

IDA REGISTERED DIETITIAN EXAMINATION

NOVEMBER 2009

Paper I (Physiology, Microbiology, Biochemistry)

Time : 2 Hrs

Answer All Questions

Marks : 100

SECTION A (20x1=20 Marks)

Indicate the correct answer form the multiple choices given below:

1. When the pH of blood becomes acidic as compared to the normal value, the oxygen – hemoglobin dissociation curve is
 - a. shifted to the right
 - b. shifted to the left
 - c. affected either way
 - d. unaffected

2. Barbiturates inhibit respiratory chain by \
 - a. uncoupling oxidation and phosphorylation
 - b. blocking transfer of electrons from Fe-S to Q
 - c. inhibiting transport of ADP into the mitochondrion
 - d. completely blocking oxidation and phosphorylation

3. The number of net molecules of ATP formed on complete oxidation of a Molecule of glucose is
 - a. 8
 - b. 10
 - c. 38
 - d. 40

4. Synaptic functions of neurons can include
 - a. blocking of nerve impulse in its transmission
 - b. changing a simple impulse into receptive impulses
 - c. integrating the impulse with other impulses
 - d. all of the above

5. The botulinum toxin is a
 - a. enterotoxin
 - b. neurotoxin
 - c. neither of the above
 - d. both of the above

6. A non-competitive inhibitor affects enzyme-catalyzed reaction by
 - a. lowering K_m
 - b. lowering V_{max}
 - c. increasing K_m
 - d. increasing V_{max}

7. The structure of threonine is
 - a. $NH_2.CH_2.COOH$
 - b. $CH_3.NH_2.CH_2.COOH$
 - c. $HOCH_2.NH_2.CH_2.COOH$
 - d. $CH_3.CHOH.CH_2.CH_2.COOH$

8. Secretion of ACTH is increased several fold as a result of
- physical stress
 - mental stress
 - both of the above
 - neither of the above
9. When subjected to freezing temperatures, vegetative cells of yeast are
- susceptible
 - moderately resistant
 - insensitive
 - unaffected
10. The major end products of fat digestion are
- 1- mono acylglycerols and fatty acids
 - 2-mono acylglycerols and fatty acids
 - 3-mono acylglycerol and fatty acids
 - Glycerol and fatty acids
11. Anderson's disease is characterized by storage of glycogen having
- normal structure
 - enormous branches
 - few branch points
 - straight chain structure
12. The decomposition product of rhodopsin that excites electrical changes in the rods of the eye is
- bathorhodopsin
 - lumirhodopsin
 - metarhodopsin 1
 - metarhodopsin 11
13. On the lagging strand, DNA is synthesized in short fragments because of the DNA-Polymerase synthesizes in
- 5' ->2' direction
 - 2'' -> 5'' direction
 - 5' -> 3' direction
 - 3' -> 5' direction
14. Bacteria belonging to genus Aeromonas are
- gram – positive rods
 - gram – negative rods
 - gram – positive cocci
 - gram-negative cocci
15. In nephrogenic diabetes insipidus, the kidneys are unable to respond to the action of
- oxytocin
 - antidiuretic hormone
 - aldosterone
 - angiotensin 11
16. Microorganism which can be used as probiotics include
- Aspergillus niger
 - Lactobacillus acidophilus
 - Streptococcus thermophilus
 - all of the above

17. Excretion of ammonia is greatly increased in
- renal disease
 - alkalosis
 - acidosis
 - wasting diseases
18. Quantitatively the most important extracellular buffer system involved in acid-base homeostasis is
- bicarbonate
 - phosphate
 - hemoglobin
 - proteins
19. The mold which is called the 'red bread mold' is
- trichothecium roseum
 - penicillin expansum
 - neurospora sitophilla
 - trichoderma viride
20. Ornithine transcarbomylase functions in
- cytosol
 - mitochondria
 - golgi bodies
 - lysosomes

SECTION B (50 marks)

1. Fill in the blanks with the most suitable word (s) (6x1=6 marks)
- the rate limiting step in cholesterol biosynthesis is catalyzed by the enzyme -----
 - one of the most important effects of increased sympathetic activity during exercise is increased -----
 - in the growth curve of microbial cultures the portion which shows no growth is called the -----
 - the food safety and standards Act of 2006 will be implemented through a central body known as the-----
 - membrane lipids contain both hydrophobic and hydrophilic regions and hence are ----- in nature
 - deficiency of the enzyme ----- in the parietal cells can lead to achlorhydria
2. Define the following in one sentence (5x1=5 marks)
- Cardiac reserve
 - Transcription
 - Water activity
 - Zoonosis
 - Optical isomers
3. State whether the following statements are true or false (5x1= 5 marks)
- the brain of a fetus with classic PKU cannot develop normally in intrauterine stage
 - the apolipoprotein present in LDL is B-48
 - Various modifications of polymerase chain reaction (PCR) are being standardized for detection of pathogenic organisms.
 - one of the functions of the lymphatic system is regulation of interstitial fluid pressure

e. blunt ends produced by the action of restriction enzymes on DNA are useful in constructing chimeric DNA molecules

4. Justify briefly the statements (5x3 =15 marks)

- a. more than 90% of the bile salts secreted into the bile undergo recirculation.
- b. heat processing is effectively employed in food preservation.
- c. the activation of muscle contraction and glycogenolysis are carried out by the same binding protein, ensuring synchronization.
- d. any given mRNA sequence can have three possible reading frames.
- e. impairment of pentose phosphate pathway leads to hemolysis of erythrocytes.

