

**ROYAL CIVIL SERVICE COMMISSION  
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2018  
EXAMINATION CATEGORY: TECHNICAL**

**PAPER III: SUBJECT SPECIALISATION PAPER FOR NUTRITION AND DIETETICS**

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<b>Date</b>	: 7 October 2018
<b>Total Marks</b>	: 100
<b>Writing Time</b>	: 150 minutes (2.5 hours)
<b>Reading Time</b>	: 15 Minutes (prior to writing time)

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**GENERAL INSTRUCTIONS:**

1. Write your Registration Number clearly and correctly on the Answer Booklet.
2. The first 15 minutes is being provided to check the number of pages of Question Paper, printing errors, clarify doubts and to read the instructions. You are NOT permitted to write during this time.
3. This paper consists of **TWO SECTIONS**, namely SECTION A & SECTION B:
  - **SECTION A** has two parts: Part I - 30 Multiple Choice Questions  
Part II - 4 Short Answer QuestionsAll questions under SECTION A are COMPULSORY.
  - **SECTION B** consists of two Case Studies. Choose only **ONE** case study and answer the questions of your choice.
4. All answers should be written on the Answer Booklet provided to you. Candidates are not allowed to write anything on the question paper. If required, ask for additional Answer Booklet.
5. All answers should be written with correct numbering of Section, Part and Question Number in the Answer Booklet provided to you. Note that any answer written without indicating the correct Section, Part and Question Number will NOT be evaluated and no marks would be awarded.
6. Begin each Section and Part in a fresh page of the Answer Booklet.
7. You are not permitted to tear off any sheet(s) of the Answer Booklet as well as the Question Paper.
8. Use of any other paper including paper for rough work is not permitted.
9. **You are required to hand over the Answer Booklet to the Invigilator before leaving the examination hall.**
10. This paper has **9 printed pages**, including this instruction page.

**GOOD LUCK**

SECTION A

PART I: Multiple Choice Questions (30 marks)

Choose the correct answer and write down the letter of your chosen answer in the Answer Booklet against the question number e.g. 31 (d). Each question carries ONE mark. Any double writing, smudgy answers or writing more than one choice shall not be evaluated.

1. The primary organ of nutrient and water absorption is
  - a) Stomach
  - b) Small intestine
  - c) Large Intestine
  - d) Kidneys
2. The process of adding micronutrients (essential trace elements and vitamins) to food is called
  - a) Food Adulteration
  - b) Food Purification
  - c) Food Fortification
  - d) Food Nourishment
3. A fatty acid with the first double bond located at the third carbon from the methyl end (e.g., eicosapentaenoic acid) is
  - a) Omega-6-Fatty Acids
  - b) Polyunsaturated Fatty Acids
  - c) Oligosaccharides
  - d) Omega-3-Fatty Acids
4. Consumption of Bracken Fern *Pteridium aquilinum* is known to be carcinogenic. The carcinogen present is
  - a) Aflatoxins
  - b) Ptalquilosides
  - c) Dichlorodiphenyltrichloroethane (DDT)
  - d) Acetaldehyde
5. The BRAT diet was once a staple of most pediatricians' recommendations for children with an upset stomach. This diet comprises of
  - a) (Bananas, Rice, Applesauce, Toast)
  - b) (Bananas, Rice, Apricot, Toast)
  - c) (Bread, Raisins, Apple, Tea)
  - d) (Buckwheat, Raisins, Applesauce, Toast)
6. If a product is said to be "Sugar Free", it contains how much sugar?
  - a) None
  - b) Less than 0.5g
  - c) Less than 2 mg
  - d) Less than 5 mg

