



UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part – I
Annual Examination - 2017

Roll No.

Subject: Genetics-I
PAPER: A (Principles of Genetics)

TIME ALLOWED: 2 hrs.
MAX. MARKS: 21

PART II

Attempt any three questions from part II. Time allocated for Part II is two hours. All questions carry equal marks.

- | | | | |
|------------|----|---|---|
| Q.3 | a) | Briefly explain the phenomenon of incomplete dominance. | 3 |
| | b) | Describe the sex-limited and sex-influenced traits. | 4 |
| Q.4 | a) | Contrast Edward syndrome and Klinefelter's syndrome. | 4 |
| | b) | Write short note on colorblindness in humans. | 3 |
| Q.5 | a) | Briefly explain the significance of crossing over in organisms. | 4 |
| | b) | Write brief note on heterochromatin and euchromatin. | 3 |
| Q.6 | a) | Briefly explain phenomenon of antagonistic pleiotropy. | 5 |
| | b) | Describe various events occurs during M phase in cell division. | 2 |
| Q.7 | a) | Write concise note on penetrance and expressivity. | 5 |
| | b) | How you can differentiate monozygotic twin with dizygotic twin. | 2 |



UNIVERSITY OF THE PUNJAB

Roll No.

B.A. / B.Sc. Part – I

Annual Examination - 2017

Subject: Genetics-I

TIME ALLOWED: 1 hr.

PAPER: A (Principles of Genetics)

MAX. MARKS: 14

NOTE: Part-I is compulsory. Part-I will be collected after one hour. Please mention your roll number on this page.

PART I

Q.1 Fill in the blanks with appropriate words.

(7)

- a. Any chromosome that is not directly involved in the determination of sex is called -----
- b. The Down syndrome is a classical example of -----in humans.
- c. Heterochromatic body (x chromosome) found in the nuclei of normal female mammals but absent in the nuclei of normal males is called-----.
- d. -----is a diploid cell missing a single chromosome.
- e. The division of the cytoplasm, resulting in two cells from one original cell is termed as---
- f. -----is the exchange of chromosome parts between non homologous chromosome.
- g. ----- is a process where a single gene controls multiple phenotypic traits.

Q.2 Write (T) in front of true statement and (F) in front of false statement. And if some statement is false then correct it.

(7)

- a. The tendency of genes to remain on the same chromosome during crossing over is called linkage.
- b. Translation is the transfer of chromosome parts between non-homologous chromosomes.
- c. Epitaxis is a nonreciprocal interactions between genes such that one gene interferes with or prevent the expression of another gene.
- d. Eugene is a nonfunctional gene with sequence homology to a known structural gene present elsewhere in the genome.
- e. A mutant microorganism which requires a substance for growth that can be synthesized by wild type strains is called a prototroph.
- f. Mendel believes in continuous variation, where offspring were a blend of their parent's phenotypes.
- g. Leptotene is a stage in meiotic prophase I when the synapsed homologous chromosomes split producing a group of four chromatids called tetrad.



UNIVERSITY OF THE PUNJAB

Roll No.

B.A. / B.Sc. Part – I

Annual Examination - 2017

Subject: Genetics-I

PAPER: A (Principles of Genetics)

TIME ALLOWED: 1 hr.

MAX. MARKS: 14

NOTE: Part-I is compulsory. Part-I will be collected after one hour. Please mention your roll number on this page.

PART I

Q.1 Fill in the blanks with appropriate words.

(7)

- a. Any chromosome that is not directly involved in the determination of sex is called -----
- b. The Down syndrome is a classical example of -----in humans.
- c. Heterochromatic body (x chromosome) found in the nuclei of normal female mammals but absent in the nuclei of normal males is called-----.
- d. -----is a diploid cell missing a single chromosome.
- e. The division of the cytoplasm, resulting in two cells from one original cell is termed as---
-----.
- f. -----is the exchange of chromosome parts between non homologous chromosome.
- g. ----- is a process where a single gene controls multiple phenotypic traits.

Q.2 Write (T) in front of true statement and (F) in front of false statement. And if some statement is false then correct it.

(7)

- a. The tendency of genes to remain on the same chromosome during crossing over is called linkage.
- b. Translation is the transfer of chromosome parts between non-homologous chromosomes.
- c. Epitasis is a nonreciprocal interactions between genes such that one gene interferes with or prevent the expression of another gene.
- d. Eugene is a nonfunctional gene with sequence homology to a known structural gene present elsewhere in the genome.
- e. A mutant microorganism which requires a substance for growth that can be synthesized by wild type strains is called a prototroph.
- f. Mendel believes in continuous variation, where offspring were a blend of their parent's phenotypes.
- g. Leptotene is a stage in meiotic prophase I when the synapsed homologous chromosomes split producing a group of four chromatids called tetrad.



UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part – I
Annual Examination - 2017

Roll No.

Subject: Genetics-I
PAPER: B (Biometry and Quantitative Genetics)

TIME ALLOWED: 2 hrs.
MAX. MARKS: 21

PART II																
Attempt any three questions																
Q3 a):	How one can calculate the mid point of a class interval	01 marks														
b):	Determine the median of the data 3, 4, 7, 5, 4, 6, 4, 5, 8, 3, 4, 5, 6, 5, 4	02 marks														
c):	The following table shows the frequency distribution of the diameters of 80 balls in millimeter. Find the mean of the data by mid point method	04 marks														
<table><tr><td>Diameter (mm)</td><td>35-40</td><td>41-46</td><td>47-52</td><td>53-58</td><td>59-65</td></tr><tr><td>Frequency</td><td>12</td><td>14</td><td>27</td><td>14</td><td>13</td></tr></table>		Diameter (mm)	35-40	41-46	47-52	53-58	59-65	Frequency	12	14	27	14	13			
Diameter (mm)	35-40	41-46	47-52	53-58	59-65											
Frequency	12	14	27	14	13											
Q4. a).	How you will calculate co-efficient of variance.	02 marks														
b)	In certain locality the number of peoples were living their ages with respect to numbers are as below, by age group	05 marks														
<table><tr><td>Age</td><td>5-9</td><td>10-14</td><td>15-19</td><td>20-24</td><td>25-29</td><td>30-34</td></tr><tr><td>Number</td><td>15</td><td>25</td><td>26</td><td>30</td><td>42</td><td>27</td></tr></table>		Age	5-9	10-14	15-19	20-24	25-29	30-34	Number	15	25	26	30	42	27	
Age	5-9	10-14	15-19	20-24	25-29	30-34										
Number	15	25	26	30	42	27										
Calculate the standard deviation and standard error of the data.																
Q5. a)	What is meant by contingency table. How one can determine the association between two characters	02 marks														
b).	A study of diet and age at menarche yielded the following information	05 marks														
<table><tr><th>Age of the Menarche</th><th colspan="2">Egg consumption</th></tr><tr><td></td><th>Never</th><th>Once per week</th></tr><tr><td>Low</td><td>5</td><td>13</td></tr><tr><td>medium</td><td>4</td><td>20</td></tr></table>		Age of the Menarche	Egg consumption			Never	Once per week	Low	5	13	medium	4	20			
Age of the Menarche	Egg consumption															
	Never	Once per week														
Low	5	13														
medium	4	20														
Test at $p=0.05$ the hypothesis of independence of the two variables.																
Q6 a).	Write down the conditions which effect the.hardy Weinberg equilibrium.	02 marks														
b)	Imagine that a population is in Hardy weinberg equilibrium. A certain gene presents as two different alleles and 49% the population is homozygous dominant. What percentage of population is homozygous recessive.	05 marks														
Q7. a).	Write notes on IV. Different types of frequency curves. V. Goodness of fitness of data to given ratio. VI. Systematic sampling	06 marks														
b).	Differentiate between genotype number and genotypic frequencies	01 marks														

