



ANGEL'S PUBLIC SCHOOL

HALF YEARLY EXAMS SESSION 2021 – 22
CLASS – XI

TIME: 3 HRS

SUBJECT : BIOLOGY CODE – 044

M.M:70

General Instructions:

- All questions are compulsory.
- The question paper has five sections and 33 questions. All questions are compulsory.
- Section–A has 16 questions of 1 mark each; Section–B has 5 questions of 2 marks each; Section– C has 7 questions of 3 marks each; Section– D has 2 case–based questions of 4 marks each; and Section–E has 3 questions of 5 marks each.
- There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- Wherever necessary, neat and properly labeled diagrams should be drawn.

SECTION – A

- What is the correct sequence?
(a) Genus–species–order–kingdom
(b) Species–order–phylum–kingdom
(c) Species–genus–order–phylum
(d) Kingdom–phylum–class–order
- What is nomenclature?
(a) Genus name is written after species
(b) Genus and species names are written in italics
(c) Genus and species have the same name
(d) The first letter of genus and species name is capital
- What is the defining characteristic of living beings?
(a) They reproduce
(b) They can digest their food
(c) They respond to external stimuli
(d) They regenerate
- Which of the following organisms can be found in extreme saline conditions?
(a) Eubacteria
(b) Archaeobacteria
(c) Cyanobacteria
(d) Mycobacteria
- In which of the following kingdom are Archaea and Nitrogen–fixing organisms classified?
(a) Animalia
(b) Plantae
(c) Monera
(d) Fungi
- Which of the following statements is false about the fungi?
(a) They are eukaryotes
(b) They are heterotrophs
(c) They possess a purely cellulosic cell wall
(d) None of the above
- Where does the exchange of gases occur in birds?
(a) Air sacs only
(b) Air sacs and Lungs
(c) Lungs only
(d) First in air sacs and then in the lungs
- In humans, _____ is the difference between systolic and diastolic pressure.
(a) 40 mm Hg
(b) 20 mm Hg
(c) 0 mm Hg
(d) None of the above
- Bowman capsule is located in _____.
(a) Cortex
(b) Henle's loop
(c) Bladder
(d) None of the above
- Nitrogenous wastes excreted through urine in humans is _____.
(a) Trimethylamine oxide
(b) Ammonia
(c) Uric Acid
(d) Urea
- Which of the following is accurate?
(a) Humans have 2 pairs of floating ribs

- (b) Humans have 1 pair of false ribs
- (c) Humans have 3 pairs of false floating ribs
- (d) Humans have 7 pairs of false floating ribs

12. _____ is the muscle's contractile protein.

- (a) Globulin
- (b) Elastin
- (c) Myosin
- (d) None of the above

13. Assertion: In fungi, vegetative reproduction occurs by fragmentation and budding.

Reason: Asexual reproduction in fungi, occurs through formation of asexual spores.

Mark the correct choice as:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

14. Assertion : All motor neurons are efferent neurons

Reason: Motor neurons conduct nerve impulses from spinal cord to brain.

Mark the correct choice as:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

15. Assertion : Oxytocin stimulates contraction of uterine muscles during birth and initiates ejection of milk.

Reason : It is synthesised in posterior lobe of pituitary

Mark the correct choice as:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

16. Assertion: Assertion [A]: Locomotion is the movement of an individual from places to places.

Reason [R]: All Locomotions are movements but all movements are not locomotion.

Mark the correct choice as:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

SECTION – B

17. What are the 8 levels of taxonomy?

18. Why are cyanobacteria used in agricultural fields for crop improvement?

19. What is the difference between a virus and a viroid?

20. Name the cell referring to sarcoplasm, sarcoplasmic reticulum, and sarcolemma. Also, list the parts of cells that refer to these names..
21. Mention the main parts involved in the initiating a pressure gradient between the lungs and the atmosphere during normal respiration.

SECTION – C

22. What is the Renin–Angiotensin System?
23. Why is the hemodialysis unit called an artificial kidney? Explain.
24. What do the white and grey matter in the human brain indicate?
25. Define erythropoiesis. Name the hormone that triggers it.
26. Give a reason why the walls of ventricles are thicker than atria.

