

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

PAPER III: SUBJECT SPECIALIZATION PAPER for *MBBS*

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. All of the following muscles have dual nerve supply EXCEPT:
 - a) Brachialis
 - b) Pectineus
 - c) Flexor digitorum superficialis
 - d) Flexor digitorum profundus

2. SAFE Strategy is an innovative public health strategy to treat and prevent trachoma. Which of the following is not included in the SAFE strategy ?
 - a) Surgery
 - b) Vitamin A supplementation
 - c) Facial cleaning
 - d) Environmental hygiene

3. C wave in Jugular Venous Pressure is due to:
 - a) atrial contraction
 - b) right atrial filling
 - c) rapid ventricular filling
 - d) tricuspid valve bulging into right atrium

4. All of the following are complications of supracondylar fracture of humerus in children EXCEPT:
 - a) Compartment syndrome.
 - b) Myositis ossificans.
 - c) Malunion.
 - d) Non Union.

5. A creamy and fishy odour vaginal discharge is seen in:
 - a) Chlamydia trachomatis
 - b) Gardnerella vaginalis
 - c) Trichomonas
 - d) Candida

6. Which of the following deficiencies are not associated with neurological manifestations?
 - a) Thiamine
 - b) Niacin
 - c) Vitamin B 12
 - d) Folic acid

7. Which one of the following is true about mechanism of action of Rifampicin?
 - a) It is bacteriostatic
 - b) It acts by inhibiting cell wall synthesis
 - c) It acts by restricting DNA-based RNA polymerase activity
 - d) It is not useful in conditions other than tuberculosis

8. Karma Choden, who is 36 weeks pregnant, feels dizziness in supine position but feels better on lateral position and after getting up. Her symptoms is most likely due to:
 - a) Inferior Vena Cava Compression
 - b) Raised intra-abdominal pressure
 - c) Decreased blood flow to placenta
 - d) Compression of Sympathetic Chain

9. All of the following can be seen in Massive Acute Blood loss EXCEPT
 - a) A. Increase in Reticulocyte count
 - b) B. Increase in Packed Cell Volume
 - c) C. Increase in Mean Corpuscular Volume
 - d) D. Increase in Neutrophils

10. Dorji Thinley, aged 65 year, has been on anti-hypertensive medications for 5 years. He suddenly develops severe unilateral headache and vomiting and neck stiffness. On MRI, a lateralized convex lesion seen. The diagnosis is:
 - a) Intracerebral Hemorrhage
 - b) Subarachnoid Hemorrhage
 - c) Meningitis
 - d) Meningoencephalites

11. Which of the following drug combinations should be avoided in a chronic alcoholic patient with liver damage?
 - a) INH and Rifampicin
 - b) INH and Thiacetazone

- c) Ethambutol and Streptomycin
 - d) Refampicin and Pyrazinamide
12. The effect of oral contraceptives is decreased by all EXCEPT:
- a) Phenytoin
 - b) Phenobarbitone
 - c) Refampicin
 - d) Chlorpheniramine
13. Which of the following vitamins resembles with hormones?
- a) Vitamin K
 - b) Vitamin D
 - c) Vitamin A
 - d) Vitamin E
14. Extra-dural haemorrhage is usually caused by the rupture of:
- a) Middle meningeal artery
 - b) Middle cerebral artery
 - c) Anterior cerebral artery
 - d) Posterior cerebral artery
15. In chronic lead poisoning, basophilic stippling is found in one of the following cells in a blood smear:
- a) Basophils
 - b) Neutrophils
 - c) Red blood cells
 - d) Lymphocytes
16. With regard to the life cycle of anopheles mosquitoes causing malaria, the exo-erythrocytic phase is absent in:
- a) Plasmodium vivax infection
 - b) Plasmodium malariae infection
 - c) Plasmodium falciparum infection
 - d) Plasmodium ovale infection
17. Mosquito transmits all of the following diseases, EXCEPT:
- a) Leishmaniasis
 - b) Filariasis

- c) Malaria
 - d) Yellow Fever
18. Infant mortality rate is defined as:
- a) Number of infant deaths per 1000 total births
 - b) Number of infant deaths per 1000 mid-year infant population
 - c) Number of infant deaths per 1000 live births
 - d) Number of infant deaths per 100,000 mid-year population
19. The ratio between the incidence among exposed- and among non-exposed person is:
- a) Attributable risk
 - b) Relative risk
 - c) Casual risk
 - d) Odd ratio
20. All of the following eye signs are found in Thyrotoxicosis EXCEPT:
- a) Lid lag
 - b) Loss of pupillary reflex
 - c) Proptosis
 - d) Weakness of convergence
21. Ischaemic heart disease (coronary artery disease) may manifest clinically in all of the following ways EXCEPT:
- a) Angina pectoris
 - b) Acute myocardial infarction
 - c) Congestive heart failure
 - d) Primary pulmonary hypertension
22. The commonest neurological disorder in elderly people is:
- a) Brain tumour
 - b) Cerebral abscess
 - c) Stroke
 - d) Crpytocoecal meningitis
23. Galactorrhoea, amenorrhoea and infertility in a young female may indicate increased secretion of one of the following:
- a) Growth hormone
 - b) Somatomedin

