

College: S. S. College, Jehanabad

Department: Zoology

Class: M.Sc. Semester III

Subject: Zoology / Assignment

Topic: Genetics & Cell Biology (Paper – 3)

Teacher: Praveen Deepak

Last date of assignment submission: 19.05.2020

Mode of submission: E-mail or WhatsApp or Google Classroom

E-mail: deepakprav@gmail.com

WhatsApp No.: +91 75360 68068

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S.S. COLLEGE, JEHANABAD
(NAAC Accredited- Grade 'B')

Department of Zoology
(Internal Assessment)

Name: _____ Class: _____

Class Roll No.: _____ Total Marks: 40

Assignment: May 18, 2020 Submission: May 19, 2020

M.Sc. Zoology Semester III Paper 3 - Assignment

This assignment is for evaluation of students with respect to online classes and e-contents. It has a total of 40 questions and a total of 40 marks. Each question carries 1 mark. There is no minus marking.

- Who is known as the Father of Genetics?
 (A) Erich Tschermak (B) Carl Correns
 (C) Gregor Johann Mendel (D) Hugo de Vries
- Mendel discovered factors which remain its identity in a hybrid, these factors are _____
 (A) Genes (B) Alleles
 (C) DNA (D) Chromosomes
- Which of the following specimen was chosen by Mendel for his experiment?
 (A) *Drosophila melanogaster* (B) *Musca domestica*
 (C) *Rattus rattus* (D) *Pisum sativum*
- Mark the incorrect statement about *Pisum sativum*?
 (A) Long life cycle (B) Easy hybridization
 (C) Bisexual flower (D) Well-defined discrete characters
- What is an allele?
 (A) Characteristics of an organism (B) Alternate forms of genes
 (C) Homologous chromosomes (D) Pair of centrioles
- Out of the following, which law is also known as the law of purity of gametes?
 (A) Law of co-dominance (B) Law of independent assortment
 (C) Law of segregation (D) Law of dominance
- name the cross by which law of independent assortment inferred.
 (A) Dihybrid cross (B) Monohybrid cross
 (C) Test cross (D) Back cross

8. Which of the following is an example of incomplete dominance?
- (A) AB blood group (B) *Mirabilis jalapa*
(C) Shape of crown in poultry (D) Mouse coat color
9. In Mendel Dihybrid cross, the phenotypic ratio of F₂ for a single character is _____
- (A) 9:3:2:1 (B) 9:3:2:2
(C) 3:1 (D) 9:3:3:1
10. The geometrical device that helps to find out all the possible combinations of male and female gametes is called _____
- (A) Punnett square (B) Bateson square
(C) Mendel square (D) Morgan square
11. The Phenomenon of two or more than two genes affecting the expression of each other is called _____
- (A) crossing over (B) pairing
(C) gene interaction (D) linkage
12. Which of the following ratio shows complementary gene interaction?
- (A) 9:7 (B) 15:1
(C) 1:2:1 (D) 9:3:3:1
13. What is epistasis?
- (A) Type of linkage (B) Masking or modifying gene effect
(C) Upper portion of a chromosome (D) Group of genes
14. Name the phenomenon where two genes have the same expression of the character?
- (A) Pleiotropy (B) Phenocopy
(C) Penetrance (D) Expressivity
15. The sex influenced traits are present in _____
- (A) autosome (B) sex chromosome
(C) mitochondrial chromosome (D) None of the above

16. If A is a sex influenced trait that is more expressed in males, then which of the following is false?
- (A) Only male having a homozygous recessive form of this gene will not express it
- (B) No female will express the gene
- (C) The gene is autosomal
- (D) Heterozygous female will not express this gene
17. If present of horn in a breed of sheep is due to the presence of h^+ allele which is sex influenced and more expressed in male, choose the off one out.
- (A) Female with $h^+ h^+$
- (B) Male with $h^+ h^+$
- (C) Female with $h h^+$
- (D) Male with $h h^+$
18. Patterned baldness is a sex influenced trait more expressed in a male. If b^+ is normal allele making non-bald phenotype and b is mutant leading to bald phenotype, for a cross between a bald mother and normal father, what is the probability of a bald son?
- (A) 0
- (B) $\frac{1}{4}$
- (C) $\frac{1}{2}$
- (D) 1
19. Choose the odd one out on the basis of sex influence.
- (A) Cleft palate
- (B) Club foot
- (C) Gout
- (D) Osteoporosis
20. Which one of the following will not be expressed in female even in homozygous form?
- (A) Cock feathering
- (B) Cleft palate
- (C) Osteoporosis
- (D) Color blindness
21. How will you recognize a terminal deletion from breakage and loss at the terminal end?
- (A) Indistinguishable
- (B) Terminal break will lead to shorter chromosome than that due to chunk deletion
- (C) Terminal break will be sticky
- (D) Deletion will be recognized by trans factors

