

**ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2015
EXAMINATION CATEGORY: TECHNICAL**

PAPER III: SUBJECT SPECIALIZATION PAPER for *Nutrition & Dietetics*

Date	: 11 October 2015
Total Marks	: 100
Examination Time	: 150 minutes (2.5 hours)
Reading Time	: 15 Minutes (prior to examination time)

GENERAL INSTRUCTIONS:

1. Write your Roll 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 and SECTION B:
 - **SECTION A** has two parts: Part I - 30 Multiple-Choice Questions
Part II - 4 Short Answer Questions
All questions under SECTION A are COMPULSORY.
 - **SECTION B** consists of two Case Studies. Choose only **ONE** case study and answer the questions under your choice.
4. 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 any or correct Section, Part and Question Number will NOT be evaluated and no marks would be awarded.
5. Begin each Section and Part in a fresh page of the Answer Booklet.
6. You are not permitted to tear off any sheet(s) of the Answer Booklet as well as the Question Paper.
7. Use of any other paper including paper for rough work is not permitted.
8. You are required to hand over the Answer Booklet to the Invigilator before leaving the examination hall.
9. This paper has 09 printed pages in all, 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 the correct answer chosen in the Answer Booklet against the question number. E.g. 31 (c). Each question carries ONE mark. Any double writing, smudgy answers or writing more than one choice shall not be evaluated.

1. Although the dietary recommendation are nutrients levels recommended per person per day, in practice these levels are achieved
 - a. As a average over a year
 - b. As an average within twenty four hours
 - c. As an average by a reference population
 - d. As an average over a period of time (days, weeks or month)

2. Which of the following mineral is the most abundant in the human body?
 - a. Iron
 - b. Sodium
 - c. Calcium
 - d. Magnesium

3. When calorie ingested exceed required need, protein requirement falls and
 - a. Nitrogen remains balanced
 - b. There is no nitrogen requirement
 - c. Nitrogen balance remains positive
 - d. Nitrogen balance becomes negative

4. The recommended energy from trans and saturated fatty acid is less than _____of the total energy intake
 - a. 5%
 - b. 7%
 - c. 10%
 - d. 20%

5. National Dietary Guidelines that are commonly represented as food pyramids serves as
 - a. Guidelines to treat malnutrition
 - b. Meal plans for patients admitted in the hospital
 - c. Meal plans for individuals to meet their daily requirements
 - d. Guideline to choose foods from various food groups to promote health and prevent diseases

6. The four building block of anthropometry in children are
 - a. Height, length, age and sex
 - b. Length, birth weight, age and sex
 - c. Stature, weight, age and sex
 - d. Height, weight, length and age

7. Which of the following germs normally present in the gut of the human being as a can cause food poisoning if present in food?
 - a. Salmonella
 - b. Escherichia coli
 - c. Campylobacter
 - d. Clostridium perfringes

8. Wernicke-Korsakoff syndrome is associated with
 - a. Perinatal infection due to bacterial food poisoning
 - b. Liver damage due to alcohol consumption
 - c. Nerve damage involving CNS due to deficiency of thiamin
 - d. Metabolic disorder due to deficiency of hormones and their receptors

9. The term 'fat free' in the food label indicates
 - a. That there is no fat in the food
 - b. That the fat contain of the food is < 0.1 gram per serving
 - c. That the fat contain of the food is < 0.5 grams per serving
 - d. That the fat contain of the food is < 5.0 grams per serving

10. In patients with severe burn injury involving _____ surface area eternal feeding should be established to prevent risk of post burn malnutrition
- $\leq 20\%$
 - $\geq 20\%$
 - 9 - 10%
 - 10 - 15%
11. The two micronutrients that must be supplemented with the diet of a post burn patient for regaining tissue are
- Iron and B complex
 - Biotin and folic acid
 - Ascorbic acid and Zinc
 - Magnesium and tryptophan
12. Indication for Total Parenteral Nutrition includes all of the following except
- Hypertonic solution is used
 - Is administered through a peripheral vein
 - Long-term nutritional support is needed for patients
 - Intravenous infusions are indented for nutrients completely
13. Maternal weight gain of < 1 kg during the second and third trimester of pregnancy is considered as
- Adequate nutrition
 - Inadequate nutrition
 - Appropriate during that time of pregnancy
 - Excessive weight gain risking the life of mother and child
14. Human milk is appropriate as the sole source of infant nutrition for up to _____ months of life
- 4 months
 - 6 months
 - 12 months
 - 24 months

15. The statement ‘ 1750 civil servants above the age of 45 years were being treated for Type II diabetes in March 2001’, is a statement of
- Mortality
 - Morbidity
 - Incidence
 - Prevalence
16. Which of the following statement is not true about insulin
- Is a hormone
 - Promotes gluconeogenesis in liver
 - Promotes up take of glucose by cells
 - Stimulates synthesis of lipoprotein lipase
17. An average level of blood glucose of an individual over the past three months can be detected through
- HbA1C
 - Fasting blood sugar
 - Glucose tolerance test
 - Post prandial blood test
18. The micronutrient potassium is abundant in which of the following food groups?
- Cereals and grains
 - Legumes and beans
 - Fruits and vegetables
 - Animal source proteins
19. It is evident that dietary modification that result in _____ and _____ lowers blood pressure
- Increase sodium and reduce potassium intake
 - Increase calcium intake and reduce sodium intake
 - Increase Vitamin D intake and reduce sodium intake
 - Increase potassium intake and reduce sodium intake

