



Previous Year Solved Question Paper  
of

**G.A.T.E. (XL) 2015**

**LIFE SCIENCES**

**XL: L Zoology**

**Examination**

*(Original Question Paper with Answer Key)*

**GRADUATE APTITUDE TEST IN ENGINEERING**



For more question papers, please visit: [www.easybiologyclass.com](http://www.easybiologyclass.com)

**L : ZOOLOGY****Q. 1 – Q. 10 carry one mark each.**

- Q.1 The term “paedomorphosis” refers to **Ans. A**
- (A) Accelerated reproductive development as compared to somatic development  
(B) A transient stage in the developmental event  
(C) Two independent structures resembling each other, yet performing different functions  
(D) A form of mimicry
- Q.2 Which one of the following statements is TRUE when determining the age of a fossil using carbon dating? **Ans. C**
- (A) Carbon dating is based on carbon-13 to carbon-12 ratio in fossils  
(B) Carbon dating is useful for determining the age of only fossils older than 100,000 years  
(C) Older the fossil, lesser the carbon-14 to carbon-12 ratio  
(D) Older the fossil, lesser the carbon-12 to carbon-14 ratio
- Q.3 Constitutive enzymes are **Ans. D**
- (A) Induced by effector molecules  
(B) Repressed by repressors  
(C) Encoded by sequences that occur as part of an operon  
(D) Always produced in the cell
- Q.4 Which one of the following is a function of intermediate filaments? **Ans. D**
- (A) Chromosome movement during the cell division  
(B) Cytoplasmic streaming  
(C) Formation of tight junctions  
(D) Anchorage of the nucleus
- Q.5 Which one of the following statements is FALSE with respect to phospholipids? **Ans. C**
- (A) Phospholipids have amphipathic character  
(B) Phospholipids form the lipid bilayer of the cell membrane  
(C) Phospholipids form micelles in living systems  
(D) Some phospholipid molecules may contain a double bond in hydrophobic tails
- Q.6 Which one of the following organs is INCORRECTLY paired with its function? **Ans. C**
- (A) Intestinal villi – absorption  
(B) Epiglottis – closure of larynx  
(C) Gall bladder – carbohydrate digestion  
(D) Parietal cells – hydrochloric acid
- Q.7 Where do B lymphocytes acquire immune competence? **Ans. B**
- (A) Thymus                      (B) Bone Marrow                      (C) Lymph nodes                      (D) Spleen
- Q.8 Which one of the following life cycle stages of *Plasmodium falciparum* is infectious? **Ans. A**
- (A) Sporozoite                      (B) Cryptozoite                      (C) Merozoite                      (D) Trophozoite

Q.9 What is the role of the notochord during organogenesis in a vertebrate embryo?

- (A) Signaling the development of placenta  
 (B) Induction of neural plate formation  
 (C) Stimulation of the umbilical chord formation  
 (D) Suppression of the development of extra-embryonic membranes

Ans. B

Q.10 The behavior of young ducks following their mother is known as

- (A) Imprinting (B) Innate behavior (C) Habituation (D) Mimicry

Ans. A

**Q. 11 – Q. 20 carry two marks each.**

Q.11 Match the species names with class names

- |                                   |                     |
|-----------------------------------|---------------------|
| P. <i>Calotes versicolor</i>      | i. Insecta          |
| Q. <i>Periplaneta americana</i>   | ii. Reptilia        |
| R. <i>Glyphidrilus birmanicus</i> | iii. Actinopterygii |
| S. <i>Clarias batracus</i>        | iv. Clitellata      |

- (A) P-ii; Q-i, R-iv; S-iii (B) P-i; Q-ii; R-iii; S-iv  
 (C) P-ii; Q-i; R-iii; S-iv (D) P-iii; Q-i; R-ii; S-iv

Ans. A

Q.12 A population of spotted deer found in a national forest is in Hardy-Weinberg equilibrium. For a particular genetic locus in this deer species, only two alleles *A* and *a* are possible. If the frequency of the *A* allele in this population is 0.6, and the frequency of the *a* allele is 0.4, what will be the frequency of the genotype *Aa*?

- (A) 0.24 (B) 0.48 (C) 0.96 (D) 1.6

Ans. B

Q.13 In *Drosophila*, the gene for eye colour is present on the X chromosome. When a red-eyed female was mated with a white-eyed male, a total of 100 progeny were obtained – 50 females and 50 males. Of the 50 females, 25 were red-eyed, and 25 were white-eyed. How many of the male progeny were red-eyed?

