

## GRAND TEST (ZOOLOGY)

### 1. Read the following statements.

- I) Senescence is the process of ageing.
- II) Growth in living beings is from outside while in non-living things it is from inside.
- III) Analogous character are shared by a pair of organisms due to convergent evolution.
- IV) Wings of sparrows and finches explain the characters shared by organisms inherited from a common ancestor.

Which among the above are true?

- 1) all except II                      2) all except III                      3) all except IV                      4) all except I

### 2. Animals of which of the following group consist mosaic embryos?

- 1) Arthropods, molluscs and hemichordates      2) nematodes, Platyhelminthes, chordate  
3) chordata, hemichordate and echinoderms      4) annelids, arthropods and molluscs

### 3. Read the following statements

- I) Counting of the number of taxa within a particular area is known as alpha diversity.
- II) Localities at higher latitudes have less species than the localities at lower localities.
- III) Genetic diversity decreases with environmental variability.
- IV) Overall diversity for different ecosystems within an ecological region is gamma diversity.
- V) If log scale is taken for species at Greenland, Z value is  $< 1$  and the slope of log-log scale is  $> 45$ .

Which among the above are true?

- 1) I & IV                                  2) II & III                                  3) I & III                                  4) II & IV

### 4. Which of the following feature of gut wall of roundworms compensates the absence of circulatory system by allowing easy diffusion of digested food?

- 1) Presence of mesoderm only                                  2) Presence of ectoderm only  
3) Presence of endoderm only                                  4) Absence of endoderm

### 5. Read the following

- A) Reticulocyte                      B) Erythroid committed progenitor                      C) Myeloid stem cell  
D) Megakaryoblast                      E) Erythroblast                      F) Erythrocyte

Arrange the above stages in correct sequence in the formation of RBCs from Haemopoietic stem cells.

1. C → D → A → B → E → F                                  2. D → B → A → C → E → F  
3. C → B → E → A → F                                  3. A → C → B → E → F



**11. Match the following**

**CENTRE/ROLE**

- A) Thermoregulatory
- B) pneumotaxic
- C) Vomiting
- D) Sexual behaviour
- E) Gyroscope of body

**PART OF BRAIN**

- I) pons varolii
- II) medulla oblongata
- III) Hypothalamus
- IV) Cerebellum
- V) Limbic system with hypothalamus

	A	B	C	D	E
1)	III	I	II	V	IV
2)	IV	II	III	V	I
3)	II	I	V	III	IV
4)	I	II	III	IV	V

**12. Match the following regarding the circulatory system of human beings**

**GROUP - A**

- A) Eustachian valve
- B) Valve of Thebesius
- C) Tricuspid valve
- D) Mitral valve
- E) Semilunar valve

**GROUP - B**

- i) Coronary sinus — right atrium
- ii) Left atrium — Left ventricle
- iii) Post caval vein — Right atrium
- iv) Left ventricle — Systemic arch
- v) Right atrium — Right ventricle

- 1) A = iii; B = i; C = v; D = ii; E = iv
- 2) A = ii; B = i; C = v; D = iii; E = iv
- 3) A = iii; B = ii; C = v; D = iv; E = I
- 4) A = iii; B = iv; C = v; D = i; E = ii

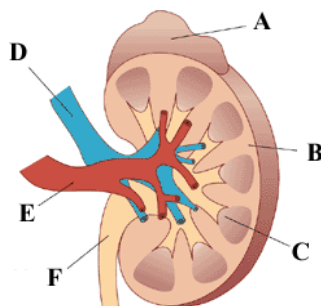
**13. A person is suffering with the following symptoms.**

- a) Buffalo hump
- b) Pendulous abdomen
- c) Over deposition of glycogen in liver
- d) breakdown of muscle proteins

Identify the syndrome and the reason for that conditions

- 1) Addison's disease - hyper secretion of aldosterone
- 2) Cushing's disease - over production of glucocorticoids
- 3) Acromegaly - over secretion of growth hormone in adult stages
- 4) Myxedema – hypothyroidism

**14. The diagram of L.S. of kidney of man is given below. Identify the parts A, B, C and F belong to it among the following options:**



	A	B	C	D
1)	Adrenal gland	duct of Bellini	Renal pyramid	ureter
2)	Suprarenal gland	column of Bertin	calyx	renal column
3)	Medullary pyramid	column of Bertin	pelvis	renal calyx
4)	Adrenal gland	column of Bertin	Renal pyramid	ureter

**15. Mismatch among the following**

- 1) Montreal protocol - aimed to reduce ozone depletion
- 2) Kyoto protocol - aimed to reduce greenhouse gases
- 3) Electrostatic precipitators - removes particulate pollutants.
- 4) Scrubbers - controls CO<sub>2</sub> pollution.

