranging 'S I A L' correctly forms the word 'SAIL'.

Q6. What is a 'Windowsill'?

Answer: (B) The ledge or bottom shelf forming the base of a window

Explanation: A windowsill is a narrow shelf or ledge fitted at the bottom of a window frame.

Q7. Where does Anant play his game of hockey?

Answer: (C) On rocky ground

Explanation: The poem mentions that Anant plays hockey even when the ground is 'rocky'.

Q8. What is the opposite (antonym) of the word 'Fast'?

Answer: (B) Slow

Explanation: The antonym of the adjective 'fast' is 'slow'.

Q9. My grandfather has a habit of keeping his glasses ___ different places.

Answer: (A) in

Explanation: The preposition "in" is used to indicate position or location within an area or places.

Q10. He looked ___ the house for his glasses.

Answer: (A) around

Explanation: "Looked around" means searching in various directions or locations throughout a place.

Q11. Keep your shoes ___ the shoe rack.

Answer: (A) On

Explanation: "On" indicates position on top of a surface such as a shoe rack.

Q12. What did the honeybee collect from flowers?

Answer: (B) Nectar

Q13. Where did the bee take the nectar?

Answer: (C) To the hive

Q14. What did the bees make from nectar?

Answer: (C) Honey

Q15. What does the passage show about the bees?

Answer: (A) They work together

Q16. The number of two-digit natural numbers is:

Answer: (B) 90

Explanation: Two digit numbers range from 10 to 99. Total = $99 - 10 + 1 = 90$.

Q17. Gita had ₹1,224. Her father gave her ₹450. She spent ₹375 to buy a storybook. How much money does Gita have now?

Answer: (A) ₹1,299

Explanation: Total money = $1,224 + 450 = 1,674$. Remaining money = $1,674 - 375 = ₹ 1,299$.

Q18. What is the place value of 0 at any position in a number?

Answer: (B) Always 0

Explanation: The place value of 0 is always 0 regardless of its position.

Q19. Calculate the sum of $\frac{1}{4}$ turn and $\frac{1}{2}$ turn expressed as a single fraction of a full turn:

Answer: (C) $\frac{3}{4}$ turn

Explanation: $\frac{1}{4} + \frac{1}{2} = \frac{1}{4} + \frac{2}{4} = \frac{3}{4}$ turn.

Q20. Evaluate the sum of the reciprocals of two numbers if their sum is 10 and their product is 21.

Answer: (B) $\frac{10}{21}$

Explanation: Let the numbers be x and y . We are evaluating $\frac{1}{x} + \frac{1}{y} = \frac{x+y}{xy}$. Given $x + y = 10$ and $xy = 21$, the sum of their reciprocals evaluates directly to $\frac{10}{21}$.

Q21. A complete journey problem: A passenger buys a train ticket for Rs. 1,450, food for Rs. 350, and taxi fare for Rs. 200. He paid using two Rs. 2,000 notes. How much balance money did he get back?

Answer: (A) Rs. 2,000

Explanation: Total expenditure = $1,450 + 350 + 200 = \text{Rs. } 2,000$. Total money given = $2 \times 2,000 = \text{Rs. } 4,000$. Balance returned = $4,000 - 2,000 = \text{Rs. } 2,000$.

Q22. A trekker starts at base elevation 250 m, climbs up 850 m, descends 320 m into a valley, and then climbs another 410 m. What is his final elevation above sea level?

Answer: (A) 1190 m

Explanation: Final elevation = $250 + 850 - 320 + 410 = 1190 \text{ m}$.

Q23. Evaluate the least number which when divided by 12, 16, and 24 leaves a remainder of 7 in each case, but is completely divisible by 13.

Answer: (D) 247

Explanation: $LCM(12, 16, 24) = 48$. The number is of the form $48k + 7$. Testing values: $k = 1 \Rightarrow 55, k = 2 \Rightarrow 103, k = 3 \Rightarrow 151, k = 4 \Rightarrow 199, k = 5 \Rightarrow 247$. 247 is completely divisible by 13 ($247 \div 13 = 19$).

Q24. An empty flask weighs 74.35 g. When completely filled with water, it weighs 173.18 g. Evaluate the exact weight of the water inside the flask.

Answer: (A) 98.83 g

Explanation: To find the weight of the water, subtract the weight of the empty flask from the full flask: $173.18 - 74.35 = 98.83 \text{ g}$.

