

**Test:** Biology NCE - MS

### Question 1 of 75

What class of fur covered mammals produces milk?

- A) Aves
- B) Amphibia
- C) Mammalia
- D) Reptilia

### Question 2 of 75

What chromosome is only present in human biological male cells?

- A) W chromosome
- B) Y chromosome
- C) X chromosome
- D) V chromosome

### Question 3 of 75

What undifferentiated cells, whose embryonic variant has ethical issues, have the ability to specialize into specific cell types?

- A) Clone cells
- B) Mark cells
- C) Stem cells
- D) Lost cells

### Question 4 of 75

A namesake mycobacterium causes what deadly lung infection also known as consumption?

- A) Tuberculosis
- B) Malaria
- C) Cholera
- D) AIDS

**Question 5 of 75**

The SA Node is the natural pacemaker of what organ?

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- A) Heart
- B) Brain
- C) Stomach
- D) Lungs

**Question 6 of 75**

What organ is responsible for nourishing and protecting the fetus?

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- A) Placenta
- B) Spleen
- C) Hallow
- D) Spillia

**Question 7 of 75**

What scientist and monk studied heredity using pea plants and developed the laws of segregation and independent assortment?

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- A) Thomas Malthus
- B) Charles Darwin
- C) Robert Hooke
- D) Gregor Mendel

**Question 8 of 75**

What scientist developed a swan-necked bottle experiment to give credit to the germ theory of disease and names a technique for sanitizing milk?

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- A) Louis Pasteur
- B) Charles Darwin
- C) Albert Einstein
- D) Anton van Leeuwenhoek

**Question 9 of 75**

What organ contains rod and cone cells in the retina?

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- A) Ear
- B) Eye
- C) Stomach
- D) Lungs

**Question 10 of 75**

What pair of organs filters blood and excretes waste as urine?

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- A) Kidney
- B) Gallbladder
- C) Bladder
- D) Lung

**Question 11 of 75**

What is the Central Dogma of Biology?

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- A) RNA  $\leftarrow$  DNA  $\rightarrow$  Protein
- B) RNA  $\rightarrow$  Protein  $\rightarrow$  DNA
- C) DNA  $\rightarrow$  RNA  $\rightarrow$  Protein
- D) Protein  $\rightarrow$  RNA  $\rightarrow$  DNA

**Question 12 of 75**

Which medical technique is used to show a prenatal mother her baby?

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- A) Ultrasound
- B) CT scan
- C) MRI
- D) PET scan

**Question 13 of 75**

What popular gene editing technology uses a class of enzymes called Cas9?

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- A) CRISPR
- B) RSST
- C) GRIP
- D) TALONS

**Question 14 of 75**

What recessive disorder produces faulty hemoglobin protein, but when inherited heterozygously, confers resistance to malaria?

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- A) Sickle-cell anemia
- B) Leukemia
- C) Cystic Fibrosis
- D) Myeloma

**Question 15 of 75**

What organ develops in the uterus during pregnancy to mediate the exchange of nutrients to the developing fetus?

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- A) Exostitium
- B) Placenta
- C) Cervix
- D) Neonatal Sac

**Question 16 of 75**

What Y shaped proteins, also known as immunoglobulins, are produced by B cells to fight foreign invaders?

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- A) antipathins
- B) antibodies
- C) Antigens
- D) antivirons

**Question 17 of 75**

What family of proteins are responsible for mediating the folding of other proteins?

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- A) Proctors
- B) Staffers
- C) Chaperones
- D) Supervisors

**Question 18 of 75**

What sterol molecule is transferred in Low-density and high-density lipoproteins and has "good" and "bad" variants?

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- A) Testosterone
- B) Cholesterol
- C) Triglyceride
- D) Estrogen

**Question 19 of 75**

What organelle is commonly referred to as "the powerhouse of the cell" for its production of ATP?

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- A) Endoplasmic Reticulum
- B) Golgi Apparatus
- C) Nucleus
- D) Mitochondria

**Question 20 of 75**

Infection with what virus develops into the disease AIDS?

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- A) Rabies lyssavirus
- B) HIV
- C) Coronavirus
- D) TMV

**Question 21 of 75**

Lymphoma is a classification of what disease of rapid, uncontrolled cell growth?

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- A) Tachycardia
- B) Hepatitis
- C) Cancer
- D) Bunions

**Question 22 of 75**

What biological process splits the cell into two identical daughter cells through phases like prophase and anaphase?

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- A) Autophagy
- B) Metastasis
- C) Meiosis
- D) Mitosis

**Question 23 of 75**

Who discovered penicillin in his lab accidentally while working with fungi cultures?

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- A) Carl Woese
- B) Rudolf Virchow
- C) Paul Ehrlich
- D) Alexander Fleming

**Question 24 of 75**

What cell type works to clot wounds by growing tendrils to adhere to one another and form a thrombus?

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- A) Chondrocytes
- B) Lining cells
- C) Platelets
- D) Granulocytes

**Question 25 of 75**

What technique is used to pair and visualize chromosomes?

