

Chittagong Veterinary and Animal Sciences University
MS in Animal Breeding and Genetics
July-December Semester Final Examination-2017
Course title: Poultry Breeding
Course Code: PBR 602
Full marks-40.0, Time-2hr

Answer any 2 (two) question from the followings. Figure in the right margin indicate full marks

- 1
 - a) State the term poultry breeding? What are the importances of poultry breeding study in Bangladesh with the goal of poultry improvement? **5.0**
 - b) Explain reciprocal recurrent selection and family selection? **5.0**
 - c) CVASU has a vision to establish a nucleus herd for egg production. What are the points should be considered? Explain in details? **10.0**
- 2
 - a) Describe different theory of modern chicken development? **3.0**
 - b) What are the assessment criteria of birds for egg production purpose? **5.0**
 - c) State Osborne Index? Egg production of 65 weeks pullets is given below. These are offsprings of 3 sire mated with two dams having 4 progeny from a single hatch. Calculate Osborne index of each birds and rank them assuming flock average 245 eggs. ($b_1=1.455$ and $b_2=1.745$) **12.0**

Sire	Dam	Performance of egg production			
		1	2	3	4
Sire 1	1	246	256	213	256
	2	207	226	244	216
Sire 2	1	243	274	234	239
	2	223	240	252	207
Sire 3	1	247	263	234	258
	2	207	223	202	272

- 3
 - a) How general combining ability differ from specific combining ability? **3.0**
 - b) How will you develop a layer strain using breeding tools? **10.0**
 - c) Write down short note on **7.0**
 - i) Family selection ii) Reciprocal recurrent selection

Chittagong Veterinary and Animal Sciences University
MS in Animal Breeding and Genetics
July to December Semester Final Examination-2017
Subject: Reproductive Biotechnology
Course Code: RBT-602
Full marks-40, Time-2 hours

	(Answer any four questions from the following and Figure in the right margin indicate full marks)	
1.	<p>a) What do you mean by reproductive biotechnology?</p> <p>b) Differentiate between X and Y chromosome bearing spermatozoa.</p> <p>c) Write in brief about separation procedure of the X and Y bearing Chromosome.</p>	10
2.	<p>a) Give a plan for establishing an Artificial Insemination Centre. State the impact of AI on animal improvement.</p> <p>b) How will you synchronize estrus of donor and recipient animals for Embryo Transfer Technology?</p> <p>c) Write down the application and limitations of Embryo Transfer Technology</p>	10
3.	<p>a) Discuss the basic steps of gene manipulation with neat diagram. State the application of gene manipulation.</p> <p>b) Explain the prerequisites and factors affecting in IVF.</p>	10
4.	What is OPU? Briefly discuss the different techniques of OPU.	10
5.	<p>Write down Short note on (any two):</p> <p>a) Chimera</p> <p>b) In Vitro Maturation</p> <p>c) Embryo Cloning</p> <p>d) Embryo Sexing and Embryo Slicing</p>	10

**Chittagong Veterinary and Animal Sciences University
Department of Genetics and Animal Breeding**

M.S. in Animal Breeding and Genetics

(July – December semester) Final Examination- 2017

Course title: Wildlife Breeding & Management

Course code: WBM-602

Total marks: 40; Time: 2 hours

Date: 20/12/2017

Answer any four from the following questions.