Q25. Identify the next number in the alternating sequence: 4, 12, 10, 30, 28, 84, ...

Answer: (A) 82

Explanation: Pattern: Multiply by 3, then subtract 2. After 84, subtract 2 $\rightarrow 84 - 2 = 82$.

Q26. A quadrilateral in which both pairs of opposite sides are parallel and equal is called a:

Answer: (C) Parallelogram

Explanation: By definition, a quadrilateral with opposite sides parallel and equal is a parallelogram.

Q27. Which has greater mass: 1 kg of cotton or 1 kg of iron?

Answer: (C) Both have equal mass

Explanation: Both weigh exactly 1 kg, so their mass is identical despite volume differences.

Q28. How many times can 25 be continuously subtracted from 625 until 0 is reached?

Answer: (B) 25 times

Explanation: $625 \div 25 = 25$. Therefore, 25 can be continuously subtracted 25 times.

Q29. A point $A(3, 4)$ is reflected across the vertical axis (y -axis). What are the coordinates of its reflected image A' ?

Answer: (B) $(-3, 4)$

Explanation: Reflection across the vertical axis (y -axis) changes the sign of the x -coordinate while keeping the y -coordinate same. Thus, $A'(3, 4) \rightarrow (-3, 4)$.

Q30. A rectangular board has a length of 20 cm and a perimeter of 64 cm. Calculate the area of the board.

Answer: (A) 240 sq. cm

Explanation: $L + B = \frac{64}{2} = 32 \text{ cm} \implies B = 32 - 20 = 12 \text{ cm}$. Area = $20 \times 12 = 240 \text{ sq. cm}$.

Q31. Invasive floating weeds like Water Hyacinth (*Eichhornia*) spread rapidly across village ponds. What immediate ecological harm does this cause to submerged aquatic life?

Answer: (B) It blocks sunlight penetration and prevents atmospheric oxygen dissolution, suffocating fish

Explanation: Dense surface matting prevents sunlight from reaching submerged aquatic plants (stopping photosynthetic O_2 output) and blocks air-water gas exchange.

Q32. A sealed glass bottle of fresh sweetened fruit juice is opened and left on a warm table for 2 days. Gas bubbles emerge and it smells like alcohol. What happened?

Answer: (B) Wild yeast spores settled and fermented fruit sugars into alcohol and CO_2

Explanation: Wild airborne yeasts undergo anaerobic fermentation, converting fruit glucose/fructose into ethanol (alcohol) and releasing carbon dioxide gas (CO_2) as bubbles.

Q33. Why does flying kites near high-voltage overhead power lines pose a severe shock hazard, even if the kite string appears non-metallic?

Answer: (B) Humid air, sweat, or carbon coatings on string act as electric conductors, allowing high-voltage current to pass through the human body to ground

Explanation: High voltages (11 kV/33 kV) can bridge dielectric gaps. String moisture or carbon particles convert string into a conductor, triggering electrocution.

Q34. Which synthetic fiber closely resembles natural sheep's wool in softness, warmth, and fluffiness, and is often named 'artificial wool'?

Answer: (B) Acrylic

Explanation: Acrylic fiber is a synthetic polymer that mimics natural wool's texture, weight, and insulating properties, widely used to make inexpensive winter sweaters.

Q35. The cooling process by which atmospheric water vapor reverts back into liquid water droplets is called:

Answer: (B) Condensation

Explanation: Condensation is the physical phase change from gaseous vapor to liquid state upon cooling.

Q36. A student cuts an apple into two halves: Apple Half A is kept with its outer skin intact, while Apple Half B is peeled and sliced into thin strips. After 4 hours, Apple Half B turns brown and spoils faster. Why?

Answer: (A) Peeling skin exposes inner moist plant tissues directly to atmospheric oxygen and microbial spores

Explanation: The cuticular skin of fruits acts as a physical protective barrier. Peeling breaks plant cell walls, exposing phenolic compounds to oxygen and enzyme polyphenol oxidase.

Q37. Trace the energy conversion steps in a solar-powered agricultural water pump operating in a farm field:

Answer: (A) Solar radiant energy → Photovoltaic electrical energy → Motor kinetic energy pumping water

Explanation: Solar PV panels absorb sunlight (*Radiant energy*) to generate *Electrical energy*, which drives an electric pump motor (*Kinetic energy*) to lift groundwater.

Q38. After harvesting jute plants, the stems are bundled and submerged in slow-moving water for 10 to 15 days. What scientific process occurs during this period?