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- A) Chromatography
- B) Southern Blot
- C) Karyotyping
- D) Western Blot

**Question 26 of 75**

What chemical reaction is used by plants to produce glucose from light?

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- A) Photosynthesis
- B) Oxidation
- C) Krebs Cycle
- D) Reduction

**Question 27 of 75**

What technique separates DNA by size using wells and a material like agarose?

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- A) Gel Electroporation
- B) Gel Electronation
- C) Gel Electrophoresis
- D) Gel Electrolysis

**Question 28 of 75**

What type of plant is named for having "naked seeds," seeds exposed on bracts instead of contained within ovaries?

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- A) Gymnosperms
- B) Petal-Bearers
- C) Angiosperms
- D) Clovers

**Question 29 of 75**

What organelle is studded with ribosomes that process proteins to be delivered to the cell membrane?

- A) Golgi Apparatus
- B) Smooth Endoplasmic Reticulum
- C) Rough Endoplasmic Reticulum
- D) Nucleolus

**Question 30 of 75**

What phylum includes starfish and sea cucumbers?

- A) Asteroidea
- B) Cnidaria
- C) Echinodermata
- D) Mollusca

**Question 31 of 75**

What English physicist developed the world's first vaccine which targeted smallpox?

- A) Claude Bernard
- B) Jonas Salk
- C) Robert Winston
- D) Edward Jenner

**Question 32 of 75**

What disease is caused by a toxin produced by a namesake species in the Clostridium that is purposely injected in Botox?

- A) Meningitis
- B) Anthrax
- C) Diphtheria
- D) Botulism



**Question 33 of 75**

Microglia, Kupffer cells, and monocytes are all subtypes of what cell type whose name is greek for "large eater?"

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- A) Megaboros
- B) Dendrocytes
- C) Magnappaters
- D) Macrophage

**Question 34 of 75**

The duodenum, ileum and jejunum are sections of what organ?

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- A) Large Intestine
- B) Small Intestine
- C) Pancreas
- D) Esophagus

**Question 35 of 75**

The organelle known as the Spitzenkörper grows hyphae in what animal kingdom?

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- A) Fungi
- B) Animal
- C) Protist
- D) Bacteria

**Question 36 of 75**

Rosalind Franklin did not receive the Nobel Prize for her photo 51 used to decipher the double helix structure of what molecule?

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- A) RNA
- B) QNA
- C) DNA
- D) ANA

**Question 37 of 75**

What organ contains the cochlea and three bones nicknamed "the hammer," "anvil" and "stirrup" (the incus, malleus, and stapes)?

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- A) Mouth
- B) Nose
- C) Eye
- D) Ear

**Question 38 of 75**

The mesophyll is the middle layer of what plant organ responsible for photosynthesis?

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- A) Leaf
- B) Stem
- C) Petals
- D) Root

**Question 39 of 75**

What organelle responsible for breaking down and recycling parts of the cell has a pH around 5?

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- A) Nucleus
- B) Golgi Apparatus
- C) Mitochondria
- D) Lysosome

**Question 40 of 75**

Ghrelin is responsible for stimulating what feeling associated with appetite?

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- A) Thirst
- B) Hunger
- C) Tiredness
- D) Boredom

**Question 41 of 75**

What is the term for how genes close together on chromosomes tend to be inherited together?

- A) Connection
- B) Linkage
- C) Pairage
- D) Proximity Effect

**Question 42 of 75**

Chromaffin cells are found in what gland that releases catecholamines like epinephrine?

- A) Parathyroid
- B) Adrenal
- C) Pineal
- D) Thyroid

**Question 43 of 75**

What disease is caused by more than forty CAG repeats and causes jerky movements called chorea?

- A) Alzheimer's
- B) Huntington's
- C) Lewy Body Dementia
- D) Parkinson's

**Question 44 of 75**

What type of RNA Polymerase is responsible for producing mRNA?

- A) RNA Polymerase II
- B) RNA Polymerase I
- C) RNA Polymerase IV
- D) RNA Polymerase III

**Question 45 of 75**

How many calories are in a gram of fat?

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- A) 6 calories
- B) 4 calories
- C) 7 calories
- D) 9 calories

**Question 46 of 75**

What base is replaced by Uracil in RNA?

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- A) Adenine
- B) Cytosine
- C) Thymine
- D) Guanine

**Question 47 of 75**

Which of the following is a Greek-derived name for programmed cell death?

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- A) Apoptosis
- B) Autotermtati
- C) Necrosis
- D) Phagocytosis

**Question 48 of 75**

What principle states that allele frequencies remain constant generation to generation in absence of outside evolutionary influences?

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- A) Hardy-Weinberg Principle
- B) Lotka-Volterra Principle
- C) Jones-Waters Principle
- D) MacArthur-Wilson Principle

**Question 49 of 75**

What organelle found in plants and fungi are formed of membrane vesicles and are used to store water and toxins?

- A) Centrosome
- B) Peroxisome
- C) Lysosome
- D) Vacuole

**Question 50 of 75**

What amino acid is unable to be converted into tyrosine in patients with PKU?

