



Integrated Science Question Bank for Grade 9 Middle School

Growth & Development • Coordination System • Reproduction • Homeostasis • Pressure • Electricity

Multiple Choice Questions (50 Questions)

- Growth in living things is...
 - A process of change that can return to normal
 - The process of increasing body size that cannot be reversed (irreversible)
 - The process of organ maturation alone
 - The process of reproduction of living things
- The hormone that plays a role in human growth is...
 - Insulin
 - Somatotropin (growth hormone)
 - Adrenaline
 - Glucagon
- The part of the nerve cell that functions to receive stimuli from other nerve cells is...
 - Axon
 - Dendrites
 - cell body
 - Cell nucleus
- The organ where fertilization occurs in humans is...
 - Uterus
 - Ovaries
 - Fallopian tubes
 - Vagina
- Homeostasis is the body's ability to...
 - Breed
 - Maintaining a stable body condition
 - Grow and develop
 - Active movement
- The part of the flower that produces pollen is...
 - Pistil
 - Stamens
 - Flower Crown
 - Flower petals
- The unit of pressure in the international system (SI) is...
 - Newton
 - Pascal
 - Joule
 - Watt
- An electric charge that does not flow is called...
 - Dynamic electricity
 - Static electricity

- C. Electric current
 - D. Electrical voltage
9. Ohm's law formula is...
- A. $V = I + R$
 - B. $V = I \times R$
 - C. $V = I \div R$
 - D. $V = I - R$
10. Plant tissue whose cells are always dividing is...
- A. Adult network
 - B. Meristematic tissue
 - C. Transport network
 - D. Protective network
11. The chemical that transmits impulses between nerve cells is called...
- A. Hormone
 - B. Neurotransmitters
 - C. Enzyme
 - D. Protein
12. Male sex cells in humans are called...
- A. Ovum
 - B. Sperm
 - C. Zygote
 - D. Embryo
13. The pressure caused by the height of a liquid is called pressure...
- A. Atmosphere
 - B. Hydrostatic
 - C. Air
 - D. Gas
14. The tool for measuring electric current is...
- A. Voltmeter
 - B. Ammeter
 - C. Ohmmeter
 - D. Thermometer
15. The organ that plays a role in filtering blood in the excretory system is...
- A. Lungs
 - B. Kidney
 - C. Heart
 - D. Skin
16. Why does growth in plants only occur at the tips of the roots and the tips of the stems?
- A. Because that part gets sunlight
 - B. Because there is meristem tissue whose cells are actively dividing
 - C. Because that part gets a lot of water
 - D. Because it contains chlorophyll

17. How does the hormone auxin affect the growth of plant stems?
- A. Inhibits stem growth
 - B. Stimulates cell elongation so that the stem grows elongated
 - C. Causes the stem to branch
 - D. Stopping stem growth
18. What is the difference between conscious movement and reflex movement?
- A. Conscious movement is faster than reflex movement
 - B. Conscious movement through the brain, reflex movement only through the spinal cord
 - C. Reflex movements can be controlled, conscious movements cannot.
 - D. There is no difference between the two
19. Why does the spinal cord play an important role in reflex movements?
- A. Because it produces hormones
 - B. Because it is the center for processing stimuli for fast responses without involving the brain.
 - C. Because it connects nerves to muscles
 - D. Because it regulates body balance
20. Why do women menstruate?
- A. Due to excessive egg production
 - B. Because the uterine wall sheds when the egg is not fertilized
 - C. Due to an infection in the uterus
 - D. Due to lack of estrogen hormone
21. What is the function of the testosterone hormone in men?
- A. Regulates body temperature
 - B. Influences the development of secondary sexual characteristics such as deep voice and moustache
 - C. Produce energy
 - D. Regulate blood pressure
22. How does the body respond when the environmental temperature is very cold?
- A. The body sweats
 - B. The body shivers and blood vessels constrict to reduce heat loss.
 - C. The body lowers metabolism
 - D. The body stops activity
23. What is the function of the kidneys in maintaining body homeostasis?
- A. Produces the hormone insulin
 - B. Filters blood and regulates fluid and salt balance in the body
 - C. Digesting protein
 - D. Storing vitamins
24. What is the difference between self-pollination and cross-pollination?
- A. Self-pollination uses insects, cross-pollination does not
 - B. Self-pollination occurs within one flower, cross-pollination occurs between different flowers.
 - C. Cross-pollination is slower

- D. No difference
25. Why is pollination by insects more effective than pollination by wind?
- A. Because the wind does not carry pollen
 - B. Because insects directly carry pollen to the pistil of another flower more precisely
 - C. Because insects are bigger
 - D. Because the wind damages the flowers
26. How can fish go up and down in the water?
- A. By moving the tail
 - B. By regulating the volume of gas in the swim bladder
 - C. By inhaling water
 - D. By moving the fins
27. Why is a sharp knife easier to cut than a dull knife?
- A. Because sharp knives are heavier
 - B. Because a sharp knife has a smaller surface area, the pressure is greater.
 - C. Because a sharp knife is longer
 - D. Because sharp knives are made of harder materials
28. Explain the working principle of a hydraulic jack!
- A. Using the lever principle
 - B. Pressure on a liquid is transmitted equally in all directions (Pascal's Law)
 - C. Using magnets
 - D. Using a pulley
29. Why is the air pressure at the top of a mountain lower than in the lowlands?
- A. Because the temperature is cooler
 - B. Because the higher the place, the thinner the layer of air above it.
 - C. Because the wind is stronger
 - D. Because there is no water
30. What happens when we rub a plastic ruler with a woolen cloth?
- A. The ruler gets hot
 - B. The ruler is charged with static electricity due to the movement of electrons.
 - C. The ruler becomes a magnet
 - D. Nothing happened
31. What is the difference between series and parallel circuits?
- A. No difference
 - B. Series circuit: same current in each component; Parallel: same voltage in each branch
 - C. Parallel circuits are weaker
 - D. A series circuit cannot carry current
32. Why are the lights in the house installed in parallel?
- A. Because it's cheaper
 - B. So that if one light goes out, the other lights stay on.
 - C. Because it saves electricity
 - D. Because it's brighter