Answer: (A) The soft outer stem tissues decompose (retting), releasing the strong stem bast fibers

Explanation: Submerging jute stalks in water allows anaerobic bacteria to break down pectins holding the outer bark tissues, a process called retting, freeing the long bast fibers.

Q39. Which pair of major Indian rivers flow westward through rift valleys to empty into the Arabian Sea?

Answer: (C) Narmada and Tapi

Explanation: Narmada and Tapi rivers flow westward across central India into the Gulf of Khambhat (Arabian Sea).

Q40. A patient suffering from a bacterial infection takes high doses of broad-spectrum antibiotics for 14 days. Afterwards, the patient suffers from severe digestive distress and vitamin deficiency. Why?

Answer: (B) Antibiotics indiscriminately kill beneficial probiotic gut bacteria (*Lactobacillus*) along with pathogens, disrupting digestive flora and vitamin synthesis

Explanation: Broad-spectrum oral antibiotics kill beneficial intestinal microbes (*Lactobacillus* and probiotic flora). This impairs nutrient fermentation, disrupts B-vitamin synthesis, and allows opportunistic pathogens to bloom.

Q41. Why does exposure to 100°C water steam cause significantly more severe skin burns than contact with boiling water at 100°C?

Answer: (B) Steam carries extra latent heat of vaporization (2260 J/g) absorbed during phase change

Explanation: Steam at 100°C contains 2260 J/g of additional latent heat energy, which releases upon condensing on cooler skin.

Q42. Identify the fiber sample that melts, shrinks away from a flame, forms a hard uncrushable plastic bead, and emits a sweet chemical odor upon burning.

Answer: (C) Nylon / Polyester (Synthetic)

Explanation: Synthetic fibers (Nylon/Polyester) undergo thermal melting before burning, leaving hard plastic beads unlike natural cellulose or proteins.

Q43. Why are microscopic stomatal pores located strictly on the upper surface of floating Lotus (Nelumbo) leaves rather than the lower surface?

Answer: (B) Lower leaf surface is directly submerged in water; upper stomata face air for atmospheric gas exchange (CO_2/O_2)

Explanation: Floating leaves feature epistomatous stomata located exclusively on the upper adaxial epidermis exposed to air for gas exchange.

Q44. A food freezing experiment compares Slow Home Freezing (cooling to -18°C over 6 hours) with Individual Quick Freezing (IQF - cooling to -40°C in 3 minutes) for fresh strawberries. Upon thawing, Slow Frozen strawberries become mushy with heavy liquid drip loss, while IQF strawberries retain firm texture. Why?

Answer: (A) Slow freezing forms large ice crystals that puncture plant cell walls, causing cell fluid leakage upon thawing

Explanation: Slow freezing allows water molecules to migrate and form large extracellular ice crystals that mechanically rupture cell membranes. IQF forms tiny intracellular micro-crystals that preserve cell wall structural integrity.

Q45. Carrying a reusable cloth bag for shopping instead of accepting single-use plastic bags represents which 'R' principle of waste/energy management?

Answer: (B) Refuse (and Reduce)

Explanation: Declining disposable plastic bags is an example of **Refuse**, eliminating energy spent in manufacturing and processing single-use waste.

Social Science

Q46. When soapy detergent water enters a river pond, water strider insects walking on the surface film suddenly sink. What physical property of water is altered by detergent?

Answer: (B) Surface tension of water is dramatically reduced by detergent molecules

Explanation: Detergents act as surfactants, breaking hydrogen bonds at the water surface film and reducing surface tension, causing surface-dwelling insects to sink.

Q47. Synthesize a 3-step master plan for converting an ordinary school with muddy standing water into an exemplary 'Sabuja Anandamaya Vidyalaya' (Joyful Green School):

Answer: (B) Build soak pits for standing water, establish waste segregation with composting/recycling, and initiate student Green Brigades with tree plantation

Explanation: This holistic plan integrates physical water drainage, organic/dry waste recycling, and student-driven ecological leadership.

Q48. Ecological Corridor Analysis: If a heavy multi-lane highway is constructed breaking the wildlife movement corridor between Simlipal Tiger Reserve and neighboring forests, what disaster threatens wide-ranging mammals (elephants and tigers)?

Answer: (D) Wild animal migration routes will be severed, leading to frequent roadkill accidents, isolation, and severe elephant-human habitat conflict.

Explanation: Breaking migratory corridors traps large mammals in confined pockets, forcing hungry herds into agricultural villages and causing fatal collisions.