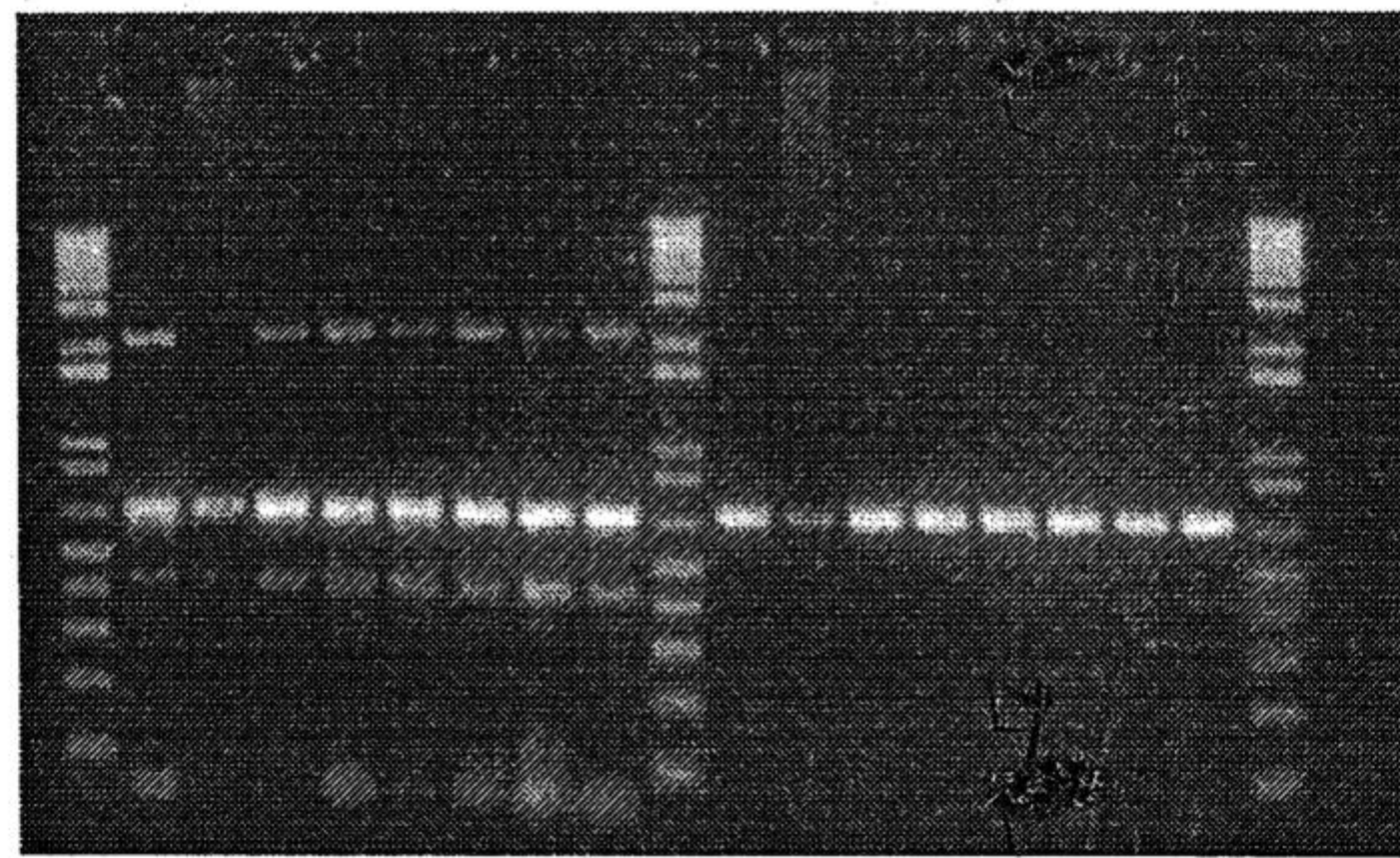
- | | | |
|---|---|-----|
| 1 | a) What do you mean by Wildlife? How you will do census of wildlife? | 5.0 |
| | b) Describe the pug mark method of census for Royal Bengal Tiger. | 5.0 |
| 2 | a) Give a brief discussion about wildlife management strategies in Bangladesh. | 5.0 |
| | b) Discuss about wildlife habitat of Bangladesh. | 5.0 |
| 3 | a) Inbreeding depression is one of the big problems for wildlife breeding in captivity-why. How you will overcome this problem? | 5.0 |
| | b) How you will do breeding of Indian Peafowl in captivity for conservation issue? | 5.0 |
| 4 | a) Write down the process of wildlife management. | 5.0 |
| | b) How you will prevent and control of parasitic disease of wild animals. | 5.0 |
| 5 | a) Write a short note about Wildlife Management Principles. | 5.0 |
| | b) What are the economic aspects of Frog farming? How you will do Frog farming by economic way? | 5.0 |

Chittagong Veterinary and Animal Sciences University
MS in Animal Breeding and Genetics
July-December Semester Final Examination-2017
Course: Molecular Genetics
Course code: MGN-602
Total marks: 40; Time: 2 hours

Figures in the right margin indicate the full marks. Answer **four** from the following questions, where **question no. 2 is compulsory**.

