

Sample COC Exam ቀሰዓ

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MEDICINE ENTRANCE EXAM

1. If humans and panda bears belong to the same class, then they must also belong to the same:

a. Order

b. Phylum

c. Family

d. Species

e. Genus

ANSWER : B

2. The direct energy source that drives ATP synthesis during oxidative phosphorylation is:

a. The oxidation of glucose as well as other organic compounds

b. The endergonic flow of electrons down the electron transport chain

c. A difference of H+concentrations on opposite sides of the inner mitochondrial membrane

d. The transfer of phosphate to ADP

e. The formation of cyclic AMP

ANSWER : C

3. Which of the following is NOT thought to be ancestral to humans?

a. Primates

b. Bony fish

c. Amphibians

d. Birds

e. All of the above

ANSWER : C

4. Which of the following is NOT a true statement describing the difference between monocots

and dicots?

a. Vascular bundles scattered in monocot stem, central vascular stele in dicot stem

b. One cotyledon in monocots, two cotyledon in dicot seeds.

c. Usually only primary growth in monocots, secondary growth in many dicots

d. Parallel veins in monocots, branching netlike venation in dicot leaves

e. All of the above

ANSWER :A

5. Which of the following structures is incorrectly paired with a tissue?

a. Haversian system – bone

b. Platelets – blood

c. Fibroblasts – skeletal muscle

d. Basement membrane – epithelium

e. Cerebral cortex – Neurons

ANSWER : C

6. Compared to a smaller cell, a larger cell of the same shape has:

a. Less surface area per unit of volume

b. Less surface area

c. The same surface to volume ratio

d. A smaller cytoplasm to nucleus ratio

e. A smaller volume

ANSWER : A

7. Which of the following enzymes has the lowest pH optimum?

a. Salivary amylase

b. Pepsin

c. Pancreatic amylase

d. Pancreatic lipase

e. DNA ligase

ANSWER :B

8. A pea plant had green pods, which is a dominant phenotype. It was determined after a testcross that half the F1 population had green pods, and the other half had yellow pods, which is a recessive phenotype. We can say that the original pea plant was:

a. Homozygous dominant

b. Heterozygous

c. Homozygous recessive

d. A genetic mutant

e. Exhibiting genetic drift

ANSWER : B

9. After the surgical removal of a diseased gallbladder, a patient must be careful to limit their intake of:

a. Simple carbohydrates

b. lipids

c. complex carbohydrates

d. proteins

e. minerals

ANSWER : B

10. During the histology laboratory class of first year medical school, a student observes the epithelium of human skin, and notices the cells are layered, flat and scaly. The sample is:

a. Stratified squamous

b. Simple squamous

c. Pseudostratified cuboidal

d. Stratified columnar

e. Stratified cuboidal

ANSWER : A

11. Of the following physical responses, which is the best example of positive feedback?

a. Increased blood glucose levels cause the secretion of insulin from the pancreas, which in turn lowers blood glucose levels

b. A reduced concentration of oxygen in the lungs triggers the production of more red

blood cells in order to carry more oxygen.

c. When a certain nerve cell is stimulated, it causes sodium ions to leak into the cell.

The influx of sodium causes even more sodium to then enter the cell as well.

d. An increased CO2 concentration in the blood induces deeper more rapid breathing which expels the CO2 from the lungs and, consequently, the blood.

e. As the core body temperature rises, sweat is released to cool the body via evaporation

ANSWER : C

12. Molecular biologists designed a bacteriophage with the protein coat of phage T2 and the DNA of phage T4. If this composite phage is then allowed to infect bacteria, the phages produced in the host cells would be:

a. The protein of T2 and the DNA of T4

b. The protein and DNA of T4

c. The protein of T4 and the DNA of T2

d. The protein and DNA of T2

e. The phage will not be able to effectively infect bacteria

ANSWER : B

13. A woman has a color blind father. However, she is not colorblind. Her husband is also colorblind. The gene for being colorblind is X-linked recessive. What is the probability of their male offspring being colorblind?

a. 100 %

b. 75 %

c. 50%

d. 25%

e. 0%

ANSWER : C

14. If humans and panda bears belong to the same class, then they must also belong to the same:

a. Order

b. Phylum

c. Family

d. Species

e. Genus

ANSWER : B

15. The largest unit in which gene flow is possible is a:

a. Population

b. Species

c. Genus

d. Subspecies

e. population

ANSWER :B

16. Which of the following structures is incorrectly paired with a tissue?

a. Haversian system – bone

b. Platelets – blood

c. Fibroblasts –  skeletal muscle

d. Basement membrane – epithelium

e. Cerebral cortex – Neurons

ANSWER : C

17. The diagram below shows an error in a biological process. What is the process?

a. Crossing over

b. Meiosis

c. Mitosis

d. Pleiotropy

e. Misogyny

ANSWER B

18. This biome exhibits the greatest diversity in plant species.

a. grassland

b. tropical rain forest

c. taiga

d. tundra

e. deciduous forest

ANSWER B

19. How does DNA differ from RNA?

a. Two of their nitrogenous bases are different

b. They contain different sugars

c. RNA consists of two strands in a double helix, while DNA is single stranded

d. All of the nitrogenous bases are different

e. There is no difference, they are just two abbreviations for the same biochemical