OR

Answer the questions below:

- (a) Which is the site where RBCs are formed?
- (b) Name the part of the heart that initiates and maintains the rhythmic activity
- (c) What is the heart of crocodiles is specific amongst reptilians?

27. List out the functions of:

- (a) Lymphatic System. (b) Pulmonary vein. (c) Lymphocytes.

28. Expand the following excretory functions:

- (a) DCT (b) ADH (c) GFR

SECTION – D

Q. No. 29 and 30 are case–based questions. Each question has 3 subparts with internal choice in one subpart.

29. A diagrammatic sketch of an actin filament is shown above. Answer the following questions.

- (a) Name the parts labelled A, B and C.
- (b) What is the significance of A during resting stage?
- (c) Name the monomers of C.



OR

In human beings, the lungs are situated in the thoracic chamber which is formed dorsally by the vertebral column, ventrally by the sternum, laterally by the ribs, and on the lower side by the dome-shaped diaphragm. The anatomical setup of the lungs in the thorax is such that any change in the volume of the thoracic cavity will be reflected in the lung (pulmonary) cavity. Such an arrangement is essential for breathing. Breathing involves two stages – inspiration and expiration. During inspiration, the atmospheric air is drawn in and during expiration, the alveolar air is released out.

- (a) On average, a healthy human breathes _____ times/minute.
(i) 12 – 16 (ii) 18 – 20 (iii) 70 – 72 (iv) 80 – 84
- (b) Air is sucked into the lungs by _____ .
(i) Ribs lift up (ii) Diaphragm flattens (iii) Ribs flatten
(iv) Both ribs lift up and diaphragm flattens
- (c) What term is used for the volume of air inspired or expired during normal respiration?
(i) Tidal volume (ii) Inspiratory Reserve Volume
(iii) Residual Volume (iv) Vital Capacity
- (d) The residual volume of air is _____ .
(i) 6000 to 8000 mL (ii) 2500 mL to 3000 mL
(iii) 1000 mL to 1100 mL (iv) 1100 mL to 1200 mL

30. The following flow chart depicts the events in synaptic transmission. Fill in the blanks (A), (B), (C), (D), (E) and (F).

OR

When the action potential arrives at the axon terminal, the (A) present there move towards and fuse with the plasma membrane.



A release the (B) into the (C)



B binds to specific receptors in (D)



This binding opens (E)



New action potential is generated in the (F)

Exchange of gases also occurs between blood and tissues. O₂ and CO₂ are exchanged in these sites by simple diffusion mainly based on pressure/concentration gradient. The solubility of the gases, as well as the thickness of the membranes involved in diffusion, are also some important factors that can affect the rate of diffusion.

- (a) Pressure contributed by an individual gas in a mixture of gases is called _____ .
(i) Atmospheric pressure (ii) Partial pressure

(iii) Differential pressure

(iv) Capillary pressure

(b) _____ are the primary sites of exchange of gases.

(i) Alveoli

(ii) Diaphragm

(iii) Trachea

(iv) Bronchi

(c) The diffusion membrane is made up of _____ major layers.

(i) Two

(ii) Four

(iii) Three

(iv) Five

(d) What are the values of pO_2 and pCO_2 in the body tissues?

(i) $pO_2 - 104$ mm Hg, $pCO_2 - 40$ mm Hg

(ii) $pO_2 - 104$ mm Hg, $pCO_2 - 140$ mm Hg

(iii) $pO_2 - 95$ mm Hg, $pCO_2 - 40$ mm Hg

(iv) $pO_2 - 40$ mm Hg, $pCO_2 - 45$ mm Hg

SECTION – E

31. List the human forebrain parts representing their respective functions

OR

Explain why in the loop of Henle, the glomerular filtrate gets concentrated in the descending limbs and diluted in the ascending limbs.

32. What are the different types of movements?

33. Complete the following

(a) The serum is the plasma without _____ factors.

(b) Phagocytic cells are _____ and monocytes.

(c) Eosinophils are linked with _____ reactions.

(d) In clotting, _____ ions play an important role.

(e) In an ECG, one can determine the heartbeat rate by counting the number of _____.