5. Give one difference in chemical composition between (4x1=4 marks)

- a. lecithin and lysolecithin
- b. L-aspartate and L-glutamate
- c. D-erythrose and D- erythrulose
- d. isocitrate and citrate

6. Match the following (5x1=5marks)

- | | |
|---------------------------|---|
| a. protein kinase cascade | (1) kidney |
| b. lactate dehydrogenase | (2) sanitary and phytosanitary measures |
| c. adenosine deaminase | (3) myocardial infarction |
| d. erythropoietin | (4) growth hormone |
| e. risk assessment | (5) immunodeficiency |

7. What is the disadvantage of the following? (5x2=10 marks)

- a. low activity of Aldolase B
- b. high pressure processing of foods
- c. presence of histamine in the body
- d. mechanism of passive transport
- e. dietary trans-fats

SECTION C (2x15 = 30 marks)

Answer any TWO questions

1. Discuss in detail the metabolic profile of an individual

- a. in a well -fed state
- b. during starvation

2. What are the food hygiene practices that must be followed to ensure food safety?

3. Describe the physiological structure of the ear. Discuss the auditory mechanisms involved in the process of hearing.

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Paper II (Nutrition, Dietetics, Food Service Management)

Time : 2 Hrs

Answer All Questions

Marks : 100

SECTION: A

Answer all questions (10x2=20 marks)

1. Explain the following terms.
 - 1) Curling's Ulcer
 - 2) Ileostomy and Colostomy
 - 3) Percutaneous Transluminal Coronary Angioplasty
 - 4) Enzyme Block in Ryles Tube Feeding
 - 5) Somogyi Effect
 - 6) Quetlet Index
 - 7) ORT and specify formula
 - 8) Dialysate
 - 9) Dawn Phenomenon
 - 10) Cor Pulmonale

SECTION B

2. Differentiate between the following: (3x5=15 marks)
 - 1) Emphysema and Chronic Bronchitis
 - 2) Type 2 and Type 4 Hyperlipidemia
 - 3) Hemodialysis and CAPD
3. Outline Dietary Guidelines for: (3x5=15 marks)
 - 1) A Patient suffering from Wilson's Disease
 - 2) A Patient suffering from Gluten Induced Enteropathy
 - 3) A Patient recovered from Hepatic Coma
4. Answer all questions. (20x1=20 marks)
 - 1) In a Standard Parenteral Nutrition Solution, what should be the percentage distribution of Kilo-calorie from Carbohydrate, Protein and Fat?
 - a. 50% Carbohydrate, 15 % Protein and 35 % Fat.
 - b. 50% Carbohydrate, 30 % Protein, 20 % Fat
 - c. 70% Carbohydrate, 20 % Protein, 10% Fat
 - 2) Which of the following Amino Acids shown to reduce Intestinal injury following Chemotherapy, is also thought to be a major fuel for the gut?
 - a. Glycin
 - b. Alanine
 - c. Arginine
 - d. Glutamine
 - 3) Patients on restricted food intake who are on broad spectrum antibiotics are predisposed to a deficiency of which of the following nutrients?

- a. Fluorine
- b. Vitamin B1
- c. Vitamin K

- 4) Which of the following digestive enzyme shows the greatest decrease in activity from malnutrition?
- a. Lipase
 - b. Lactase
 - c. Amylase
 - d. Peptidase
- 5) Convert 600 MGM Sodium and 1600 MGM Potassium into MEQ.
- 6) Composition of Rice Bran Oil – SFA, MUFA, N6/N3 Ratio.
- 7) Cholesterol content of any two foods.
- 8) List any four foods avoided by a patient suffering from oral cancer During Chemotherapy/
- 9) Name the functional food in Carrot and Soya bean.
- 10) Diet recommended in Epilepsy is
- a. Ketogenic Diet
 - b. Kempner's Diet
 - c. Karrel Diet
- 11) List any four food adulterants.
- 12) What is the temperature of:-
- a. Refrigerator
 - b. Freezer
- 13) What is GG Diet?
- 14) Formulae for calculation of Mid Upper Arm Muscle Circumference
- 15) Formulae for positive Nitrogen Balance
- 16) Write any two labor laws affecting Food Service Establishments
- 17) Iron content of any two foods.
- 18) What three items help control the blood sugar level in the body?
- a. Alcohol, Candy, Milk
 - b. Food, Insulin, Exercise
 - c. Bread, Meat, Fruit
- 19) One Pint of 5 % Dextrose gives ----- Kilo Calories
- 20) List four foods avoided by a Gout patient.

SECTION C

Answer Any TWO Questions (2x15=30 Marks)

1. Mrs. Qureshi is 59 years old and is a diabetic for the last 15 years and is on Human Mixtard 22 U before Breakfast and 20 U before Dinner. She has undergone cataract surgery four days back. Her height is 158 cm and weight is 74 Kg. Plan a diet.

2. Mr Umesh Prasahd Gupta, 33 years old post Renal Transplant patient in 2005 has uremia and volume overload stage

Weight: 51.3 Kg, height: 162 CM, S. Creatinine: 6.7-> 5.3 Mg%

Blood Urea: 141 Mg%, Fluid Restriction 800 ml only.

Plan a Diet

3. Mrs. Savita Katkari had accidental 2nd degree burns due to gas cylinder burst and has developed Jaundice. She is unable to eat orally so a RT tube has been passed, Plan an RT feed for her.

Age: 35 years, Weight: 57 Kgs, Height 157 CM.

Total Protein: 4.8 Gm%, Albumin:2.3 Gm%, Globulin:2.5gm%, Bilirubin: 8.3 Mg/DL