7. Hormone that is secreted by the proximal small bowel, which stimulates the pancreas to secrete enzymes, stimulates gallbladder contraction, slows gastric emptying, stimulates colonic activity, and may regulate appetite is
- Gastrin
  - Pepsin
  - Cholecystokinin (CCK)
  - Thyroxine
8. Iron supplements are frequently recommended for all of the following EXCEPT:
- Women who are pregnant
  - Infants and toddlers
  - Teenage girls
  - Post-menopausal women
9. Which vitamin is needed to prevent a birth defect called *Spina Bifida*?
- Vitamin A
  - Vitamin E
  - Folate
  - Vitamin D
10. Which of the following is/are symptom(s) of toxicity from excessive intake of iron supplements?
- Constipation
  - Nausea
  - Anemia
  - Both A and B
11. Aum Zekom, 68y/female is admitted in Oncology Ward, diagnosed with Laryngeal Cancer. Her anthropometric assessment concludes that she is severely malnourished (<18.5 kg BMI). She cannot eat orally but has a functional GUT. Which is the best nutrition support for Aum Zekom?
- Naso-gastric Enteral Feeding
  - Parenteral Feeding
  - Jejunal Enteral Feeding
  - All of the above
12. During Constipation, one needs to comply to the following instructions EXCEPT:
- Drink Hot Beverages
  - Increase Insoluble fiber consumption
  - Increase soluble fiber consumption
  - Incorporate physical activity as permitted by physician
13. For a patient with Chronic Kidney Disease (CKD on HD), a diet prescription of 2000 kCal was made with 40g Protein allotment. What percentage of the total energy makes up the protein distribution?
- 10%
  - 8%

- c) 16%  
d) 20%
14. Condition resulting from alteration, removal or bypass of pyloric sphincter is  
a) Metabolic syndrome  
b) Dumping Syndrome  
c) Gastric Outlet Obstruction  
d) Gastrectomy
15. Eating disorders are serious and often fatal that cause severe disturbances to person's eating habits. Common eating disorders include *anorexia nervosa* and *bulimia nervosa*. Give \_\_\_\_\_ food to anorexia, and \_\_\_\_\_ food to bulimia.  
a) Hot, Cold  
b) Cold, Hot  
c) Cold, Luke Warm  
d) Hot, Luke Warm
16. The presence of gallstones in the common bile duct that obstructs the flow of bile from the gall bladder to the intestine is known as  
a) Cholecystitis  
b) Cholecystolithiasis  
c) Choledocholithiasis  
d) Cholangitis
17. Cobalamin deficiency causes neurological (decreased ability to think, depression) and hematology (anemia) conditions. It is naturally available in the following EXCEPT:  
a) Meat  
b) Fruits  
c) Milk  
d) Fortified breakfast cereals
18. In a normal diet, the total Protein intake should be  
a) 10-15 % of total calories  
b) 20-30% of total calories  
c) 30-45% of total calories  
d) 15-25% of total calories
19. For a Low Protein Diet, which provides about 30 grams of protein per day, \_\_\_\_\_ is high biological value (HBV) and \_\_\_\_\_ low biological value (LBV)  
a)  $\frac{1}{4}$ ,  $\frac{1}{2}$   
b)  $\frac{2}{3}$ ,  $\frac{1}{3}$   
c)  $\frac{1}{3}$ ,  $\frac{2}{3}$   
d)  $\frac{1}{2}$ ,  $\frac{1}{4}$

20. All of the following are needed for strong bones EXCEPT:
- a) Thiamine
  - b) Calcium
  - c) Magnesium
  - d) Vitamin D
21. Yeast cells prefer aerobic conditions to multiply in number?
- a) True
  - b) False
  - c) All of the above
  - d) None of the above
22. The predominant microorganism in frozen foods are:
- a) Bacteria
  - b) Micro-coccus
  - c) Yeast and moulds
  - d) None of the above
23. The Primary Milk carbohydrate is
- a) Sucrose
  - b) Leucine
  - c) Arginine
  - d) Lactose
24. What happens to the excess carbohydrates when the body meets its need for energy?
- a) Remain as carbohydrate
  - b) Converted to Protein
  - c) Converted to Fat
  - d) None of the above
25. Who would be on Protein Restricted Diet?
- a) Liver Disease
  - b) Impaired Renal function
  - c) Both (a) & (b)
  - d) None of the above
26. Which vitamins can be destroyed by heat?
- a) Vitamin D
  - b) Vitamin C & Vitamin B
  - c) Vitamin B
  - d) Vitamin K
27. What percentage of calories should come from fat?
- a) 10-20%
  - b) 15-30%
  - c) 20-30%
  - d) 40-50%

