Chittagong Veterinary and Animal Sciences University

July-December Semester Final Examination-2015

M.S. in Dairy Science

Course: Advanced Dairy Cattle Production

Course Code: DCP-602

Full Marks: 40 Time: 2 hours

Answer any four questions from the following. Figures in the right margin indicate full marks.

1. Discuss the biological framework for herd fertility in order to achieving one calf from a cow each year.   10

2. What are the objectives and bad effects of "induction of early parturition" in case of dairy cattle?   10

3. a) Discuss about the organic dairy farming scenario in Bangladesh.   05

    b) Briefly discuss the challenges of organic dairy farming in Bangladesh.   05

4. Illustrate the genetic and non-genetic techniques of rumen manipulation in dairy cattle?   10

5. Discuss the breeds & breeding and general care of a commercial dairy herd.   10

6. a) Mention the criticisms of present cattle breeding policy of Bangladesh   05

   b) What is your thinking for ensuring proper nutrition to the small holder dairy in Bangladesh?   05

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Chittagong Veterinary and Animal Sciences University
M S July – December Semester Final Examination – 2015
MS in Dairy Science
Course title: Market Milk Production and Processing (theory)
Course Code: MPP – 602

Time: 2 hours

Total marks: 40

Answer any four (4) of the following questions

4X10=40

1. a) How do you suggest to control and eradicate tuberculosis organism in raw milk in context of Bangladesh. — 5

    b) State the common defects of flavors in market milk with their possible causes and remedies. — 5

2. a) What are the factors affecting the composition of market milk? — 2

    b) Briefly describe the HTST method of pasteurization of milk. — 5

    c) Describe the methods of chilling of milk. — 3

3. a) Briefly describe the procedure of CIP in a milk pasteurization plant. — 4

    b) What are the daily routine activities done in a milk chilling plant? List the tests performed during receiving of milk in the milk pasteurization plant. — 6

4. a) Tabulate the sources of contamination of market milk with their control measures. — 4

    b) Sketch the preparation procedure UHT milk. What are the merits and demerits of UHT milk? — 4

    c) Diagrammatically show the market milk production channel. — 2

5. a) What is the principle of homogenization of milk? What is the effect of homogenization in raw milk? — 4

    b) Briefly describe the pricing systems of milk in Bangladesh with their merits and demerits. — 4

    c) Describe the marketing channel of market milk in Bangladesh perspective. — 2

(Figures in the right margin indicate full marks. Answer any FOUR questions of which question number 1 is compulsory)

1. a) Define dairy starter culture with examples.   2
   b) Give a flow chart for the culture preparation.   2
   c) Discuss the common cultural defects.   3
   d) What are the bacterial cultures used in fermented milk product manufacture.   3

2. (a) Write down the common microbial defects & their control of cheese and butter.   5
   b) Write down the preparation of different types of culture media used in dairy microbiology   5

3. a) Define immunobiotics with examples.   2
   b) Write down the application of immunobiotics as drug alternatives for secure & healthy livestock.   5
   c) Briefly explain how does *Bifidobacterium animalis* protect intestinal cells from the inflammation-associated response?   3

4. a) Define thermoduric bacteria with examples.   2
   b) Write down the sources and significance of thermoduric bacteria in milk and milk products.   3
   c) Write down the effect of thermoduric bacteria on self-life of milk at room temperature in Bangladesh.   3
   d) Write down the microbiological Standards for Some Grade-A Milk and Milk Products   2

5. a) Briefly describe the recent and advanced development in the field of dairy microbiology.   4
   b) What are the potential role of micro-organisms in dairy industry.   3
   c) Illustrate the role of LAB in host defense mechanism.   3

6. Write short notes (**any 4**) on: 2.5 x 4
   a) Recombination in bacteria   b) Microbiology of Butter   c) Milk contamination.
   d) Lactobacillaceae   e) Effects of probiotics on pathogenic bacteria.

Chittagong Veterinary and Animal Sciences University
M S in Dairy Science
July-December Semester Final Examination 2015
Course title: Advanced Dairy Cattle Breeding
Course Code: ABD-602
Total marks: 40
Time: 2 hour

Answer any 2 (two) questions from the following questions. Values are indicated in the right margin in each question.

1. a) What do you mean by the term "Industry Structure"? Write down the open close **8** nucleus breeding scheme with its limitation for dairy development.

   b) State the cattle improvement policy in Bangladesh. Mention the drawbacks and **8** prospects of this policy.

   c) Mention the points which will you consider for formulate a structured genetic **4** improvement programe.

2. a) What is breeding objective? How will you develop this objectives from a dairy herd **10** consisting of 50 cows having average live weight is 300 kg and each cow produces 1650 liter milk and 400 kg fat per lactation. Per unit price for milk, fat and meat is Taka 35/=, 400/= and 200/= respectively.

   b) For construct a selection index what are the factors you should consider. **10** Construct a selection index using the traits under milk production objective.

3. a) What do you mean by genetic gain? Describe in brief the causes of genetic gains **5** of milk from cow.

   b) Narrate the scenarios for estimates the genetic gain if the active cow population will **8** double than the base population for selecting bull mother.

   c) Distinguish between inbreeding and crossbreeding. Discus grading-up process **7** in order to increase milk yield from indigenous cattle in Bangladesh with its limitation.

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.