1. (a) Distinguish between eukaryotic and prokaryotic transcription. 2
- (b) In G₂ phase of cell cycle a cell does not begin replication of freshly synthesized DNA again until mitosis is completed. In these circumstances, how does a cell control its DNA replication? Justify. 5
- (c) A newly translated polypeptide undergoes some modifications to produce a functioning protein, justify. 3

2. (a) Explain the principle of polymerase chain reaction. 3
- (b) Following images represent a gel electrophoresis of two PCR reactions for a same amplicon. How do you judge these two results? How did multiple bands (left side) change to a single band (right side)? 5



- (c) Justify the variation in migration of DNA fragments in an agarose gel? 2

3. (a) What is DNA profiling? Prioritize the practical applications of DNA profiling. 3
- (b) How do you perform DNA fingerprinting using a lung tissue sample from a congenital vertebral malformation affected Holstein calf? 5
- (c) List the biological materials used for DNA profiling. 2

4. (a) What is a phylogeny? Define orthologs and paralogs? 3
- (b) Create a plan to estimate phylogenetic relationship among the circulating Avian influenza viruses in Bangladesh. 6
- (c) What is hidden Markov model? 1

5. (a) Suppose, you got a sample of genomic DNA with a request to characterize these DNA using southern blot technique. How do you perform southern blotting for this sample? 5
- (b) Write a short note on DNA sequencing. 5

Chittagong Veterinary and Animal Sciences University

M S in Animal Breeding and Genetics

July-December Semester Final Examination 2017

Course title: Problems on Quantitative Genetics & Animal Breeding

Course Code: PQB-602

Total marks: 40

Time: 2 hour

(Answer any 2 (one) from the following questions. Values are shown in the write margin in each question)

1. a) Assume the following data for kids birth weight (kg) of different breeds does.

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Breed		Location
Black Bengal	Betal	
1.0	1.4	Rangpur
1.2	1.6	Chittagong
1.2	1.2	Dhaka
1.0	1.3	Jessore
1.0	1.5	Cox'sbazar

- (i) Write a multiple regression linear model to describe the variable birth with based on intercept, breeds, location and residual
(ii) Represent the data in matrix form.
(iii) Obtain the estimates of the parameters of the model using the ordinary least square Method (OLSM).

- b) Distinguish between (i) diagonal and off-diagonal element, (ii) variance and covariance matrix, (iii) relationship matrix and generalized matrix

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3. a) What is marker assisted selection? Define marker. Indicate the parameters for testing Hardy Weinberg equilibrium from a population.

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- b) Suppose there are two inbred lines. Line A is fixed for alleles 1 and line B is fixed for alleles 2. Lines A and B are interbred to form an F₁ generation with higher level of heterozygosity. These F₁ individuals are backcrossed to the parental lines. Consider 4 markers (M1 to M4) known to be fixed in the inbred parental lines, and measured in 5 backcross individuals. The marker reported in the following table are those known to have been inherited via the F₁ gametes.

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Individual	Marker				Traits
	M1	M2	M3	M4	
1	2	2	1	2	4.40
2	1	1	1	1	1.42
3	1	2	2	2	2.88
4	1	1	1	2	0.19
5	1	2	1	1	1.09

- (i) Determine the recombination rate between each pair of markers.
(ii) Use this information on recombination rates to construct a genetic map of the genome. That is decide the order and spacing (cM) of the markers on the chromosome.

3. a) What is heterosis? Proof with an example that crossbreeding produced more profit than straightbreeding.

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- b) Estimate the genetic gain for milk yield using the four path way of selection from a hypothetical dairy herd. Narrate the scenarios if the active cow population will double than the base population for selecting bull mother and more than 50 proven bull are used in artificial breeding. (Consider $\sigma_g = \text{USD } 5.0$)

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