

Test: Biology NCE - HS

Question 1 of 75

What is the Central Dogma of Biology?

- A) Protein -> RNA -> DNA
- B) RNA <- DNA -> Protein
- C) DNA -> RNA -> Protein
- D) RNA -> Protein -> DNA

Question 2 of 75

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

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

Question 3 of 75

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

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

Question 4 of 75

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

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

Question 5 of 75

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

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

Question 6 of 75

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

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

Question 7 of 75

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

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

Question 8 of 75

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

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

Question 9 of 75

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

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

Question 10 of 75

Infection with what virus develops into the disease AIDS?

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

Question 11 of 75

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

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

Question 12 of 75

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

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

Question 13 of 75

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

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

Question 14 of 75

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

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

Question 15 of 75

What technique is used to pair and visualize chromosomes?

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

Question 16 of 75

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

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

Question 17 of 75

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

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

Question 18 of 75

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

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

Question 19 of 75

What type of RNA Polymerase is responsible for producing mRNA?

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

Question 20 of 75

How many calories are in a gram of fat?

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

Question 21 of 75

What base is replaced by Uracil in RNA?

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

Question 22 of 75

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

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

Question 23 of 75

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

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

Question 24 of 75

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

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

Question 25 of 75

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

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

Question 26 of 75

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

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

Question 27 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) Thyroid
 - B) Adrenal Glands
 - C) Spleen
 - D) Pineal Gland

Question 28 of 75

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

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

Question 29 of 75

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

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

Question 30 of 75

Copper accumulates in what organ in Wilson's disease?

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

Question 31 of 75

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

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

Question 32 of 75

Which cells can contain CD4 and CD8 receptors?

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

Question 33 of 75

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

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

Question 34 of 75

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

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

Question 35 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?

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

Question 36 of 75

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

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

Question 37 of 75

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

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

Question 38 of 75

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

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

Question 39 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) Richard Feynman
- C) Thomas Hunt Morgan
- D) James Watson

Question 40 of 75

Melanomas affect what organ?

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

Question 41 of 75

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

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

Question 42 of 75

PCNA is used in which biological process?

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

Question 43 of 75

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

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

Question 44 of 75

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

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

Question 45 of 75

Intrinsic factor promotes the absorption of what vitamin?

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

Question 46 of 75

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

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

Question 47 of 75

What class of drugs is prescribed to reduce cholesterol levels?

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

Question 48 of 75

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

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

Question 49 of 75

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

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

Question 50 of 75

Which of these is a cancer cell line?

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

Question 51 of 75

What process refers to introducing nucleic acids to eukaryotic cells by non-viral methods?

-
- A) Transfection
 - B) Conjugation
 - C) Transformation
 - D) Transduction

Question 52 of 75

What is the process by which one of the X chromosomes in a genotypically female cell is deactivated?

-
- A) Lyonization
 - B) Excization
 - C) Histonization
 - D) Rasterization

Question 53 of 75

What neurotransmitter is responsible for mediating the contraction of skeletal muscle after being released from vesicles at neuromuscular junctions?

- A) Dopamine
- B) Serotonin
- C) Acetylcholine
- D) Histamine

Question 54 of 75

What technique makes use of taq polymerase to amplify a DNA sample?

- A) PCR
- B) DAR
- C) QAR
- D) ELISA

Question 55 of 75

What orange-yellow substance is made and passed through the liver during the breakdown of red blood cells?

- A) Amarillin
- B) Euryptotin
- C) Hepatarin
- D) Bilirubin

Question 56 of 75

What class of proteins, examples of which include Ras and adenylate cyclase, have a heterotrimeric protein subclass activated by namesake coupled receptors?

- A) T proteins
- B) G proteins
- C) A proteins
- D) C proteins

Question 57 of 75

What hormone, absent in naked mole rats, is responsible for the sensation of pain?

-
- A) Substance P
 - B) Dopamine
 - C) Nervin
 - D) Orexin

Question 58 of 75

microRNA and siRNA are responsible for what process that was originally discovered by Fire and Mello in *C. Elegans*?

-
- A) RNA Editing
 - B) RNA Morphin
 - C) RNA Blocking
 - D) RNA Interference

Question 59 of 75

What nerve bundle stretches the midline of the brain and is the "bridge" of communication between the right and left hemispheres?

-
- A) Basal Ganglia
 - B) Amygdala
 - C) Medulla Oblongata
 - D) Corpus Callosum

Question 60 of 75

What serine protease gets its name from the Greek word rubbing since it was discovered by rubbing the pancreas with glycerin?

-
- A) Tractin
 - B) Trypsin
 - C) Callin
 - D) Frictin

Question 61 of 75

During what phase of development does the blastula begin to transform into multiple layers and forms a primitive streak?

- A) Cytokinesis
- B) Rastation
- C) Gastrulation
- D) Neurulation

Question 62 of 75

Which test uses Salmonella strain that requires histidine to screen for mutagens?

- A) Sweat Test
- B) Biuret Test
- C) Carcinogen Assay
- D) Ames Test

Question 63 of 75

An osculum and choanocytes are found in organisms of which phylum?

- A) Hemichordata
- B) Porifera
- C) Cnidaria
- D) Mollusca

Question 64 of 75

Inhibitors of what enzymes are used to treat myasthenia gravis?

- A) Acetylcholinesterase
- B) Cyclooxygenase
- C) Prostaglandin synthase
- D) Phospholipase

Question 65 of 75

Which dopamine-degrading molecule is inhibited in drugs used to treat Parkinson's disease and depression?

-
- A) Dopamine beta-hydroxylase
 - B) Coritsol
 - C) Serotonin
 - D) Monoamine oxidase

Question 66 of 75

What protein in the lens is responsible for its transparency?

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- A) Transperin
 - B) Crystallin
 - C) Aoratosin
 - D) Clearin

Question 67 of 75

Which area of the brain is principally responsible for comprehending speech?

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- A) Wernicke's Area
 - B) Singulate Gyrus
 - C) Stevenson's Area
 - D) Broca's Area

Question 68 of 75

What name is given to the condition where tissues have restricted blood supply and is characterized by 'Six P's' of pain, pallor, pulseless, paresthesia, paralysis, and poikilothermia?

-
- A) Ischemia
 - B) Edema
 - C) Rosacea
 - D) Angina

Question 69 of 75

The amount of blood pumped from the left ventricle per beat is referred to as?

- A) Beat Volume
- B) Stroke Volume
- C) Cardiac Output
- D) Ejection Volume

Question 70 of 75

Which human disease is similar to Bovine Spongiform Encephalopathy or "mad cow disease" since both are caused by prions?

- A) Parkinson's Disease
- B) Creutzfeldt-Jakob Disease
- C) Mad Human Disease
- D) Von Hippel-Lindau Disease

Question 71 of 75

Neurospora crassa is what type of organism?

- A) Chytrid
- B) Fly
- C) Mold
- D) Yeast

Question 72 of 75

The first oncovirus was discovered in what organism?

- A) Horse
- B) Pig
- C) Cow
- D) Chicken

Question 73 of 75

Pit organs in snakes are responsible for sensing what?

- A) Heat
- B) Odors
- C) Toxins
- D) Electricity

Question 74 of 75

What word refers to measurement of cell properties, such as size, cell phase, and morphology, and has a noted "flow" subtype?

- A) Cytometry
- B) Cytography
- C) Cellography
- D) Cytology

Question 75 of 75

What nine amino acid peptide produced in the hypothalamus is released from the posterior pituitary with neurophysin to increase uptake of water from the kidneys?

- A) ADH
- B) TCH
- C) ARH
- D) TRH