22. What will be the effect of the deletion mutation of a gene at the telomere?
- (A) Organism will die (B) Organism will develop serious hazards due to absence of the gene and its product
- (C) Mild effect on the phenotype (D) No effect
23. You hybridize two cells one of which carries a deletion mutation on chromosome. What will you expect to observe?
- (A) Buckling of chromatin of 1st cell (B) Buckling of chromatin of 2nd cell
- (C) Twisting and loop formation between the two chromatins (D) No observable difference
24. The appearance of a recessive phenotype due to deletion of dominant gene is called _____
- (A) hemi-dominance (B) pseudo-dominance
- (C) imperfect dominance (D) co-dominance
25. Yellow colour of mouse is generated by _____ mutation.
- (A) duplication (B) deletion
- (C) inversion (D) translocation
26. Mitochondrial disease are received from _____
- (A) mother (B) father
- (C) in laws (D) environment
27. The transmission of genes that occur outside the nucleus is called _____
- (A) extranuclear inheritance (B) cytoplasmic inheritance
- (C) both (a) & (b) (D) None of these
28. Extranuclear inheritance commonly occur in _____
- (A) nucleus (B) cytoplasmic organelles
- (C) ribosomes (D) cell membrane

29. The organelles involved in protein transport _____
- (A) ER and Golgi (B) ER and mitochondria
(C) Golgi and mitochondria (D) lysosomes and Golgi
30. All hormones can cross plasma membrane except _____
- (A) estrogen (B) insulin
(C) progesterone (D) thyroxine
31. The major biomolecule responsible of selective uptake of materials across plasma membrane is _____
- (A) carbohydrate (B) protein
(C) lipids (D) phospholipids
32. The coated pits are coated on their cytosolic side with a lattice of _____
- (A) clathrin (B) lipoprotein
(C) glycoprotein (D) transferrin
33. How many amino acid residues are there in ubiquitin?
- (A) 72 (B) 73
(C) 75 (D) 76
34. The two sub-assemblies of 26S proteasome are _____
- (A) 20S core particle and 19S regulatory particle (B) 20S regulatory particle and 19S core particle
(C) 18S core particle and 19S regulatory particle (D) 20S core particle and 18S regulatory particle
35. Proteins tagged with mannose 6-phosphate are transported to _____
- (A) Golgi complex (B) mitochondria
(C) lysosome (D) nucleus

36. Signal sequences are _____
- (A) short peptide sequences that serves as an address for transporting newly synthesized proteins to the correct location
- (B) glycoproteins that serve as an address for transporting newly synthesized protein to the correct location
- (C) hort peptide sequences to transport a protein to the nucleus
- (D) short peptide sequences attached to a protein that initiates its degradation by digestive enzymes
37. The correct order of transport of protein in a secretory pathway is _____
- (A) protein synthesized in the cytoplasm → SER lumen → RER lumen → cis Golgi → median Golgi → trans Golgi → vesicles → fusion of vesicles with plasma membrane → exocytosis
- (B) protein synthesized in the cytoplasm → RER lumen → cis Golgi → median Golgi → trans Golg → vesicles → fusion of vesicles with plasma membrane → exocytosis
- (C) protein synthesized in the cytoplasm → vesicles → SER lumen → RER lumen → cis Golgi → median Golgi → trans Golgi → fusion of vesicles with plasma membrane → exocytosis
- (D) protein synthesized in the cytoplasm → RER lumen → trans Golgi → median Golgi → cis Golgi → vesicles → fusion of vesicles with plasma membrane → exocytosis
38. Nuclear localization signal is rich in _____
- (A) tryptophan and histidine
- (B) serine and threonine
- (C) glutamine and asparagine
- (D) lysine and arginine
39. Secretory proteins are synthesized by _____
- (A) ribosomes on nuclear membrane
- (B) ribosomes on endoplasmic reticulum
- (C) free ribosomes
- (D) None of these
40. The retention signal of proteins of endoplasmic reticulum consists of amino acids _____
- (A) Gly—Asp-Glu-Leu at the N - terminus
- (B) LyS—Asp-Glu-Leu at the N - terminus
- (C) Gly—Asp-Glu-Leu at the C - terminus
- (D) LyS—Asp-Glu-Leu at the C - terminus

Name:

Class:

Monday, May 18, 2020

Total Marks: 40

M.Sc. Zoology Semester III Paper 3 - Answer Sheet

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— 1	2. (A) (B) (C) (D)	— 1	20. (A) (B) (C) (D)	— 1	38. (A) (B) (C) (D)
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— 1	8. (A) (B) (C) (D)	— 1	26. (A) (B) (C) (D)		
— 1	9. (A) (B) (C) (D)	— 1	27. (A) (B) (C) (D)		
— 1	10. (A) (B) (C) (D)	— 1	28. (A) (B) (C) (D)		
— 1	11. (A) (B) (C) (D)	— 1	29. (A) (B) (C) (D)		
— 1	12. (A) (B) (C) (D)	— 1	30. (A) (B) (C) (D)		
— 1	13. (A) (B) (C) (D)	— 1	31. (A) (B) (C) (D)		
— 1	14. (A) (B) (C) (D)	— 1	32. (A) (B) (C) (D)		
— 1	15. (A) (B) (C) (D)	— 1	33. (A) (B) (C) (D)		
— 1	16. (A) (B) (C) (D)	— 1	34. (A) (B) (C) (D)		
— 1	17. (A) (B) (C) (D)	— 1	35. (A) (B) (C) (D)		
— 1	18. (A) (B) (C) (D)	— 1	36. (A) (B) (C) (D)		