

MHT CET 2024 Biology Memory Based Question Paper PDF

1. What is the approximate size range of lymphocytes, a type of white blood cell?
 - (A) 5-10 micrometers.
 - (B) 10-15 micrometers.
 - (C) 15-20 micrometers.
 - (D) 20-25 micrometers.
2. Which of the following hormones plays a key role in kidney osmoregulation by promoting water reabsorption in the collecting ducts?
 - (A) Insulin.
 - (B) Glucagon.
 - (C) Antidiuretic hormone (ADH).
 - (D) Aldosterone.
3. Which of the following structures in the kidney is primarily responsible for the reabsorption of water and solutes from the filtrate?
 - (A) Glomerulus.
 - (B) Bowman's capsule.
 - (C) Proximal convoluted tubule.
 - (D) Distal convoluted tubule.
4. In a monohybrid cross between two heterozygous parents ($Aa \times Aa$), what is the genotypic ratio among the offspring?
 - (A) 1:1.
 - (B) 1:2:1.
 - (C) 3:1.
 - (D) 9:3:3:1.
5. Which of the following best describes the sympathetic pathway's effect on the glomerulus in the kidney?
 - (A) Sympathetic stimulation causes vasodilation of the afferent arteriole, increasing glomerular filtration rate (GFR).

- (B) Sympathetic stimulation causes vasoconstriction of the afferent arteriole, decreasing glomerular filtration rate (GFR).
 - (C) Sympathetic stimulation has no effect on the glomerulus.
 - (D) Sympathetic stimulation causes vasodilation of the efferent arteriole, decreasing glomerular filtration rate (GFR).
6. Which region of the brain plays a crucial role in regulating glomerular filtrate by influencing the release of hormones involved in kidney function?
- (A) Cerebellum.
 - (B) Hypothalamus.
 - (C) Medulla oblongata.
 - (D) Cerebrum.
7. Which of the following terms describes the normal type of chromosome arrangement where an organism has the correct number of chromosomes?
- (A) Monoploidy.
 - (B) Aneuploidy.
 - (C) Polyploidy.
 - (D) Euploidy.
8. In DNA fingerprinting, which of the following techniques is used to amplify specific regions of DNA for analysis?
- (A) Polymerase Chain Reaction (PCR).
 - (B) Gel Electrophoresis.
 - (C) DNA Sequencing.
 - (D) Southern Blotting.
9. If adenine constitutes 30% of the bases in a DNA molecule, what percentage of the bases is guanine?
- (A) 30%.
 - (B) 40%.
 - (C) 20%.
 - (D) 25%.
10. What percentage of the world's area does India occupy?

- (A) 4.4%.
(B) 6.1%.
(C) 2.4%.
(D) 9.8%.
- 11.** Hydrogen is used to prepare?
- (A) Olive oil.
(B) Ghee.
(C) Coconut oil.
(D) Vanaspati Ghee.
- 12.** In a trihybrid cross involving three different genes ($AaBbCc \times AaBbCc$), what is the expected genotypic ratio among the offspring?
- (A) 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1
(B) 27 : 9 : 9 : 9 : 3 : 3 : 3 : 1
(C) 64 : 16 : 16 : 16 : 16 : 4 : 4 : 4 : 1
(D) 81 : 27 : 27 : 27 : 27 : 9 : 9 : 9 : 9 : 3 : 3 : 3 : 1
- 13.** Which of the following codons codes for the amino acid phenylalanine?
- (A) AUG.
(B) UUU.
(C) GCA.
(D) CCC.
- 14.** To increase wool production and to improve the quality of wool, the bacterial genes concerned with biosynthesis of cysteine amino acids involved in formation of keratin protein found in wool are cloned and introduced in sheep.
- (A) cys E, cys M.
(B) cys F, cys G.
(C) cys F, cys M.
(D) lac y, lac a.
- 15.** Which codon has a dual function?
- (A) AUG