**16. Immunity that develops due to vaccination comes under**

- |   |  |
|---|--|
| 1) Artificial passive acquired immunity | 2) Artificial active innate immunity   |
| 3) Natural active acquired immunity     | 4) Artificial active adaptive immunity |

**17. Assertion (A) : images formed by compound eyes in nocturnal insects are superposition images.**

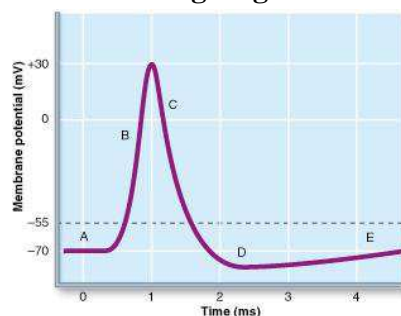
Reason (R): rhabdome and retinulae of an ommatidium receive light rays entering not only through its own cornea, but also through corneas of adjacent ommatidia.

- 1) Both (A) and (R) are true; (R) is the correct explanation to (A)
- 2) Both (A) and (R) are true; but (R) is not the correct explanation to (A)
- 3) (A) is true but (R) is false
- 4) (A) is false but (R) is true

**18. Adaptations shown by marine bony fishes for osmoregulation are**

- 1) Aglomerular kidneys, salt absorbing chloride cells
- 2) glomerular kidneys, salt secreting chloride cells
- 3) Aglomerular kidneys, salt secreting chloride cells
- 4) glomerular kidneys, salt absorbing chloride cells

**19. The diagram with various stages of nerve impulse is given below. Identify the position of voltage gated channels during stage 'B' in this diagram**



**Voltage gated 'Na' channel**

**Voltage gated 'K' channel**

**Activation gate**

**Inactivation gate**

1. Closed	open	open
2. Open	closed	closed
3. Open	open	open
4. Open	open	closed

**20. Study the following**

- A) Proerythroblast      B) Reticulocyte      C) Erythrocyte      D) Erythroblast  
E) Myeloid stem cell      F) Haemopoietic stem cell

Arrange the above in correct sequence which appears during the formation of red blood cells

- 1) C → D → A → B → E → F      2) F → E → A → D → B → C  
3) F → A → E → D → B → C      4) E → F → A → B → D → C

**21. Match the following**

**ABNORMALITY IN ECG**

**INDICATION**

- A) Inverted 'T' wave      I) bradycardia  
B) shortened Q-T interval      II) hypokalemia  
C) elevated S-T segment      III) tachycardia  
D) prolonged P-R interval      IV) hyperkalemia  
E) shortened P-R interval      V) hypercalcemia  
F) Tall T wave      VI) myocardial infarction

	A	B	C	D	E	F
1)	III	II	I	IV	V	VI
2)	II	V	VI	I	III	IV
3)	II	VI	V	III	IV	II
4)	V	III	VI	I	II	IV

**22. Read the following**

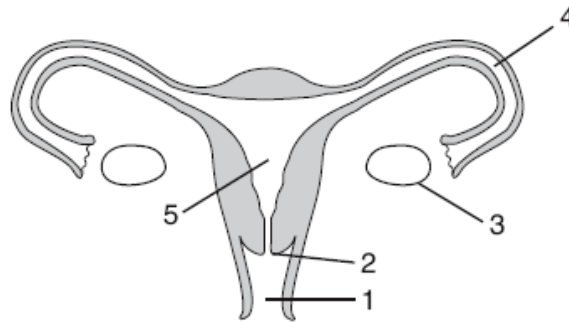
- A) high frequency with low amplitude  
B) low frequency with high amplitude  
C) common in awoken condition of early childhood and deep sleep by adults  
D) common during emotional stress in adults  
E) indicates epilepsy, brain tumours in awoken adults  
F) indicates drowsy or sleepy condition with closed eyes.

Which of the above are true for Delta waves in EEG?