- A) Keratine
- B) Alanine
- C) Tryptophan
- D) Phenylalamine

**Question 51 of 75**

What lysosomal storage disease prevalent in Ashkenazi communities can be identified by a cherry-red spot on the retina?

- A) Retinitis
- B) African sleeping sickness
- C) Klein-Gordon Syndrome
- D) Tay-Sachs disease

**Question 52 of 75**

What organ that uses iodine to produce T3 and T4 is metabolically over or understimulated in Grave's and Hashimoto's disease?

- A) Spleen
- B) Adrenal Glands
- C) Pineal Gland
- D) Thyroid

**Question 53 of 75**

What glucose derivative is made up of long chains of N-acetylglucosamine and can be found in the exoskeletons of insects?

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- A) Mucic Acid
  - B) Chitin
  - C) Muramic acid
  - D) Keratin

**Question 54 of 75**

What type of white blood cell has killer and helper subtypes?

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- A) Neutrophils
  - B) Basophils
  - C) B Cells
  - D) T Cells

**Question 55 of 75**

Copper accumulates in what organ in Wilson's disease?

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- A) Pancreas
  - B) Spleen
  - C) Heart
  - D) Liver

**Question 56 of 75**

What quantity is the ability of an organism to reproduce and pass down genes?

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- A) Strength
  - B) Altruism
  - C) Fitness
  - D) Heritability

**Question 57 of 75**

Which cells can contain CD4 and CD8 receptors?

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- A) Alpha Cells
- B) Gamma Cells
- C) T Cells
- D) B Cells

**Question 58 of 75**

Albert Sabin and Jonas Salk's vaccines combatted what disease?

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- A) Polio
- B) Osteoporosis
- C) Rabies
- D) Tetanus

**Question 59 of 75**

What model plant genus that contains controversial genes like HOTHEAD was the first model organism to have its entire genome sequenced?

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- A) Mus
- B) Arabidopsis
- C) Zea
- D) Antirrhinum

**Question 60 of 75**

What lipid-rich substance covers axons apart of the "white matter" in the brain and serves as a form of insulation and as a conductor for action potentials down the axon?

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- A) Sebum
- B) Actin
- C) Myelin
- D) Cerebrospinal Fluid

**Question 61 of 75**

What artery, the largest in the body, extends from the left ventricle through a namesake arch and down to the abdomen?

- A) Celiac Trunk
- B) Artera Magnus
- C) Vena Cava
- D) Aorta

**Question 62 of 75**

What ends of chromosomes set a finite division on a cell known as the Hayflick limit?

- A) Finistomeres
- B) Telomeres
- C) Delomeres
- D) Termomeres

**Question 63 of 75**

What stain, named after a Danish bacteriologist, stains bacteria with a thick peptidoglycan layer a violet color?

- A) Dapi Stain
- B) Romanowsky Stain
- C) Gram Stain
- D) Wright's Stain

**Question 64 of 75**

What establisher of the Division of Biology at CalTech noticed in the 1910s that some fruit fly traits like white eyes are sex linked recessive?

- A) Gregor Mendel
- B) Thomas Hunt Morgan
- C) James Watson
- D) Richard Feynman



**Question 65 of 75**

Melanomas affect what organ?

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- A) Liver
- B) Skin
- C) Blood
- D) Bone

**Question 66 of 75**

What proteins mediate vesicle fusion to the membrane and are cleaved by the tetanus toxin?

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- A) GPCRs
- B) Dynamins
- C) SNAREs
- D) Adaptins

**Question 67 of 75**

PCNA is used in which biological process?

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- A) Transcription
- B) Mitosis
- C) Translation
- D) Replication

**Question 68 of 75**

The crown-of-thorns starfish eats the "stony" type of what organisms, which are affected by white band disease and bleaching?

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- A) Jellyfish
- B) Corals
- C) Sponges
- D) Nekton

**Question 69 of 75**

The Hodgkin–Huxley model describes which of the following cell types?

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- A) Neural
- B) Muscle
- C) Connective
- D) Epithelial

**Question 70 of 75**

Intrinsic factor promotes the absorption of what vitamin?

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- A) B2
- B) B1
- C) B3
- D) B12

**Question 71 of 75**

Discovered by a Christiane Nusslein-Volhard led team, what gene in fruit flies helps regulate segmentation during development?

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- A) Super Mario
- B) Pikachu
- C) Roadrunner
- D) Sonic Hedgehog

**Question 72 of 75**

What class of drugs is prescribed to reduce cholesterol levels?

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- A) ACE Inhibitors
- B) Statins
- C) Interferons
- D) Beta-Lactams

**Question 73 of 75**

Which of these diseases is alternatively referred to as Hansen's disease?

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- A) Chicken Pox
- B) Tetanus
- C) Leprosy
- D) Malaria

**Question 74 of 75**

What feature of the hindbrain responsible for fine motor control has a latin name for "little brain"?

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- A) Hypothalamus
- B) Pons
- C) Cerebellum
- D) Temporal Lobe

**Question 75 of 75**

Which of these is a cancer cell line?

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- A) NeMo
- B) A\*
- C) HeLa
- D) T4