

**ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2016
EXAMINATION CATEGORY: TECHNICAL**

PAPER III: SUBJECT SPECIALIZATION PAPER FOR MBBS

Date: 2 October 2016
Total Marks: 100
Examination Time: 150 minutes (2.5 hours)
Reading Time: 15 minutes (*prior to examination time*)

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, printing error, clarify doubts and to read instructions in Question Paper. 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 2 case studies. Choose only **ONE** case study and answer the questions under 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 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. The Question 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 (c). Each question carries ONE mark. Any double writing, smudgy answers or writing more than one choice shall not be evaluated.

1. Which of the following is the main reason that an influenza vaccine is generally only effective for one season?
 - a. The virus responsible for influenza constantly mutates.
 - b. The antibodies present in the vaccine degrade after a short time.
 - c. The influenza virus responds to the vaccine and transforms.
 - d. The antigen in the vaccine is weakened by the immune system.

2. On vaginal examination, when the cervix is 6 cm dilated and 80% effaced, it indicates that the woman is in
 - a. 1st stage, latent phase of labour
 - b. 1st stage, active phase of labour
 - c. 2nd stage, non-expulsive phase of labour
 - d. 2nd stage, expulsive phase of labour

3. The probabilities for all possible outcomes of an event must add up to
 - a. 0.1
 - b. 1.0
 - c. 10.
 - d. 100

4. In science, which of the following is most nearly synonymous with the word “theory”?
 - a. a proven fact
 - b. a hypothesis that has withstood repeated testing
 - c. an untested supposition
 - d. a body of published data

5. Initial classification of a bacterium is based on its
 - a. size
 - b. shape
 - c. color
 - d. ability to cause disease

6. Which of the following substances has a pH closest to 7?
 - a. ammonia
 - b. blood
 - c. lemon juice
 - d. vinegar

7. The principal function of blood platelets is to
 - a. help clot blood.
 - b. carry oxygen.
 - c. produce antibodies.
 - d. phagocytize bacteria.

8. Which class of antibodies is capable of crossing the placental barrier?
 - a. IgG
 - b. IgM
 - c. IgD
 - d. IgA

9. Beriberi is caused by a deficit of which vitamin?
 - a. vitamin B1
 - b. vitamin C
 - c. vitamin E
 - d. vitamin D

10. This Dutchman charmed Europe with his letters that contained drawings depicting the extraordinary details visible under the highpower microscopes he built himself. Who is he?
 - a. Isaac Newton
 - b. Baron von Humboldt
 - c. Anton von Leeuwenhoek
 - d. Benedict Spinoza.

11. All of the following are true regarding Spinal anaesthesia and epidural anaesthesia EXCEPT
 - a. In spinal anesthesia, convulsions are less likely to result.
 - b. The duration of neural blockade is shorter in spinal anesthesia.
 - c. The degree of sympathetic blockade is less in spinal.
 - d. The likelihood of postdural puncture headache is similar.

12. Epidural anaesthesia is contraindicated in which of the following neurological diseases?
 - a. spina bifida occulta
 - b. multiple sclerosis
 - c. cerebral tumor with raised intracranial pressure
 - d. myasthenia gravis

13. The risk of surgical infection can be reduced by the following EXCEPT:
 - a. Keeping the theatre door closed during the operation.
 - b. Careful hand and nail scrubbing before the start of operation.
 - c. Scheduling the potentially infected cases at the end of the list
 - d. Routine drainage for all operation.

14. All of the following are correct concerning depot medroxy progesterone acetate (DMPA) injection EXCEPT:
- Are more reliable than combined oral contraceptive pills and do not affect the blood pressure.
 - Have a failure rate of 2 per hundred women a year.
 - Can be given within 3 days of child birth without any side effects.
 - Are given every 8 weeks as a routine.
15. The amount of blood pumped out by each ventricle per beat is
- Cardiac Output
 - Stroke Volume
 - Residual Volume
 - Ejection Fraction
16. Which one amongst the following is a fluoroquinolone?
- Ceftriaxone
 - Penicillin
 - Cefazolin
 - Ciprofloxacin
17. Which of the following drugs must be avoided in renal failure?
- Prednisolone
 - Amoxycillin
 - Gentamicin
 - Frusemide
18. The Mc Burney's point
- lies in the midpoint between the umbilicus and the xiphoid process.
 - is situated at the lateral 1/3rd and medial 2/3 rd of the right spinoumbilical line.
 - is situated at the lateral 2/3rd and the medial 1/3rd of the right spinoumbilical line.
 - lies in the midpoint of the right spinoumbilical line.
19. Green Stick Fracture is
- fracture with multiple bone fragments.
 - fracture resulting from diseased bone.
 - fracture in the elderly lady.
 - most commonly seen in the children.
20. All of the following are true in severe infection of umbilicus in the newborn EXCEPT: `
- The umbilicus is red and swollen.
 - It may be treated with oral antibiotics.
 - There may be a history of unclean birth.
 - The umbilicus may be draining pus.

21. Which of the following is NOT a pyrimidine base of nucleic acids?
- thymine
 - cytosine
 - uracil
 - guanine
22. Scabies is
- infectious
 - contagious
 - hereditary
 - a secondary infection
23. The disease which is associated with increased age of the mother is
- Down's Syndrome
 - Marfan's Syndrome
 - Phenyl Ketonuria
 - Albinism
24. The safe antibiotic in pregnancy is
- Chloramphenicol
 - Tetracycline
 - Streptomycin
 - Erythromycin
25. The most common bacterial infection in pregnancy is
- LRI
 - URTI
 - UTI
 - Skin infection
26. Signs of placental separation after delivery include
- Bleeding.
 - changes of uterine shape from discoid to globular.
 - lengthening of the umbilical cord.
 - All of the above.
27. APGAR's score includes all the following EXCEPT:
- skin color.
 - muscle tone.
 - blood PH.
 - respirations
28. The average blood volume in an adult person is
- 90 ml/kg body weight.
 - 70 ml/kg body weight
 - 60 ml/kg body weight
 - 40 ml/kg body weight

29. Immediate treatment of hypovolemic shock is by
- dopamine infusion
 - blood transfusion
 - 5% dextrose
 - normal saline/Ringer's lactate
30. Amongst the following, which is the most harmful procedure to the patient?
- MRI
 - X-Ray
 - CT scan
 - Ultrasound scan

PART II – Short Answer Questions (20 marks).