- (B) UAG
 - (C) UAA
 - (D) UGA
- 16.** An angiotensinogen is secreted by _____?
- (A) Kidneys
 - (B) Liver
 - (C) Pancreas
 - (D) Lungs
- 17.** Body Fluids and Circulation: The inner surface of the ventricle is thrown into a series of irregular muscular ridges called _____?
- (A) Chordae tendineae
 - (B) Columnae carnaeae
 - (C) Papillary muscles
 - (D) Endocardium
- 18.** What is the site of perception of photoperiod necessary for induction of flowering in plants?
- (A) Roots
 - (B) Stems
 - (C) Leaves
 - (D) Flowers
- 19.** Most widely accepted explanation for the ascent of sap in trees is _____?
- (A) Root pressure theory
 - (B) Capillarity theory
 - (C) Transpiration cohesion theory
 - (D) Imbibition theory
- 20.** Which animal conserves water through the excretion process?
- (A) Camel
 - (B) Kangaroo rat
 - (C) Frog

- (D) Fish
- 21.** Grapes fruit elongation: Which hormone is used?
- (A) Cytokinin
 - (B) Gibberellin
 - (C) Auxin
 - (D) Ethylene
- 22.** What does ICSH stimulate?
- (A) Leydig cells for testosterone production
 - (B) Spermatogenesis directly
 - (C) Oocyte maturation
 - (D) Growth hormone secretion
- 23.** What is a key concept in Human Physiology?
- (A) Circulation of blood
 - (B) Neural communication
 - (C) Hormonal regulation
 - (D) All of the above
- 24.** Which process is involved in replication of cells?
- (A) Mitosis
 - (B) Meiosis
 - (C) DNA replication
 - (D) All of the above
- 25.** What is the main excretory product in the Animal Kingdom?
- (A) Ammonia
 - (B) Urea
 - (C) Uric acid
 - (D) Depends on the species
- 26.** What regulates plant growth?
- (A) Auxins

- (B) Gibberellins
(C) Cytokinins
(D) All of the above
27. A hydrocarbon containing one double bond gave on reductive ozonolysis, ethanol and propanone. What is the name of the hydrocarbon?
- (A) Ethene
(B) Propene
(C) But-1-ene
(D) 2-Methylprop-1-ene
28. The pH of a saturated solution of $\text{Ca}(\text{OH})_2$ is 9. The solubility product (K_{sp}) of $\text{Ca}(\text{OH})_2$ is:
- (A) 5.0×10^{-16}
(B) 4.0×10^{-16}
(C) 6.5×10^{-16}
(D) 8.0×10^{-16}
29. A 0.1 molal aqueous solution of glucose boils at 100.16°C . The boiling point of a 0.5 molal aqueous solution of glucose will be:
- (A) 100.56°C
(B) 100.40°C
(C) 100.80°C
(D) 101.00°C
30. What is the electronic configuration of Cu?
- (A) $[\text{Ar}]3d^{10}4s^1$
(B) $[\text{Ar}]3d^94s^2$
(C) $[\text{Ar}]3d^{10}4s^2$
(D) $[\text{Ar}]3d^94s^1$
31. Water is flowing through a horizontal pipe in streamline flow. At the narrowest part of the pipe:
- (A) Velocity is maximum and pressure is minimum.
(B) Pressure is maximum and velocity is minimum.
(C) Both pressure and velocity are minimum.

- (D) Both pressure and velocity are maximum.
32. If an electron jumps from the 3rd orbit to the 2nd orbit, its wavelength is λ . Then the wavelength of the electron when it jumps from the 4th orbit to the 3rd orbit in terms of λ is:
- (A) $20/7\lambda$
(B) $7/20\lambda$
(C) $16/9\lambda$
(D) $9/16\lambda$
33. The height from Earth's surface at which acceleration due to gravity becomes $g/4$ is? (Where g is the acceleration due to gravity on the surface of the Earth and R is the radius of the Earth.)
- (A) $\sqrt{2}R$
(B) R
(C) $\sqrt{R}/2$
(D) $2R$