

**THE UNIVERSITY OF BAMENDA (UBa)**

**Competitive entrance examination into first cycle E.N.S Bambili**

**Academic year 2012/2013. Series: Biology.**

**Paper: Biology.**

**Duration: 3 hours.**

**Coef: 4**

**Answer all questions and each question carries equal mark. Write the letter corresponding to the correct Answer in the answer booklet. You must submit your question paper together with the answer booklet. Nothing should be written on the question paper.**

- 1) The division of nucleus to produce two daughter cells is called:  
a) nucleoplasm    b) meiosis    c) mitosis  
d) Telephase    e) cell division
- 2) The process of cell division in which chromosomes line up at the equator is known as:  
a) Anaphase    b) Metaphase    c) interphase    d) prophase    e) telephase
- 3) The support of genetic information is called?  
a) DNA    b) mRNA    c) tRNA    d) none
- 4) What is the fundamental unit of the kidney?  
a) The glomerulus  
b) The convoluted tubule  
c) The kidney Nephron  
d) the loop of Henle
- 5) What initiates heart beat in the heart?  
a) The sino atria node  
b) The atria ventricular node  
c) The left and right auricles  
d) The left and right ventricles.
- 6) The protective membrane that surrounds the heart is called.  
(a) Cell membrane  
(b) cardiac muscle well  
(c) nucleoplasm  
(d) Pericardium  
(e) Heart strings.
- 7) the artery that supplies blood to the heart is called  
(a) pulmonary artery

- (b) the vena cava
  - (c) carotid artery
  - (d) the iliac artery
  - (e) the coronary artery.
- 8) The protective membrane that supplies the brain with known as
- (a) The cranium
  - (b) The skull
  - (c) The cerebrum
  - (d) The cerebellum
  - (e) Brain vein
- 9) Which structure in Amoeba plays the same role like the kidney in man?
- (a) Pseudopodium
  - (b) Contractile vacuole
  - (c) Nucleus
  - (d) Cell surface membrane.
- 10) What type of immunity is acquired the body makes its own antibodies in response to exposure to an antigen?
- (a) Artificial passive immunity
  - (b) Natural passive immunity
  - (c) Artificial active immunity
  - (d) Natural active immunity
  - (e) Immunization
- 11) Which of the following is responsible for joining pieces of polynucleotide during DNA replication?
- (a) DNA polymerase
  - (b) DNA helicase
  - (c) DNA ligase
  - (d) DNA binding protein.
- 12) Which part of the brain controls and maintains body temperature?
- (a) The pons
  - (b) The cerebrum
  - (c) Hypothalamus
  - (d) Thalamus
  - (e) Cerebellum.
- 13) The force which tends to keep water continuous up the stem is called?
- (a) Root pressure
  - (b) Suction pressure
  - (c) Cohesive force

- (d) Transpiration pull
  - (e) Osmosis.
- 14) A type of growth in which a change in size causes a change in shape of an organism.
- (a) Allometric growth
  - (b) Isometric growth
  - (c) Limited growth
  - (d) Intermittent growth
  - (e) Growth rate.
- 15) Blood moves through the body in response to pressure change since the heart creates the pressure, pressure will be
- (a) Highest in the right atrium
  - (b) Highest in the right ventricle
  - (c) Highest in the left atrium
  - (d) Highest in the left ventricle.
- 16) In which stage of genetic engineering are gene probes used?
- (a) Cloning of genes
  - (b) Location of genes
  - (c) Introduction of genes into host cells
  - (d) DNA replication.
- 17) Two common fuels that can be produced through the use of micro-organisms on waste materials and plant products are
- (a) Biogas and methane
  - (b) Biogas and petroleum
  - (c) Gasol and biogas
  - (d) Biogas and kerosene
  - (e) Methane and bitumen
- 18) In recombinant DNA methods the term vector refers to
- (a) The sticky end of a DNA fragment
  - (b) The enzyme that cuts into restriction fragments
  - (c) A plasmid or any agent used to transfer DNA into a living cell
  - (d) A vector probe used to identify a particular gene.
- 19) The cell body of sensory neurons is located in
- (a) Grey matter of the spinal cord
  - (b) Dorsal root ganglion
  - (c) White matter of the spinal cord
  - (d) Ventral root of the spinal cord.
- 20) During synaptic transmission, the synaptic vesicle
- (a) Releases calcium ions