PTO

Percentage Points of the Chi-Square Distribution

Degrees of Freedom	Probability of a larger value of χ^2								
	0.99	0.95	0.90	0.75	0.50	0.25	0.10	0.05	0.01
1	0.000	0.004	0.016	0.102	0.455	1.32	2.71	3.84	6.63
2	0.020	0.103	0.211	0.575	1.386	2.77	4.61	5.99	9.21
3	0.115	0.352	0.584	1.212	2.366	4.11	6.25	7.81	11.34
4	0.297	0.711	1.064	1.923	3.357	5.39	7.78	9.49	13.28
5	0.554	1.145	1.610	2.675	4.351	6.63	9.24	11.07	15.09
6	0.872	1.635	2.204	3.455	5.348	7.84	10.64	12.59	16.81
7	1.239	2.167	2.833	4.255	6.346	9.04	12.02	14.07	18.48
8	1.647	2.733	3.490	5.071	7.344	10.22	13.36	15.51	20.09
9	2.088	3.325	4.168	5.899	8.343	11.39	14.68	16.92	21.67
10	2.558	3.940	4.865	6.737	9.342	12.55	15.99	18.31	23.21
11	3.053	4.575	5.578	7.584	10.341	13.70	17.28	19.68	24.72
12	3.571	5.226	6.304	8.438	11.340	14.85	18.55	21.03	26.22
13	4.107	5.892	7.042	9.299	12.340	15.98	19.81	22.36	27.69
14	4.660	6.571	7.790	10.165	13.339	17.12	21.06	23.68	29.14
15	5.229	7.261	8.547	11.037	14.339	18.25	22.31	25.00	30.58
16	5.812	7.962	9.312	11.912	15.338	19.37	23.54	26.30	32.00
17	6.408	8.672	10.085	12.792	16.338	20.49	24.77	27.59	33.41
18	7.015	9.390	10.865	13.675	17.338	21.60	25.99	28.87	34.80
19	7.633	10.117	11.651	14.562	18.338	22.72	27.20	30.14	36.19
20	8.260	10.851	12.443	15.452	19.337	23.83	28.41	31.41	37.57
22	9.542	12.338	14.041	17.240	21.337	26.04	30.81	33.92	40.29
24	10.856	13.848	15.659	19.037	23.337	28.24	33.20	36.42	42.98
26	12.198	15.379	17.292	20.843	25.336	30.43	35.56	38.89	45.64
28	13.565	16.928	18.939	22.657	27.336	32.62	37.92	41.34	48.28
30	14.953	18.493	20.599	24.478	29.336	34.80	40.26	43.77	50.89
40	22.164	26.509	29.051	33.660	39.335	45.62	51.80	55.76	63.69
50	27.707	34.764	37.689	42.942	49.335	56.33	63.17	67.50	76.15
60	37.485	43.188	46.459	52.294	59.335	66.98	74.40	79.08	88.38



UNIVERSITY OF THE PUNJAB

Roll No.

B.A. / B.Sc. Part – I Annual Examination - 2017

Subject: Genetics-I

PAPER: B (Biometry and Quantitative Genetics)

TIME ALLOWED: 1 hr.

MAX. MARKS: 14

USE SAPARATE ANSWER SHEET FOR PART-I AND PART-II.

INSTRUCTIONS: Question.1. & 2 of Part-I are compulsory for all students. Time for Part – I(Q 1 & Q 2) will be of one hour. Attempt any **THREE** questions from Part – II. Time allowed for Part – II is 2 hrs. All questions carry equal marks. Provide Chi Square table to students.

	PART I Q1 and Q2 are compulsory	
Q1.	<ol style="list-style-type: none">Any calculation on biological sampling data is called:<ol style="list-style-type: none">ParameterBiotatisticsErrorThe mean of 84, 24, 86 ,77 is _____<ol style="list-style-type: none">67.7584.224.77The standard deviation of 15,15,15,15,15,15,15 will be _____<ol style="list-style-type: none">1015which uses only two observations is called:<ol style="list-style-type: none">MeanMedianRangeCoefficient of variationMean or average used to measure central tendency is called<ol style="list-style-type: none">sample meanarithmetic meannegative meanpopulation meanWhich of the following is not an assumption required for hardy –Weinberg equilibrium<ol style="list-style-type: none">Non selection is occurringRandom matingNo migrationPopulation size must fluctuateNo mutationThree unbiased coins are tossed, what is the probability of getting at least 2 tails ?<ol style="list-style-type: none">1/31/61/21/8	07 marks
Q2: a):	Define the following <ol style="list-style-type: none">Independent eventsVariablesSymmetrical distributionBar chartPhenotypic inheritance	05 marks
b):	Fair coin is tossed three times and the number of heads observed. Dctermine the probability of observing <ol style="list-style-type: none">exactly two headsat least two headsAt most two headsExactly three heads	02 Marks



UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part – I
Annual Examination - 2017

Roll No.

Subject: Zoology-I

PAPER: B (Invertebrates Diversity)

TIME ALLOWED: 2 hrs.
MAX. MARKS: 15

Attempt this Paper on Separate Answer Sheet provided.

PART-II
SUBJECTIVE PORTION

Q.3 Give brief answer to any ten of the followings:

(1x10=10)

1. What are characters of Phylum Apicomplexa.
2. What is process of multiple fission?
3. What is binary fission?
4. What is function of Pseudopodia?
5. Write about reproduction in Euglena?
6. What are symbiotic ciliates?
7. Describe conjugation in paramecium.
8. What are three types of proglottids?
9. What is schizogony?
10. What is oncosphere ?
11. What is botrium?
12. What is beef tapeworm?

Q.4 Write note on any one of the following two questions. (5)

- (a) Sporozoa b) Platyhelminthes.

END OF QUESTION PAPER