33. How do neurons work to transmit impulses?
- A. Through the bloodstream
 - B. Electrical impulses travel along the axon and release neurotransmitters at the synapse.
 - C. Through mechanical vibrations
 - D. Through the light
34. Why is metamorphosis in frogs called complete metamorphosis?
- A. Because it changes color
 - B. Because they experience drastic changes in body shape (eggs→tadpoles→frogs)
 - C. Because it happens in water
 - D. Because it eats plants
35. What is the role of the pancreas in regulating blood sugar?
- A. Storing sugar
 - B. Produces the hormones insulin and glucagon which regulate blood sugar levels.
 - C. Digesting sugar
 - D. Burning sugar
36. How does the pollination process work in angiosperms?
- A. Pollen enters directly into the ovule
 - B. Pollen falls onto the stigma, then forms a pollen tube towards the ovule.
 - C. Pollen is absorbed by the leaves
 - D. Pollen is not required
37. Why can ships made of iron float?
- A. Because iron is light
 - B. Because the ship is hollow, its density is less than that of water.
 - C. Because it is painted
 - D. Because there is a machine
38. How does a barometer work to measure air pressure?
- A. Measuring air temperature
 - B. Air pressure presses on the mercury in the tube and its height indicates the pressure.
 - C. Measuring wind speed
 - D. Measuring humidity
39. Why do wet clothes dry quickly when hung in a windy place?
- A. Because of the hot wind
 - B. Because the wind carries water vapor so evaporation is faster
 - C. Because the wind makes clothes hot
 - D. Not related to
40. What is the function of a fuse (circuit breaker) in a home electrical installation?
- A. Increase the voltage
 - B. Automatically cuts off the electric current in case of overload to prevent fire.
 - C. Saving electricity
 - D. Reduce electricity bills

41. A child experiences rapid growth, reaching a height far exceeding that of his peers. This abnormality is called gigantism, which is caused by...
- A. Thyroxine hormone deficiency
 - B. Excess growth hormone (somatotropin) in childhood
 - C. Excess insulin hormone
 - D. Calcium deficiency
42. Diabetics should avoid sweet foods because...
- A. Sugar causes obesity
 - B. The pancreas cannot produce enough insulin to convert sugar into energy.
 - C. Sugar damages teeth
 - D. Sugar causes allergies
43. A marathon runner sweats profusely when running in hot weather. This is the body's attempt to...
- A. Remove toxins
 - B. Lowering body temperature to keep it normal (homeostasis)
 - C. Lose weight
 - D. Cleansing the skin
44. A farmer wants to quickly reproduce superior mango plants with identical traits. The most appropriate method is...
- A. Planting mango seeds
 - B. Grafting or cutting mango stems
 - C. Pollinate flowers with insects
 - D. Let the mango fall by itself
45. A wooden cube with a side of 10 cm and a mass of 400 grams is placed in water. If the density of water is 1 g/cm³, then the object will...
- A. Sinking, because the density of wood is greater than that of water
 - B. Floats, because the density of wood (0.4 g/cm³) is less than that of water.
 - C. Floating in the middle of the water
 - D. Dissolved in water
46. Two lamps of 3Ω and 6Ω are connected in parallel and connected to a 6V battery. What is the total current flowing?
- A. 1 A
 - B. 3 A
 - C. 2 A
 - D. 4 A
47. Why do divers have to rise to the surface slowly?
- A. So as not to get cold
 - B. To avoid decompression sickness due to nitrogen bubbles in the blood
 - C. So as not to lose direction
 - D. To save oxygen

48. A house uses 4 20W lamps, 1 100W TV, and 1 150W refrigerator for 6 hours a day. If the electricity rate is Rp1,500/kWh, how much will the electricity cost per month (30 days)?
- A. Rp. 81,000
 - B. Rp. 97,200
 - C. Rp. 120,000
 - D. Rp. 150,000
49. Why can in vitro fertilization (IVF) help couples who have difficulty conceiving?
- A. Because it uses other people's eggs
 - B. Because fertilization is carried out outside the body (laboratory) then the embryo is implanted into the uterus
 - C. Because the baby is bigger
 - D. Because of using special medicine
50. How do baby incubators work to keep premature babies alive?
- A. Just provide oxygen
 - B. Automatically regulates temperature, humidity, and oxygen to maintain baby's homeostasis.
 - C. Automatic feeding
 - D. Increase baby's weight

ESSAY Questions (5 Questions)

1. Explain in full the process of perfect metamorphosis in butterflies from egg to adult!
2. Explain the mechanism of blood sugar homeostasis in humans!
3. Compare the vegetative and generative reproductive systems in plants! Give 3 examples of each!
4. Explain why a ship made of iron can float, while an iron nail sinks in water! Relate your answer to the concept of density and Archimedes' law, and provide simple calculations to illustrate!
5. Explain the difference between static electricity and dynamic electricity! Give 2 examples of each application in everyday technology!