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

- Briefly describe the following public health programs under the Ministry of Health
 - TB control program and
 - Reproductive Health program.
- What do you understand by "Universal precaution" and describe how would you implement in your hospital.
- Write briefly on Zika virus infection, symptoms, complications, treatment and preventive measures.
- What do you know about School Health program in Bhutan?

SECTION B

Case Study

Choose either Case 1 or 2 from this section. Each case study carries 50 marks.

Case 1

Tshering Choden is 17 years old and 130 cm tall and works in a Drayang in Thimphu. She presents with Amenorrhoea for 2 months. Her previous cycles were regular with normal flow. She had done a pregnancy test using kit from the market which showed two prominent lines indicating positive test for pregnancy. She complains of severe vomiting for the past one week and has not been able to eat her meals as before.

Findings are:

General examination

BP 110/80 mm Hg, Pallor absent, tongue dry, edema nil
Abdomen: Normal, non tender

Laboratory findings are:

Blood group is B positive, Hb 12 gms /dl, HBsAg Positive, RPR and TPHA Non Reactive, HIV negative, You have send her blood to a higher centre and her reports came as follows:

Hepatitis B surface antigen : positive
Hepatitis B e antigen : positive
Hepatitis B surface antibody : negative
Hepatitis B core antibody :Positive

- a) Mention two important risk factors that are of significance in her history. (2 marks)
- b) Give two differential diagnosis relating to her vomiting in pregnancy. (2 marks)
- c) How would you differentiate between early morning sickness and Hyper-emesis Gravidarum clinically and using laboratory investigation. (2 marks)
- d) What are the routine Blood investigations done at booking for pregnant women in Bhutan? (2 marks)
- e) Mention the timing in weeks when you would order for three important ultrasound in a normal singleton pregnancy. (2 marks)
- f) How will you manage a case of Hyperemesis Gravidarum? (3 marks)
- g) Discuss briefly the infectivity status of the patient. (1 marks)
- h) Discuss the management of the partner. (1 mark)
- i) Discuss the modes of transmission in short. (1 mark)
- j) Discuss the mode of transmission to the baby and baby's risk of being chronic carrier. (2 marks)
- k) Discuss active and passive immunization to the baby. (2 marks)
- l) Discuss feeding of the baby. (1 mark)
- m) Discuss what the staff needs to do during ante natal examination and during delivery? (2 marks)
- n) Discuss how will you manage the waste? (2 marks)

During the labour, the sister on duty calls you in emergency because she suspects of Shoulder Dystocia

- o) How will you manage a case of Shoulder Dystocia? (10 marks)

After successful delivery of the baby, the baby is pale, motionless and apnoeic. The mother is fine and not bleeding. The paediatrician has been called and not arrived yet.

- p) How will you manage the neonate at this juncture? Describe in detail the full resuscitative protocol you would follow in this situation. (10 marks)
- q) What are the potential complications associated with shoulder Dystocia? (5 marks)

Case 2

Dorji is 47 years old and has been diagnosed with type 2 Diabetes mellitus for the past 3 years. He is on irregular oral anti diabetic drugs. Two days back he developed fever, burning sensation while urinating with thirst and became unconscious today at around evening. Dorji's son brought him to the casualty. His breathing is acidotic and vitals were BP 100/70 mm hg, pulse was 110/min.

- a) Explain the patho-physiology that leads to hyperglycemia, polyuria and polydipsia of diabetes. (1.5 marks)
- b) What is the function of each of these pancreas cells? (1.5 marks)
 - i. Alpha
 - ii. Beta
 - iii. Delta
- c) List five symptoms of hypoglycemia and five symptoms of hyperglycemia. (2.5 marks)
- d) What do you understand by Impaired glucose tolerance and Impaired fasting Glucose? (1.5 marks)
- e) Fill in the blanks below. (3 marks)

	Onset	Peak	Duration
Regular insulin			
Lente insulin			
Ultra-Lente Insulin			

- f) Describe the oral glucose tolerance test. (1.5 marks)
- g) What are the criteria for the diagnosis of Diabetes Mellitus? (2.5 marks)
- h) What is the WHO's definition of metabolic syndrome? (2.5 marks)
- i) What are the flaws of WHO criteria for diagnosis of Metabolic Syndrome? (1.5 marks)
- j) List the acute complications of Diabetes Mellitus (2 marks)
- k) Name the long term benefits of exercise in Diabetes (2 marks)
- l) Classify and describe the OGA drugs used in the treatment of Diabetes in Bhutan with regard to mechanism of action, dose, and side effect. (3 marks)
- m) What do you understand by Gestational diabetes? What are the risk to the mother and risk of diabetes on foetus (5 marks)

- n) Mention in brief the clinical features symptoms and signs of autonomic neuropathy in diabetes mellitus? (5 marks)
- o) Describe the role of diet in the management of Diabetes Mellitus. (5 marks)
- p) How will you manage Diabetic ketoacidosis? Outline the principles of management of DKA. (10 marks)

TASHI DELEK