28. All of the following are true about dietary fiber EXCEPT:
- a) Not digestible
  - b) Digestible
  - c) Remains undigested in the GI tract and provides bulk to diet
  - d) Cellulose
29. What state are polyunsaturated fats in at room temperature?
- a) Liquid
  - b) Solid
  - c) Semi-solid
  - d) Viscous
30. Which description of marasmus is the most accurate?
- a) Starvation from food deprivation, with a decrease in somatic and visceral proteins stores, but subcutaneous fat stores are preserved.
  - b) Severe malnutrition, with loss of subcutaneous fat and depletion of muscle mass, followed by a breakdown in lean body mass.
  - c) A form of malnutrition mainly seen in the United States, due to limited access to food.
  - d) Protein deprivation, with adequate calories from carbohydrates and depletion of visceral protein stores, but preservation of somatic stores.

**PART II – Short Answer Questions (20 marks)**

**This part has 4 Short Answer Questions. Answer ALL the questions. Each question carries 5 marks.**

1. Give the full name and definition (2.5 X 2 =5 marks)
- a) DRV
  - b) FTT
2. What is Nutrition Support? List the types of nutrition support with proper description for each. (5 marks)
3. What are the complications associated with enteral feeding? (5 marks)
4. Cheychey, a 34 years old male has been admitted in the medical ward with Chronic Kidney Disease. His renal function test reveals – serum Creatinine (4.0 mg/dL). He weighs about 50 kgs and stands at 163 cm height.  
Calculate the following: (5 marks)
- a) eGFR
  - b) Stage

**SECTION B**

**Case Study**

**Choose either Case I OR Case II from this section. Each case study carries 50 marks.**

**Case I**

According to the World Health Organization (WHO), adequate nutrition during infancy is essential for lifelong health and wellbeing. Infants should be exclusively breastfed to achieve optimal growth, development and health. Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods, while continuing to breastfeed. Virtually all mothers can breastfeed, provided they have accurate information, and the support of their family, the health care system and society at large.

1. What is this yellowish, sticky breast milk produced at the end of pregnancy recommended by WHO? Why is it important? (5 marks)
2. What is the importance of optimal infant and young child feeding? (10 marks)
3. What are the benefits of breastfeeding for mothers? (5 marks)
4. When breast milk is no longer enough to meet the nutritional needs of the infant, complementary foods should be added to the diet of the child. What factors should be considered in the preparation of complementary feeding? What are the risks of poor complementary food? (10 marks)
5. Define malnutrition? Explain the three types of malnutrition. (10 marks)
6. There are four broad sub-forms of undernutrition. List and explain each form of undernutrition. (10 marks)

**Case II**

Mrs Dorji Choden, a 40 years old office receptionist is admitted in surgical ward following a cholecystectomy procedure. Upon being assessed by the ER physician, she showed symptoms of epigastric pain in the right upper quadrant of her abdomen and hence was referred to a surgeon. She was diagnosed with **Cholelithiasis**. Her usual food intake comprise of high fatty food and lacks physical activity. Her medical history states that she often gets headaches. According to her post operation reports, her wounds show normal healing. However, she has been complaining about swelling and pain in the joints of her foot, particularly her big toe. After assessing her laboratory results, the cause of swelling is detected to be due to high uric acid (formation of urate crystals). She is bound for discharge. As her dietitian, investigate and plan her nutrition management accordingly.



6. What would be her diet prescription upon discharge? (5 marks)
7. As her dietitian, what would be your dietary recommendation that she can follow after being discharged from the hospital (Consider her diagnosis and other underlying complications as well) (10 marks)

**TASHI DELEK**