X_1	X_2	Y
11	-5	7
3	7	10
-8	4	8
-4	-7	6
5	2	4

   (i) Write a multiple regression linear model to describe the variable Y based on intercept, X_1, X_2 and residual error   **2**
   (ii) Represent the data in matrix form.   **2**
   (iii) Obtain the estimates of the parameters of the model using the ordinary least square Method (OLSM).   **8**

   b) Distinguish between (i) diagonal and off diagonal element, (ii) variance and covariance matrix.   **4**

   c) Define with example(s): rank, square matrix, generalized matrix, metric trace   **4**

3. In an attempt to breed ostriches that will provide a greater quantity of meat and quality of leather 25 years from now, the OYTRAC company decided to develop their own bird selection programme. Their economists forecast that the net present value of an extra unit of leather quality will be $60 white the value of an extra kilogram of meat will be worth $7. Given the difficulty of measuring both of these two traits directly, OYTRAC geneticists decided to use skin pliability as an indirect predictor of leather quality and live-weight as an indirect predictor of meat quantity, both measured at 2 years of age.

	Std. dev.	Leather	Meat	Pliability	Live-weight
Leather (units)	0.33	**0.35**	-0.50	0.50	-0.30
Meat (kg)	3.20	-0.30	**0.46**	0	0.22
Pliability (mm/cm)	16.5	0.65	-0.10	**0.20**	0.10
Live-weight (kg)	3.76	-0.40	0.50	-0.20	**0.30**

   Std.dev is the phenotypic standard deviation. Heritabilities are on the diagonal, genetic correlations below the diagonal and phenotypic correlations above the diagonal.

   Assume that selection of new parents is based on a single record of their own performance. Given the above information:

   a)   State the selection objective and selection index in terms of linear equation.   **3**
   b)   Derive the index weighting factors using Best Linear equation.   **14**
   c)   One particular bird has a pliability deviation of +4 and a live-weight deviation of -2.0 what is the aggregate genetic merit.   **3**

3. a) What is heterosis? Prove with an example that crossbreeding produced more profit than straightbreeding.   **8**

   b) Estimate the genetic gains 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 100 proven bull are used in artificial breeding purpose.   **12**

Chittagong Veterinary and Animal Sciences University
M S July – December Semester Final Examination – 2015
MS in Dairy Science
Course title: Dairy Farm Planning and Management (theory)
Course Code: DFM – 602

Time: 2 hours

Total marks: 40

Answer any four (4) of the following questions   **4X10=40**

1. a) A Sahiwal cow calved in the month of September first week   8
   was purchased for Tk. 70.000. The average milk production per
   day is 3 kg of milk. Determine the cost per kg of milk and net
   income per lactation from this cow.

   b) How will you upgrade available cows in Bangladesh to fit as   2
   commercial dairy herd?

2. a) How will you select dairy cows for commercial farming?   **2**

   b) Draw the detailed layout of a large scale typical dairy farm.   **5**

   c) What are the prospects of dairy farming in context of   **3**
   Bangladesh?

3. a) How will you plan for maintaining high level of fertility in a dairy   4
   herd?

   b) Prepare a plan for dairy animals health management program.   6

4. a) Briefly describe the factors affecting the profitability of dairy   4
   farming.

   b) Calculate and plan for supplying fodder throughout the year in   4
   a 25 cows' dairy herd.

   c) What are the points to be considered for man power   2
   management in a dairy industry? Briefly discuss.

5. a) Tabulate the daily routine activities in a medium scale dairy   2
   farm.

   b) Calculate the fixed cost of 40 cows' dairy herd.   4

   c) Briefly describe the factors to be considered for selecting   4
   appropriate site for establishing commercial dairy farming.

Chittagong Veterinary & Animal Sciences University

MS in Dairy Science

Final Examination July- December, 2015

Sub: Research Methodology

Course Code: #RMD 602

Total Marks: 40

Time: 2 (two hours)

Figures in the right margin indicate full marks. Answer any 4 (four) questions.
All fragments of a question should be answered togethers; split answers are discouraged.

1. (a) State the purposes and principles of research. — 02.0
   (b) What are the different types of researches being done in biological Sciences? Briefly describe them. — 04.0
   (c) State the research ethics required in performing ideal research. — 04.0

2. (a) What do you mean by "Research Process"? Show the process diagramatically. — 04.0
   (b) State the importance of review of literature in research process. — 03.0
   (c) Write a shortnote on "Research and Scientific Method". — 03.0

3. (a) What do you mean by "Research Design" and "Research Planning"? — 02.0
   (b) In what respects does the research design address? — 02.0
   (c) State the common experimental designs being applied in agricultural sciences with a short note on RBD or CRD. — (03.0+03.0)=6

4. (a) State the conception of "Scales of measurement". — 02
   (b) What are the different scales of measurement used in statistical studies? Briefly describe them. — 04.0
   (c) Sketch the comparative study of the measurement scales in a tabular form. — 04.0

5. (a) What do you mean by "Research Proposal"? — 02.0
   (b) State the importance of knowing about writing Research Proposal in Veterinary education. — 02.0
   (c) You propose a research topic and write a research proposal on it. — 06.0

6. (a) State the features of sample design. — 02.0
   (b) State the method(s) of data collection in scientific researches. — 02.0
   (c) Write a note on "Analysis of Data". — 06.0

7. • Write short notes on any 4 (four) of the followings — (4×2.5) =10.0

   (a) Type I and Type II errors; (b) Z-test; (c) Techniques of defining Problem; (d) Interpretation; (e) Correlation and Regression; (f) Parametric tests and (g) Analysis of variance.