

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

Semester: 1
Subject Code: 20104104
Subject Name: Biochemistry and Human Nutrition

Date: 25/04/2019
Time: 02:00 pm to 04:00 pm
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) DNA (Deoxyribonucleic Acid) is present in theof all cells.
- ii)are biological catalysts produced by living cells.
- iii) Amino acids that are synthesized in our body is known as
- iv) Vitamin-A forms a part of vision pigment called.....
- v)is the energy currency of the cell
- vi) The high specificity of an enzyme is due to its
- vii)maintain the level of prothrombin responsible for normal blood clotting
- viii)are building blocks of nucleic acids as the proteins are made of amino acids
- ix) The pH optima of most of the enzymes is between range of
- x)is a set of reactions that take place in cytoplasm of prokaryotes and eukaryotes.

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

- i) Fats are abundantly found in
a) Reproductive tissue b) Creatine kinase c) Both a and b d) None of the above
- ii) Amino acids are known as
a) Energy molecules b) Positive ions c) Zwitter ion d) Negative ions
- iii) Which is a water-soluble vitamin?
a) C b) B c) Both (a) and (b) d) None of the above
- iv) Live microbial feed supplement is known as
a) Flavor enhancer b) Probiotics c) Coloring agent d) Curing agent
- v) TCA cycle starts in which organelles?
a) Mitochondria b) Cytoplasm c) Golgi body d) Both a & b
- vi) What is the molecular formula for glucose ?
a) $C_9H_{12}O_9$ b) $C_6H_{12}O_6$
c) $C_{12}H_{12}O_{11}$ d) $C_{12}H_{12}O_{12}$
- vii)results from a lack of vitamin C
a) Scurvy b) Night blindness c) Rickets d) None of the above
- viii) Pepsin works optimally in the acidic environment of the stomach, being active at pH.
a) 2-3 b) 3-4 c) 4-5 d) 5-6
- ix) Carbohydrates provide approximatelyof energy per gram,
a) 4 kcal b) 6kcal c) 9 kcal d) 11 kcal
- x) Carbohydrates include.....
a) sugars b) starches c) fiber d)All of the above
- xi) substrate used of determination of alkaline phosphatase
a) p-nitrophenyl phosphate b) Dimethyl phosphate
c) a and b d) None of the above

- xii) Glycolysis generatesATPs net per glucose
 a) One b) Two c) Three d) Four
- xiii) DNA and RNA contain purine bases
 a) Adenine b) guanine c) a and b d) cytosine
- xiv) Gluconeogenesis is especially important in periods of
 a) starvation b) vigorous exercise c) a and b d) None of the above
- xv) Glycolysis is a set of reactions that take place in cytoplasm of
 a) Prokaryotes b) Eukaryotes c) a and b d) None of the above
- xvi) Enzymes, which are produced in inactive form in the living cells, are called
 a) Proenzymes b) Coenzyme c) Zymogens d) Isozyme
- xvii) Degradation of glycogen requiredenzyme
 a) Glycogen phosphorylase b) Glycogendebranching
 c) a and b d) None of the above
- xviii) Diet rich in carbohydrates increases the daily requirement for.....
 a) Vit B₁ b) Vit B₂ c) Vit B₅ d) Vit B₆
- xix) Nucleotides contain
 a) A nitrogenous base b) A pentose sugar c) A phosphate d) All of the above
- xx) The yield of completely burning fatty acids is approximately.....calories per gram
 a) 6000 b)7000 c) 8000 d) 9000

Q.2

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

- (1) Katal
- (2) Hormones
- (3) Enzyme immobilization
- (4) Vitamin
- (5) Lipid
- (6) Carbohydrate
- (7) Regulatory enzymes

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

- (1) What are the major function of carbohydrates ?
- (2) Enlist different method of enzyme immobilization
- (3) What are the biological importance of milk proteins ?
- (4) Enlist macronutrient and micronutrient
- (5) Enlist three general mechanisms which describe multi-substrate enzyme system
- (6) Write down the different type of RNA molecules ?
- (7) Enlist different steps of TCA cycles

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

- (1) Oil and Fats
- (2) Balance diet
- (3) Methods of enzyme immobilization
- (4) Factors affecting the digestion process
- (5) Fat Soluble Vitamins
- (6) Lactose intolerance

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

- (1) Discuss in details cultural dairy products
- (2) Define food additives and explain in details about antioxidants and preservative
- (3) Explain different factors affecting of enzyme activity
- (4) Explain the double helical structure of DNA.