- 1) A, C, D, E      2) B, C, E, F      3) B, C, E      4) A, D, E, F

23. Following diagram represents the sectional view of the human female reproductive system.

Identify the correct combination among the following about the labeled parts



	1	2	3	4	5
1)	vagina	cervix	ovary	uterine fundus	fallopian tube
2)	cervix	vagina	ovum	uterus	ampulla
3)	vagina	cervix	ovary	fallopian tube	uterine cavity
4)	cervix	vaginal	ovary	fallopian tube	uterus orifice

24. According to Fisher and Race, HDNB occurs in the following situation

Mother Foetus Production of Anti-D antibodies in

I)	CDe	CdE	foetus
II)	CDe	Cde	mother
III)	CdE	cDe	mother
IV)	CdE	CDe	foetus

- 1) I                      2) II                      3) III                      4) III & IV

25. A colorblind man with hyper trichosis married a woman whose mother is homozygous normal visioned and father is colorblind. Then in their progeny

- 1) All the sons are colorblind but without hyper trichosis
- 2) Half of the male children are with both colorblindness and hypertrichosis \*\*
- 3) All the females are normal visioned
- 4) 50 % of the progeny is colorblind but without hypertrichosis

26. Match the following

I	II
A) Bobbed bristles in <i>Drosophila</i>	I) X linked recessive
B) Hypertrichosis	II) Sex-limited
C) Beard in male	III) Sex- influenced
D) White forelock in humans	IV) Holandric
	V) XY—linked

- |    |    |     |     |    |
|----|----|-----|-----|----|
|    | A  | B   | C   | D  |
| 1) | IV | II  | III | I  |
| 3) | V  | III | IV  | II |

- |    |   |    |    |     |
|----|---|----|----|-----|
|    | A | B  | C  | D   |
| 2) | V | IV | II | III |
| 4) | V | II | IV | III |

27. **Haemophilic female with heterozygous non bald condition married a heterozygous bald male whose mother is haemophilic. The offsprings are**

- 1) 75% sons are haemophilic and bald
- 2) 25% sons are nonhaemophilic and nonbald
- 3) 25% daughters are nonhaemophilic and nonbald
- 4) 75% daughters are haemophilic and bald

28. **Read the following statements**

- I) Normalizing selection removes deleterious genotypes from the population, for which reproductive success is zero
- II) Centrifugal selection pressure removes the average of the phenotypic distribution in the population.
- III) Directional selection works by constantly removing individuals from one end of the phenotypic distribution and therefore average value of fitness is shifted towards the other end of the phenotypic distribution.
- IV) Centripetal selection maintains the same average value of the phenotypic distribution in the population over a time.

**True statements are**

- 1) All except II
- 2) All except III
- 3) All except IV
- 4) All are true

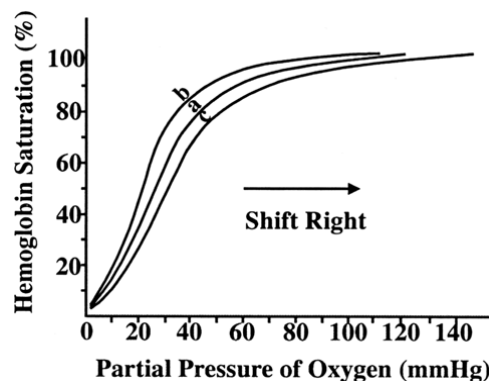
29. **In a population, the frequency of recessive allele is 0.2. If there are 24 recessive members in that population, what is the total number of members in that population**

- 1) 200
- 2) 400
- 3) 600
- 4) 800

30. **Formation of a new species without geographical isolation is**

- 1) Anagenesis
- 2) Cladogenesis
- 3) Allopatric speciation
- 4) Sympatric speciation

31. **A diagram which shows Oxy hemoglobin dissociation curve is given below. Identify the combination of conditions which shift the curve to right side:**



- 1) less CO<sub>2</sub>, high pH, low temperature      2) high CO<sub>2</sub>, low pH, high temperature  
 3) High O<sub>2</sub>, low pH, low temperature      4) less CO<sub>2</sub>, low pH, low temperature

**32. Which type of nephridia are present in the segments with blood glands in *Pheretima*?**

- 1) closed & enteronephric type only  
 2) open & enteronephric; closed & exonephric type  
 3) closed & enteronephric; closed & exonephric type  
 4) open & exonephric ; closed & enteronephric