- (b) Release potassium ions
  - (c) Release acetylcholine
  - (d) Set up the required action potential.
- 21) Balancing and equilibrium is carried out in the ear by .
- (a) Vestibular apparatus
  - (b) Ear ossicles
  - (c) The organ of Corti
  - (d) The middle ear
  - (e) Tympanum
- 22) The male gamete of a fern plant swimming toward an archegonium is exhibiting
- (a) Positive phototaxis
  - (b) Positive phototropism
  - (c) Chemotaxis.
- 23) The points at which restriction enzymes cut genes are called .
- (a) restriction sites
  - (b) restriction fragments
  - (c) sticky ends
  - (d) blunt ends
- 24) One function of the corpus luteum is to.
- (a) Nourish and protect the egg cell
  - (b) Stimulate ovulation.
  - (c) Produce progesterone and oestrogen
  - (d) Stimulate lactation.
- 25) DNA formation after a piece from one organism is joined to a piece from another organism is called
- (a) Complementary DNA
  - (b) Genetically modified DNA
  - (c) Recombinant DNA
  - (d) Cloning vector DNA.
- 26) Which of the following can be detected in the urine of a woman as a sign of pregnancy
- (a) progesterone
  - (b) oestrogen
  - (c) Follicle stimulating hormone
  - (d) Luteinizing hormone?
- 27) what moves out of the cell if the cell is placed in
- (a) Hypotonic solution
  - (b) Hypertonic solution
  - (c) Isotonic solution

- (d) Solution containing water
  - (e) Cohesive solution
- 28) The hormone progesterone is produced
- (a) By the pituitary gland and act on the ovary
  - (b) By the ovary and acts on the uterus
  - (c) By the ovary and act on the placenta
  - (d) By the pituitary gland and acts directly on the uterus
- 29) Animal Which are unable to maintain the body temperature within narrow limited are said to be :
- (a) Ectothermic.
  - (b) poikilothermic
  - (c) homeothermic
  - (d) Endothermic
  - (e) Isothermic.
- 30) In animal, the endocrine system secretes:
- (a) The enzymes
  - (b) The hormone
  - (c) Acid chloride
  - (d) The mucus.
- 31) When the heart is filled with blood and the muscle in the atria walls contracts, the process is called:
- (a) Ventricular
  - (b) Ventricular diastole
  - (c) Atrial systole
  - (d) Atrial diastole
  - (e) Heart beat
- 32) In cell exchange, Endocytosis and exocytosis are said to be:
- (a) Active process
  - (b) Passive process
  - (c) Neutral process
  - (d) Facilitated process.
- 33) Some nerve fibres are completely surrounded by fatty membrane called:
- (a) Schwann membrane
  - (b) neurilemma
  - (c) myelin sheath
  - (d) Dendrites.
- 34) Molecules that catalyses biological reactions and are release after are called
- (a) Carbohydrates

- (b) Enzymes
  - (c) Nucleic acid
  - (d) Lipids
  - (e) Catalysts
- 35) The basic of asexual reproduction in the living things is:
- (a) Meiosis
  - (b) sporulation
  - (c) Mitosis
  - (d) Fragmentation
  - (e) Building
- 36) Large molecules recognized by the body as foreign are called:
- (a) Antibodies
  - (b) Antigens
  - (c) lymphocytes
  - (d) Macrophage
- 37) The sex having the xx genotype is described as
- (a) gametic
  - (b) heterogametic
  - (c) homogametic
  - (d) none
- 38) The structure of the brain stem includes
- (a) Medulla oblongata, midbrain, pons
  - (b) Medulla oblongata midbrain
  - (c) Midbrain pons and hypothalamus
  - (d) pons, cerebellum and medulla oblongata
- Choose the correct answer (s) (1x10=10 marks) for correct answer but a wrong answer will take 0.25 mark
- 39) Impulses are carried to and from brain and spinal cord by
- a) Sensory neuron only.
  - b) Sensory and motor neuron
  - c) Motor neuron only
  - d) Interneuron
- 40) Spinal nerves are:
- a) Bundles of dendrites
  - b) Part of grey matter.
  - c) Part of peripheral nervous system
  - d) Only efferent neurons.
- 41) The junction at which an impulse travels from one neuron to another is called
- (a) Synaptic cleft
  - (b) Stimulus