- c) Gonadotrophins
 - d) Prolactin
24. Which of these is Not the features of classical Fallot's tetralogy:
- a) Pulmonary infundibular stenosis
 - b) Pulmonary hypertension
 - c) Right ventricular hypertrophy
 - d) Ventricular septal defect
25. Maternal rubella in the first trimester of pregnancy tends to cause all, EXCEPT:
- a) Cataracts
 - b) Deafness
 - c) Patent ductus arteriosus
 - d) Fallot's tetralogy
26. The characteristic lesion seen in scabies is:
- a) Fissure
 - b) Papule
 - c) Burrow
 - d) Pustule
27. The normal PH of the human blood is:
- a) 6.8
 - b) 7.1
 - c) 7.4
 - d) 7.7
28. Immunity developed in response to stimulus by an antigen and usually characterized by the presence of antibodies produced by the host is referred to as:
- a) Natural immunity
 - b) Active immunity
 - c) Passive immunity
 - d) Immunologic tolerance
29. The nasolacrimal duct extends from the lower part of the lacrimal sac to the:
- a) Maxillary sinus
 - b) Superior meatus of the nose

- c) Inferior meatus of the nose
- d) Ethmoid sinus

30. Rheumatoid arthritis is primarily the disease of the:

- a) Intra-articular cartilage
 - b) Synovial membrane
 - c) Synovial fluid
 - d) Sub-chondral bone
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PART II – Short Answer Type Questions (20 Marks)

Answer ALL the questions. Each question carries 5 marks.

1. Describe the functions of the gastric secretions?
2. Define sepsis and briefly describe the consequences of sepsis.
3. What do you understand by massive blood transfusion? Outline the complications of massive blood transfusion.
4. Describe the non-respiratory functions of the lung.

SECTION B:

Case Study

Choose either Case 1 or Case 2 from this Section and clearly indicate the section and case number in the answer sheet. Each Case carries 50 marks. Marks for each sub-question are indicated in the brackets.

Case 1: A Case of Acute Pancreatitis

Karma is a 58-year-old man who has abused alcohol his entire adult life. Recently, following an episode of binge drinking, Karma experienced a gradual onset of pain in his upper abdomen that radiated to his back. The pain persisted for several hours and worsened each time that he ate. He also felt nauseous and experienced repeated episodes of vomiting. The pain grew more intense and Karma was taken to the emergency room of JDWNR hospital.

The physician who examined Karma in the ER noted the following findings when she performed a physical exam: Intense pain upon palpation of the upper left quadrant of the abdominal cavity, gaseous distension of the intestinal tract, and tachycardia. The physical exam findings, together with the history of alcohol abuse and the results of a CBC, serum chemistry panel, and abdominal ultrasound, led the physician to conclude that Karma was suffering from a case of acute pancreatitis. The doctor immediately initiated the appropriate medical therapy.

Questions

- 1) Describe the anatomic location of the pancreas relative to the other organs in the upper portion of the abdominal cavity. [3 Marks]
- 2) Briefly outline the endocrine and exocrine functions of the pancreas. [5 Marks]
- 3) What is pancreatitis and what is the basic mechanism that underlies the condition? [2 Marks]
- 4) Outline the most common causes of pancreatitis. [5 Marks]
- 5) What is the cardinal symptom of Acute Pancreatitis. Describe the pain of Acute Pancreatitis [5 Marks]
- 6) List the symptoms and signs associated with pancreatitis and state which of these Karma presents with. [5 Marks]
- 7) List the laboratory findings associated with pancreatitis [5 Marks].
- 8) Describe the treatment of Acute Pancreatitis. [10 Marks]
- 9) Describe the prognosis of Acute Pancreatitis. [5 Marks]
- 10) List the complications of Acute Pancreatitis [5 Marks]

Case 2: A Case of Iron Deficiency Anaemia

Nim Dem is a 28-year-old housewife living in a remote village in Zhemgang. She is in the second trimester of pregnancy with her third child, and though her pregnancy had been progressing normally, recently she has noticed that she tires very easily and is short of breath from even the slightest exertion. She also has experienced periods of light-headedness, though not to the point of fainting. Other changes she has noticed are cramping in her legs, a desire to crunch on ice, and the fact that her tongue is sore. She doubts that all of these symptoms are related to one another, but she is concerned, and visits the local health facility where she is given iron tablets. As her condition is not good the local BHU staff refers her to Central Regional Referral hospital in Gelephu.

Upon examining Nim Dem, the attending doctor in Gelephu finds that she has tachycardia, pale gums and nail beds, and her tongue is swollen. Given her history and the findings on her physical exam, the doctor suspects that Nim Dem is anaemic and orders a sample of her blood for examination. The results are shown in Table 1.

Red Blood Cell Count	3.5 million/mm ³
Hemoglobin (Hb)	7.1 g/dl
Hematocrit (Hct)	30%
Serum Iron	low
Mean Corpuscular Volume (MCV)	low
Mean Corpuscular Hb Concentration (MCHC)	low
Total Iron Binding Capacity in the Blood (TIBC)	high

A diagnosis of anaemia due to iron deficiency is made and oral iron supplements prescribed. Dolores' symptoms are eliminated within a couple of weeks and the remainder of her pregnancy progresses without difficulty.

Questions

- 1) Describe the structure of a molecule of haemoglobin. [5 Marks]
- 2) Explain the role played by iron in the transport of oxygen. [5 Marks]
- 3) How is iron stored and transported in the body? [5 Marks]
- 4) What is Iron Deficiency Anemia (IDA) and how frequently does it occur? [2 Marks]
- 5) What are the most common causes of IDA? [5 Marks]
- 6) What are the Signs and symptoms of IDA? [5 Marks]
- 7) Why are women more prone to IDA than men? [3 Marks]
- 8) What are the red blood cell indices, and what tests are diagnostic for IDA? [10 Marks]
- 9) How is IDA treated and prevented? [10 Marks]