Q49. Propose an integrated sustainable conservation model for the Sundarbans delta that simultaneously preserves Royal Bengal Tigers, restores mangrove buffers, and supports local indigenous livelihoods.

Answer: (B) Implement community rear-face masks, establish regulated eco-tourism, restore native pneumatophore mangrove zones, and promote coir/honey indigenous cooperatives

Explanation: Sustainable deltaic management integrates human safety innovation (rear masks), nature restoration (mangrove bio-shields), and green indigenous livelihoods (honey/coir cooperatives).

Q50. Which of the following hazard-season matching pairs accurately reflects natural environmental risks in Odisha?

Answer: (A) Barsha → River Flooding; Late Grishma → Water Shortage/Heatwave; Seeta → Cold Wave

Explanation: Monsoon brings flood risks, late summer brings acute water scarcity and heatwaves, while winter brings localized agricultural frost and cold waves.

Q51. Predict what happens to soil fertility in a hill slope field if terrace farming is abandoned and converted into straight vertical plowing:

Answer: (C) Rainwater runoff velocity will accelerate, carving gullies and washing away topsoil nutrients rapidly

Explanation: Straight vertical plowing creates channels that speed up water runoff, causing severe gully erosion and topsoil loss.

Q52. What is the name of the Government program launched in 2014 to clean River Ganga?

Answer: (B) Namami Gange Program

Explanation: The Namami Gange Program was started in 2014 to clean and protect River Ganga.

Q53. Devise a community outreach initiative led by student Green Brigades ('Sabuja Sainika') to tackle village plastic pollution:

Answer: (A) Organizing 'Plastic-to-Cloth Bag Exchange' stalls, community awareness skits, and setting up village dry waste collection hubs

Explanation: Empowering students to drive community cloth-bag substitution and localized dry waste collection fosters sustainable societal transformation.

Q54. Which musical instrument combination is traditionally essential for accompanying Odissi vocal and dance renditions?

Answer: (B) Harmonium, Tabla, and Mardala

Explanation: Odissi music performance relies heavily on Harmonium, Tabla, and specifically the Mardala for rhythmic percussion support.

Q55. In a controlled agricultural field experiment comparing Apatani paddy-cum-fish culture against conventional monoculture, paddy-fish fields recorded a 75% reduction in weed biomass (g/m^2). What biological process accounts for this reduction?

Answer: (B) Swimming fish actively graze on aquatic weed sprouts and disturb weed root settlement in flooded soil

Explanation: Herbivorous and omnivorous fish species foraging in flooded paddy fields consume emerging weed propagules and disrupt weed root anchoring via bioturbation.

Q56. What scientific process transforms invisible atmospheric water vapor into visible cloud droplets upon cooling?

Answer: (B) Condensation (Ghanibhakarana)

Explanation: Condensation occurs when water vapor rises into cooler upper layers of the atmosphere and cools down to form liquid cloud droplets.

Q57. Consider two coastal regions: Region A (protected by thick mangrove forests) and Region B (mangroves cleared for concrete resorts). A severe cyclone brings 4 meter storm surges. What comparative damage will occur?

Answer: (A) Region A will experience low shoreline erosion and minimal inland flood damage; Region B will suffer severe erosion and destruction

Explanation: Dense mangrove root systems absorb mechanical wave energy and act as physical buffer zones during coastal surges.

Q58. How do coastal mangrove trees (like those in Coringa/Bhitarkanika) act as physical shock absorbers during super cyclones and high flood tides?

Answer: (B) By absorbing and dissipating wave kinetic energy through dense stilt/prop root networks

Explanation: Dense mangrove root architecture provides complex structural drag that attenuates wave amplitude and dissipates cyclone storm surge kinetic energy.

Q59. A school replaces all 40 W fluorescent tubelights with 10 W energy-efficient LED bulbs. By what factor is power consumption reduced per light fixture?

Answer: (B) 4 times

Explanation: Power reduction ratio = $40\text{ W}/10\text{ W} = 4$. LED technology consumes $1/4$ th the power.

Q60. How is the core concept of 'Unity in Diversity' (Bibidhata Madhyare Ekata) practically illustrated across Indian society?

Answer: (B) People of diverse languages, religions, attires, and traditions live together with mutual respect as one nation.

Explanation: Unity in Diversity means that despite vast differences in language, attire, cuisine, and customs, all Indians share a common national bond.