

MHT CET 2024 April 23 Shift 1 Memory based Questions

Q1

What is the approximate size range of lymphocytes, a type of white blood cell ?

- 5-10 micrometers
- 10-15 micrometers
- 15-20 micrometers
- 20-25 micrometers

Q2

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

Q3

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

Q4

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

Q5

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,

Q6

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

Q7

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

Q8

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

Q9

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%

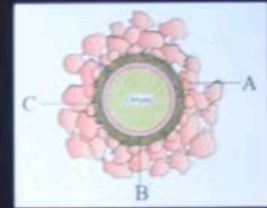
Q10

What percentage of the world's area does India occupy ?

- A** 4.4%
- B** 6.1%
- C** 2.4%
- D** 9.8%

Q11

Label the following layers around ovum properly.



- A** A- Zona Pellucida; B - Corona Radiata; C - Perivitelline Space
- B** A Corona Radiata; B - Zona Pellucida; C- Perivitelline Space
- C** A - Corona Radiata; B - Perivitelline Space; C Zona Pellucida
- D** A Perivitelline Space; B - Zona Pellucida; C - Corona Radiata

Q12

Hydrogen is present in/ Hydrogen is used to prepare?

- A** Olive oil
- B** Ghee
- C** Coconut oil
- D** Vanaspati Ghee

Q13

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 64:16:16:16:16:4:4:4:4:1
- D 81:27:27:27:27:9:9:9:9:3:3:3:3:1

Q14

In a dihybrid cross between two individuals heterozygous for two different genes ($AaBb \times AaBb$), what is the expected genotypic ratio among the offspring?

- A 1:1:1:1
- B 9:3:3:1
- C 1:2:1
- D 3:1

Q15

Which of the following codons codes for the amino acid phenylalanine ?

- A AUG
- B UUU
- C GCA
- D CCC

Q16

To increase wool production and to improve the quality of wool, the bacterial genes and 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