

PARUL UNIVERSITY
FACULTY OF AGRICULTURE
B.Tech. (Dairy Technology) Summer 2018 - 19 Examination

Semester:2

Subject Code: 20104157

Subject Name: Chemistry of Milk

Date:29/04/2019

Time:02:00pm to 04:00

Total Marks: 50

Instructions

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1**A) Fill in the blanks (Each of 0.5 Mark)****(05)**

- i) test is used for rapid assessment of stability of milk
- ii) Lactoferrin and transferrin are binding protein
- iii) Human milk is characterized by having higher percent of and lower percentage of
- iv)trace metal present highest concentration in milk
- v) Milk minus fat globules is called
- vi) Milk is free from casein micelles is known as.....
- vii) Liquid that is obtained on clotting of milk either with rennet or by acidification to pH 4.6 (isoelectric point of casein) is known as
- viii) Vitamin A, D, E, K aresoluble vitamin
- ix)are antibodies synthesized in response to stimulation by macromolecular antigens foreign to the animal
- x) Systematic name of lactose is.....

B) Multiple Choice Questions (Each of 0.5 Mark)**(10)**

- i) Natural or apparent acidity of milk is due to.....
 - a) Casein
 - b) Citrate
 - c) Phosphate
 - d) All of the above
- ii) Protein present in milk as form
 - a) Colloidal
 - b) Emulsion
 - c) True
 - d) Soluble
- iii) Lactose present in milk as form
 - a) Colloidal
 - b) Emulsion
 - c) True
 - d) Soluble
- iv) Fat present in milk as form
 - a) Colloidal
 - b) Emulsion
 - c) True
 - d) Soluble
- v) Yellowish colour of cow milk is due to.....

- a) Casein b) Citrate c) Carotene d) Phosphate
- vi) Abbey refractometer used for determination of
- a) Surface tension b) Viscosity c) Refractive index d) Molecular weight of fat
- vii) Number of milliliters of 0.1N sodium hydroxide or aqueous alkali solution required to neutralize the steam volatile water soluble fatty acids distilled from 5g of fat is known as
- a) RM value b) PV value c) Iodine value d) Saponification value
- viii)value of a lipid indicates the average molecular weight of fatty acids
- a) RM value b) PV value c) Iodine value d) Saponification value
- ix)value is a measure for the unsaturated linkages present in a fat
- a) RM value b) PV value c) Iodine value d) Saponification value
- x) Phospholipids comprise approximately of..... % the total lipid in bovine milk
- a) 0.5% b) 1% c) 5% d) 10%
- xi) acts as cementing agent in casein micelles
- a) Ca phosphate b) Mg phosphate c) Sodium d) Potassium
- xii)enzyme catalyzes the decomposition of H_2O_2 to H_2O and O_2
- a) Catalase b) Xanthine oxidase c) Lactoperoxidase d) Transferases
- xiii)contains about five atoms of zinc per dimeric molecule.
- a) Lipase b) Xanthine oxidase c) Alkaline phosphatase d) Proteinase
- xiv) The principal milk proteinase belongs to the alkaline serine proteinase
- a) Plasmin b) Lipase c) Hydrogen peroxidase d) Aldoses
- xv) α_1 casein contain amino acids
- a) 199 b) 207 c) 209 d) 582
- xvi) α_2 casein contain amino acids
- a) 199 b) 207 c) 209 d) 582
- xvii) β casein contain amino acids
- a) 199 b) 207 c) 209 d) 582
- xviii) Serum albumin contain amino acid
- a) 199 b) 207 c) 209 d) 582
- xix) Density of anhydrous β form is
- a) 1.420 b) 1.470 c) 1.589 d) 1.540
- xx) Density of α hydrate form is

a) 1.420

b) 1.470

c) 1.589

d) 1.540

Q.2

A) Define the following (Any five out of seven questions) (05)

- (1) Milk
- (2) Vitamin
- (3) Triglycerides
- (4) Denaturation
- (5) Milk plasma
- (6) Milk serum
- (7) Specific rotation

B) Answer the following (Any five out of seven questions) (05)

- (1) Explain the nomenclature of lactose
- (2) Enlist the different method of determination of protein
- (3) Structure of Milk
- (4) Casein micelles structure
- (5) Enlist various factors effecting of salt equilibria.
- (6) Enlist various factors influence Maillard reactions
- (7) What are the trace metals

Q.3 Write Short notes (Any five out of six questions) (10)

- (1) Immunoglobulin
- (2) Lactoferrin
- (3) Significance of fat soluble vitamins
- (4) Differentiate between casein and whey protein
- (5) Milk enzymes
- (6) Non casein nitrogen and non-protein nitrogen

Q.4 Long Questions (Any three out of four questions) (15)

- (1) Discuss in details about milk proteins
- (2) Discuss in details different test use for grading the milk
- (3) Explain different factor affecting composition of milk
- (4) Define milk lipid and explain in details its classification