- (A) 0 (B) 10 (C) 20 (D) 25

Ans. D

Q.14 Defect in poly-A tail formation in eukaryotic mRNA leads to

- (A) Increased translation of the resulting mRNA  
 (B) Decreased translation of the resulting mRNA  
 (C) Premature transcription termination  
 (D) Decreased mRNA stability

Ans. D

Q.15 Assuming equal frequency for all 4 nucleotides (G, A, T, C), how many EcoRI recognition sites (GAATTC) are possible in a bacterial artificial chromosome of 100,000 base pairs?

- (A) 6 (B) 12 (C) 24 (D) 48

Ans. C

Q.16 Choose the correct option that shows pairing of the organelle to its function

- |                                 |                                 |
|---------------------------------|---------------------------------|
| P. Smooth endoplasmic reticulum | i. Internalization of receptors |
| Q. Peroxisome                   | ii. Protein secretion           |
| R. Golgi apparatus              | iii. Membrane biogenesis        |
| S. Endosome                     | iv. Breakdown of fatty acids    |

- (A) P-i, Q-ii, R-iii, S-iv (B) P-i, Q-iii, R-ii, S-iv  
 (C) P-iii, Q-iv, R-ii, S-i (D) P-ii, Q-iii, R-iv, S-i

Ans. C

Q.17 Choose the correct option based on your understanding of the circulatory system

- |                              |                 |
|------------------------------|-----------------|
| P. Open circulatory system   | i. Fish         |
| Q. Closed circulatory system | ii. Frog        |
| R. Three chambered heart     | iii. Earthworm  |
| S. Two chambered heart       | iv. Grasshopper |

(A) P-iv; Q-iii; R-ii; S-i

(B) P-iv; Q-i; R-ii; S-iii

(C) P-i; Q-iv; R-ii; S-iii

(D) P-i; Q-iii; R-iv; S-ii

**Ans. A**

Q.18 The popular birth control pills for women have a combination of synthetic forms of estradiol and progesterone. Which one of the following statements is INCORRECT with regard to their function as contraceptive?

- (A) The pills inhibit the release of GnRH leading to inhibition of gonadotropin-stimulated ovarian function
- (B) They act directly on the pituitary gland to inhibit gonadotropin surges
- (C) The low dose of estradiol in the pill inhibits the release of FSH, and thus blocks ovulation
- (D) The synthetic forms of estradiol and progesterone bring about their effects by binding to their respective intracellular receptors

**Ans. C**

Q.19 Which one of the following is consistent with the germplasm theory of August Weismann?

- (A) Regulative development observed in frog embryos
- (B) Mosaic development observed in tunicates
- (C) Normal embryonic development of embryos formed by somatic nuclear transfer
- (D) Ability of differentiated cells to form pluripotent stem cells under certain conditions

**Ans. B**

Q.20 Which one of the following statements DOES NOT explain altruism?

- (A) Altruism reduces the fitness of the individual that displays this behavior
- (B) Altruism increases the fitness of other individuals in the population
- (C) Altruism reduces the fitness of the individual that displays this behavior and at the same time increases the fitness of other individuals in the population
- (D) Altruistic behavior helps the individual escape from predators

**Ans. D**

**END OF THE QUESTION PAPER**

Please visit: [www.easybiologyclass.com](http://www.easybiologyclass.com) for:

- Lecture Notes
- Biology PPTs
- Biology MCQs
- Online Mock Tests (MCQ)
- Video Tutorials
- Practical Aids
- Model Question Papers of NET, GATE, DBT, ICMR Exams
- CSIR NET Life Sciences Previous Year Question Papers
- GATE Previous Year Question Papers
- DBT BET JRF Previous Year Question Papers
- ICMR JRF Entrance Exam Resources
- Jobs Notifications
- Higher Studies in Biology / Life Sciences
- Seminar / Workshop/ Conference Notifications
- And many more....



Please subscribe our **youtube** channel: **easybiologyclass**  
<https://www.youtube.com/user/easybiologyclass/videos>



You can access more PDFs & PPTs from our **Slideshare** account  
<http://www.slideshare.net/EasyBiologyClassEBC/>



Our sister concern: [www.angiospermtaxonomy.com](http://www.angiospermtaxonomy.com)