- (c) Nerves massage
  - (e) None
- 42) The grey matter of the brain consist of:
- (a) unmyelinated neurons
  - (b) myelinated neurons
  - (c) Axons
  - (e) Only synapses.
- 43) A nerve impulse may be describe as
- (a) An electrical signal travelling along a neuron.
  - (b) A chemical signal inside a nerve cell.
  - (c) An electromagnetic massage from the brain to the muscle
  - (d) A chemical change occurring in the brain.
- 44) The ear flap helps directs sound waves into the eardrum.
- (a ) Ear canal
  - (b) Cochlea
  - (c) Stirrup.
- 45) The structure of a male reproductive organ of plants comprises which of the following:
- (a) Anthrum
  - (b) Nucleus
  - (c) Pistil
  - (d) Filament
  - (e) Stigma
  - (f) Connective
- 46) DNA is formed :
- (a) mainly but only in cytoplasm
  - (b) both in the cytoplasm and nucleus
  - (c) only in the nucleus
  - (d) only in the animal cell
  - (e) Only in the plant cell.
- 47) Two genes are said to be alleles if
- (a) The characteristics in different way
  - (b) They are found to be the same chromosomes
  - (d) They are expressed in a similar manner
  - (e) They have different characteristics.
- 48) A fossil is
- (a) An ancient bone which has been conserved throughout the ages
  - (b) A making which is imprinted on a support
  - (c) A very old object dissimulated in the soil
  - (d) An ancient.

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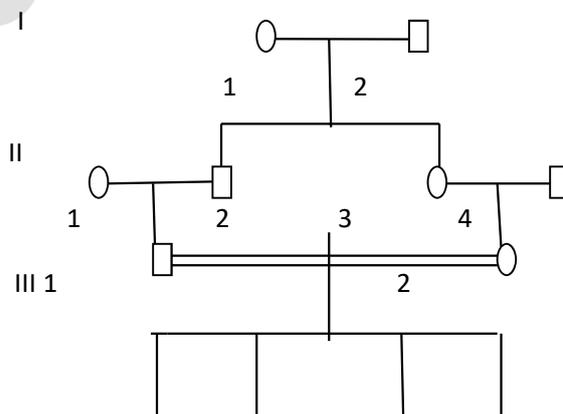
**HIGHER TEACHER TRAINING COLLEGE, BAMBILI**

**COMPETITIVE ENTRANCE EXAMINATION, JULY, 2011. FIRST CYCLE**

**PAPER: BIOLOGY FOR BIOLOGY – DURATION: 3 HOURS COEF: 4**

**Answer all questions. You are reminded of the necessity for good English and orderly presentation of your answers.**

1. Water is the most abundant constituent of all physiologically active plant cells, the absorption of which occurs in the root tip region, and especially in the root hair zone.
  - a. Draw a well labeled diagram of the root hair.
  - b. Explain the mechanism of water uptake by plants.
  - c. With the help of a flow diagram, trace the pathway (sequence of tissues) taken by a water molecule from the root hair to the photosynthetic apparatus in the plant leaf.
  - d. What force(s) are responsible for its movement along this path?
  - e. What may be the role of the water molecule in the said organelle?
2. Explain the difference mechanisms that free living animals used for respiration and discuss the significance of these mechanisms in the evolution of animals.
3. Suppose that the character in the pedigree below is transmitted by simple Mendelian heritage.





- a. Is it possible that it may be due to a dominant or a recessive gene? Explain.
- b. What is the significance of the double horizontal line linking III-1 and III-2?
- c. Give the biological relationship between III-1 and III-2.
- d. If the allele responsible for the disease is rare, what are the most probable genotypes in all the individuals in generations I, II and III in the pedigree (use D and d for the dominant and recessive alleles, respectively).