ANSWER B

20. Human sex hormones are classified as:

a. Proteins

b. Lipids

c. Triacylglycerols

d. Amino acids

e. Oligosaccharides

ANSWER B

21: The systemic circulation of 'oxygenated' and 'deoxygenated' blood is known as

A) circulatory system

B) ligament system

C) filament system

D) cartilage system

Answer : A

22: Lymphatic system of human body is classified as

A) filament system

B) ligament system

C) closed system

D) open system

Answer : D

23: The depletion of blood from heart in the 'Cardiovascular System' is classified as

A) irculatory system of arteries

B) circulatory system of lungs

C) circulatory system of blood

D) circulatory system of lymph

Answer : B

24).Glands of Moll are modified

A)Oil glands

B)Tear glands

C)Sweet glands

D)Scent glands

Answer: C

25).The secretion of lachrymal gland is

A)Watery

B)Acidic

C)Oily

D)Alkaline

Answer: A

26).Colour to the eye is imparted by

A)Lens

B)Pupil

C)Iris

D) Vitreous humour

ANSWER : C

27) The size of pupil decreases due to the contraction of

A)Radial muscles

B)Circular muscles

C)Both circular and radial muscles

D) Nictiating membrane

ANSWER : B

28.Taste buds are located on

A)Plate

B)Tongue only

C)Pharynx

D)All the above

Answer: D

29.Eustachian tube is meant for

A)Amplifying sound waves

B)To listen to activities in buccopharyngeal cavity

C)Equalize pressure on the two sides of tympanum

D)To keep the middle ear moist

Answer : C

30.Ventilation (breathing) is a regular,rhythmic process which:

A. moves air into and out of the lungs

B. releases energy from glucose within living cells

C. reduces the surface tension of the lining of the lung

D. protects the airways by clearing them of mucus or irritants

E. moves gases from an area of high concentration to an area of lower concentration

Answer : A

31.Which of the following structures is NOT part of the upper respiratory tract?

A. larynx

B. trachea

C. lung

D. epiglottis

E. pharynx

Answer : C

32.What is the anatomically correct name for the windpipe?

A. pharynx

B. bronchiole

C. larynx

D. alveolar duct

E. trachea

ANSWER : E

33.Which of the following is the function of the diaphragm in expiration?

A. production of energy

B. relaxation

C. contraction

D. gaseous exchange

E. helping the lungs to stay inflated

Answer : B

34.Pulmonary surfactant:

A. protects the surface of the lungs

B. eliminates small particles and dust

C. is made by bronchioles

D. prevents the alveoli from collapsing

E. can change colour to green or yellow when infected

Answer : D

35.The fertilised egg is known as a before it begins to divide.

A. blastocyst

B. morula

C. trophoblast

D. embryo

E. zygote

ANSWER :E

36.What is the tube through which both urine and semen leave a man's body called?

A. epididymis

B. spermatic cord

C. seminiferous tubule

D. urethra

E. ureter

ANSWER :D

37.If an ovum (egg) is fertilised by a sperm, it usually takes place in the:

A. ovary

B. fallopian tube (oviduct)

C. endometrium

D. myometrium

E. cervix

ANSWER : B

38.Which of the following is NOT a physiological function of the placenta during pregnancy?

A. exchanging nutrients and waste

B. delivery of oxygen

C. removal of carbon dioxide

D. producing antibodies

E. producing hormones

ANSWER :D

39.Production of oestrogen by the ovaries falls during the perimenopausal period in women because:

A. the ovaries become increasingly less sensitive to gonadotrophins

B. bone remodelling increases

C. the ovaries become less sensitive to gonadotrophins

D. the corpus luteum becomes a corpus albicans

E. there is a surge of LH from the pituitary gland

ANSWER : C

40. The Ethiopian scientist who discover an alchol for medical treatment is

A. Patrick Habtamu Watson

B. Getachew Boledian

C. Pr Yalem Tsehay Mekonen

D. Dr Gabbisa Ejeta

Answer : B

41._____ was endocrinologist at University of Michigan (USA) working with reproductive endocrinology and infertility.

A.Sebsbe Demsew

B.Zeresenay Alemseged

C. Kitaw Ejigu

D.Senait Fisseha

Answer : D

42.Which is the first Ethiopian Government Hospital ?

A. Menilik II hospital

B. Mekdela Amba hospital

C. Genzebe Dibaba hospital

D. Tewodros II

Answer : A

43.Who was the first Ethiopian educated as a medical doctor

A. Aklilu lema

B. Yalemtsehay Wedajo

C. Workneh Eshete

D. Dinberu Thomson

Answer : C