**33. Correct combination(s) among the following related to the phylum Arthropoda**

	Class	Character	Example
I)	Crustacea	statocysts	<i>Sarcoptes</i>
II)	Xiphosura	Trilobite larva	<i>Limulus</i>
III)	Diplopoda	poison claws	<i>Julus</i>
IV)	Chilopoda	malpighian tubules	<i>Scutigera</i>
V)	Hexapoda	Tracheae	<i>Lepisma</i>

- 1) I, II & IV      2) II, IV & V      3) II, III & IV      4) All except I

**34. Read the following characters of echinoderms**

- A) Coriaceous skin      B) Mouth is surrounded by retractile tentacles  
 C) loose spicules in dermis      D) Madreporite is absent  
 E) two jawed pedicellariae      F) tube feet without suckers

**Which of the above belong to sea cucumbers**

- 1) A, B, C only      2) All except E      3) B, C, F only      4) All the above

**35. Which of the following show discontinuous distribution?**

- 1) monotremes, marsupials, lung fishes and birds of palaeognathae  
 2) marsupials, lung fishes and birds of ratitae  
 3) lung fishes, rhynchocephalians and birds of palaeognathae  
 4) monotremes, lung fishes and lizard bird

**36. Common features shown by glorified reptiles and mammals**

- 1) absence of renal portal system, larynx as voice box, enucleated RBCs  
 2) amphiplatyon vertebrae, presence of left systemic arch only  
 3) monocondylic skull, reduced renal portal system, atrophied right ovary and oviduct.  
 4) metanephric kidney, absence of sinus venosus and conus arteriosus, double headed ribs.

**37. Read the following**

- a) furcula is formed by the fusion of caudal vertebrae in birds.  
 b) males of ratitae birds, ducks and geese have copulatory organs.  
 c) Bradypus has nine while Elephus has seven cervical vertebrae.  
 d) placenta is absent in montremes of mammalia



e) corpus callosum joins two halves of cerebellum in the animals with arachnoid membrane.

f) rhamphotheca is the horny covering on the legs of birds.

**Which among the above are not true?**

- |                          |                          |
|--------------------------|--------------------------|
| 1) all except a, d and f | 2) all except a, e and f |
| 3) a, e and f only       | 4) b, c and e only       |

**38. Match the following**

LIST – I		LIST – II	
A)	Amphetamines	D)	Tranquilizer
B)	Cocaine	II)	sleeping pill
C)	Benzodiazepines	III)	sleeplessness
D)	Barbiturates	IV)	hallucinations

	A	B	C	D
1.	III	I	IV	II
2.	III	IV	I	II
3.	IV	III	II	I
4.	II	IV	III	I

**39. Match the following**

**LIST – I (epithelium)**

- A) Simple squamous epithelium
- B) Stratified keratinized squamous
- C) Simple cuboidal with microvilli
- D) Stratified non-keratinised squamous
- E) Transitional

**LIST – II (location)**

- I) proximal convoluted tubule of nephron
- II) oesophagus, pharynx
- III) distal convoluted tubule of nephron
- IV) urinary bladder
- V) peritoneum
- VI) dry surface of skin

	A	B	C	D	E
1.	II	III	IV	V	I
2.	V	VI	I	II	IV
3.	III	VI	IV	II	I
4.	V	I	VI	IV	II

**40. Synchronous movement in *Paramecium* is**

- 1) sequential movement of cilia of a longitudinal row
- 2) simultaneous movement of cilia of transverse row\*
- 3) simultaneous movement of cilia of longitudinal row
- 4) sequential movement of cilia of transverse row

## KEY

<b>1</b>	1	<b>2</b>	4	<b>3</b>	1	<b>4</b>	3	<b>5</b>	3	<b>6</b>	3	<b>7</b>	3	<b>8</b>	2	<b>9</b>	2	<b>10</b>	1
<b>11</b>	1	<b>12</b>	1	<b>13</b>	2	<b>14</b>	4	<b>15</b>	4	<b>16</b>	4	<b>17</b>	1	<b>18</b>	3	<b>19</b>	4	<b>20</b>	2
<b>21</b>	2	<b>22</b>	3	<b>23</b>	3	<b>24</b>	3	<b>25</b>	2	<b>26</b>	2	<b>27</b>	3	<b>28</b>	4	<b>29</b>	3	<b>30</b>	4
<b>31</b>	2	<b>32</b>	3	<b>33</b>	2	<b>34</b>	1	<b>35</b>	2	<b>36</b>	4	<b>37</b>	3	<b>38</b>	2	<b>39</b>	2	<b>40</b>	2

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