20. The WHO definition of low Height– for – Age Z score defines _____ in children
- Obesity
 - Wasting
 - Stunting
 - Under weight
21. Processed foods from vegetables sources with the label ‘cholesterol free’ is
- A claim made by the food company
 - Information to consumers that it is free of fats
 - Cholesterol present in the food is less than 5%
 - Advertisement to distract the consumers from the fat content of the processed food
22. In a weight loss program diet and exercise regime should be individualized because
- You want to keep a record of each patient
 - You want to satisfy each individual patient
 - You want to achieve an energy expenditure of 500 – 600 KCL/day
 - There is an individual variation of BMR by 30% with comparable lean body mass
23. The macronutrients of interest that are thought to influence brain development and vision acuity in infants are
- Hemoglobin
 - Essential amino acids
 - High-density lipoprotein
 - Long-chain polyunsaturated fatty acids
24. A low weight-for height index in children indicate
- Obesity
 - Stunting
 - Acute malnutrition
 - Chronic malnutrition

25. Which of the following micronutrient deficiency is a public health concern in Bhutan
- Iron deficiency
 - Calcium deficiency
 - Vitamin A deficiency
 - Iodine deficiency disorder
26. The essential amino acid tryptophan is a substrate of
- Folate
 - Niacin
 - Thiamine
 - Riboflavin
27. Photosensitive dermatitis, like sever sunburn is a characteristic deficiency signs of
- Folate
 - Thiamine
 - Riboflavin
 - Tryptophan
28. The pathogenesis of dental carries is basically as a result of
- Bone resorption
 - Diet deficient in vitamin D
 - Diet deficient in calcium and vitamin D
 - Resident bacterial that ferments carbohydrate to acid
29. Which of the following is used to calculate a recipe
- Food diaries
 - Food guide pyramid
 - Food composition table
 - Twenty-four hour food frequency table
30. To maintain a healthful body weight among the general population the a general dietary guideline is recommends with regards to macronutrient consumption
- 30% from carbohydrate, 30% from fat and 40% from protein
 - 40% from carbohydrate, 30 % from fat and 30% from protein

- c. 50% from carbohydrate, 30%, from fat and 20% from protein
 - d. 60 % from carbohydrate, 30% from fat and 10% from protein
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PART II – Short Answer Type Questions (20 Marks)

Answer ALL the questions. Each question carries 5 marks. Mark for each sub-question is indicated in the brackets.

1. Describe the following diets (2.5 x 2 = 5 marks)
 - a. Dukan's diet
 - b. DASH
 2. Explain the following and write at least two advantages and two disadvantages of food records/diary (5 marks)
 3. Explain the following and write at least two advantages and two disadvantages of food frequency questionnaire (5 marks)
 4. Explain the following and write at least two advantages and two disadvantages of twenty-four hour recall (5 marks)
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SECTION B

Choose one case study (either Case 1 or Case 2) from this section. Each case study carries 50 marks. Marks for each sub-question are indicated in the (bracket).

Case 1

Nim Dem is a 22 years old nun diagnosed with pulmonary TB. She is a vegetarian, does not eat any meat but eat egg and dairy products. She is 45 kg and 154cm tall. Currently she is on anti tuberculin drug and comes for a weekly follow up at your clinic for dietary consultation

- a. Calculate and interpret her nutritional status (3)
- b. What type of dietary guidance will you offer Nim Dem? (5)
- c. Plan a one-day meal for Nim Dem that would at least meet the average daily requirement of all nutrients (15)

- d. Nim Dem is at risk of developing deficiency of which of the micronutrients? (2)
- e. How would you monitor nutrition adequacy for Nim Dem? (5)
- f. Malnutrition has a multi-factorial etiology, explain the cause of malnutrition in the developing world using the FAO's conceptual farm work for malnutrition with a focus on the relationship between nutrition and infection (20)

Case 2

Mrs. Phum Maya is a 60 years old woman with a known case of type 2 diabetes for last 8 years. She has not had any medical check-up for the last 6 months. This time she is admitted in the medical ward with a complaint of fatigue, blurred vision, urinary incontinence and bouts of giddiness. Her laboratory test result shows the following – fasting blood glucose level is 200 mg/dl, post prandial is 400 mg/dl, HbA1c 8%, serum cholesterol is 214 mg/dl, and triglyceride is 275 mg/dl. Her current weight is 80 kg, height is 160 cm. She states that she did not come for follow up because she was always asked to reduce weight and stop eating sweet and fats, both of which she could not comply.

- a. If Phul Maya had come for the first time in the hospital, how would you have known that she was diabetic? Describe the diagnostic procedure for diabetes? (10)
- b. Plan a meal taking into consideration the following: (15)
- c. What are the probable symptoms that she would experience with her current level of laboratory findings? (5)
- d. What can you infer from her level of HBA1C? (3)
- e. Write at least five complications of Diabetes? Identify some of the complications from Phul Maya's medical history above. (5)
- f. What are the main causes of type 2 diabetes? (5)
- g. Outline a strategy to create awareness about diabetes for promotion of health and wellness in the community (7)

