

**ROYAL CIVIL SERVICE COMMISSION
TECHNICAL GRADUATES SELECTION EXAMINATION: 2008**

Paper III: Subject Specialization (Agriculture) 20 December 2008

Registration No. :

Time allowed : 150 minutes

Total Marks : 100

Please read the following instructions carefully!

1. General instructions:

- 1.1 Under the provision of the Technical Graduates Selection Examination procedures of the Royal Civil Commission, candidates shall write their **Registration No. only** on the answer book provided. All question should be answered in the answer book provided.
- 1.2 No other particulars that would indicate the identity of a candidate shall be written on this book. Any candidate found guilty of writing their particulars of making any identifications marks on and/of in this book shall be disqualified form consideration of future employment by the RCSC.
- 1.3 This book is the property of the RCSC and shall not be removed from the examination hall. It consists of 8 pages including this page. Any pages found missing should be reported to the invigilators within the first 15 minutes of receipt of the question book.
- 1.4 Candidates shall not be allowed to carry any papers inside the examination hall.
- 1.5 Candidates shall be required to produce the Admission Card while entering the examination hall and when demanded by the concerned authorities.

2. Specific instructions:

- 2.1 Do not write anything during the first 15 minutes. This time is to be spent in reading the instructions, the questions and to make sure that no pages are missing.
- 2.2 Any misprint/clarification in the questions must be raised during the first 15 minutes.
- 2.3 Once the examination begins, you will not be allowed to ask questions or leave the examination hall.
- 2.4 There are 30 multiple choice questions of one mark each and 4 short answers questions of five marks each. All questions are compulsory.
- 2.5 There are two case studies, out of which you will have to attempt only one. The case study carries 50% of the total marks.

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**Paper III: Subject Specialization: Agriculture
Time allotted: 150 minutes; Total Marks: 100**

Section A1: 30 multiple choice questions of one mark each (total marks:30)

1. Which of the following is the most probable effect of import trade barriers on domestic prices and production?
 - a) Both prices and production decrease
 - b) Both prices and production increase
 - c) Price decrease, production increase
 - d) Price increase, production decrease

2. Soil structures refer to which of the following?
 - a) Arrangement of soil particles
 - b) Proportion of sand, silt, and clay
 - c) Organic compositions
 - d) Profile depth

3. If the permeability of the subsoil is rapid, the subsoil texture is most likely classified as:
 - a) coarse
 - b) Medium
 - c) Fine
 - d) Clayey

4. A “roadmap” of how a product will be marketed and sold is:
 - a) a business plan.
 - b) a marketing plan.
 - c) a listing of the marketing sales strategies
 - d) a SWOT analysis

5. Annual import of milled rice by Bhutan in the year 2006 was:
 - a) 10,000 metric tonnes
 - b) 23,000 metric tonnes
 - c) 47, 000 metric tonnes
 - d) 60,000 metric tones

6. The most common disease of Potato crop in Bhutan is:
 - a) Scab
 - b) Blight
 - c) Nematodes
 - d) Tuber root

7. The Seed Act of Bhutan was passed in the year:
- 1999
 - 2000
 - 2001
 - 2002
8. Food Corporation of Bhutan (FCB) facilitates marketing of agriculture produce through auctioning. FCB charges for their services from buyers/bidders and growers/sellers:
- 1% of sale value for each form buyer and seller
 - 3% of sale value each form buyer and seller
 - 5 % of sale value each form buyer and seller
 - 6% of sale value each form buyer and seller
9. Genetics is:
- a study of pea plants
 - a study of heredity
 - a phenotype of an organism
 - a characteristic that can be passed on
10. A true-breeding plant:
- is a plant that never produces offspring with the same form of a trait when it self-pollinates.
 - is a plant that has been pollinated by human influence.
 - is a plant that will always produce offspring with the same form of a trait when it self-pollinates.
 - is a plant that will always produce offspring with a different form of a trait when it self-pollinates.
11. When fertilization occurs, offspring inherit:
- one homologous chromosome in a pair from each parent.
 - a complete set of chromosomes from one of the parents.
 - two homologous chromosomes in pairs from each parent.
 - a random amount of chromosomes from each parent
12. A gene:
- is a segment of DNA located on chromosome
 - determines an organism's traits
 - typically contains one allele from each parent.
 - all of the above

13. The value of a resource in its next best use is called:
- Variable cost
 - Marginal cost
 - Opportunity cost
 - Total cost
14. Organic Agriculture makes use of
- Organic matter as one of the main plant nutrient sources
 - Organophosphates as one of the main plant nutrient sources
 - Organochlorines as one of the main plant nutrient sources
 - Organic synthetics as one of the main plant nutrient sources
15. Legume crop in a well fertilized field will provide the following two results in soil:
- Improved drainage and porosity
 - Nitrogen fixation and better crop
 - No nitrogen fixation and no nodulation
 - Nitrogen fixation and no nodulation
16. Practice of organic farming involves
- Use of very little fertilizers and pesticides
 - Use of non-detectable levels of weedicides
 - Use of certification for all products
 - Use of good agricultural practices and non use of synthetic inputs
17. Who among the following is the current Secretary of the Ministry of Agriculture?
- Dasho Sherab Tenzin
 - Dasho Sherub Gyaltshen
 - Dasho Sherab Dorji
 - Dasho Sangay Thinley
18. Which training institute in Bhutan gives diploma level training in agriculture, animal husbandry and forestry?
- Natural Resource Training Institute
 - College of Natural Resources
 - National Agriculture Training Institute
 - Royal Institute of Management
19. The headquarter of Food and Agriculture Organisation (FAO) of UN is located in one of the following cities. Choose the correct one.
- New York
 - Manila
 - Rome
 - Tokyo

20. What percentage of Bhutan's area is under agriculture?
- a) 12.8 %
 - b) 7.8 %
 - c) 20 .0%
 - d) 15.3 %
21. What is the national Research mandate of RNR Research Centre, Jakar
- a) Forestry
 - b) Horticulture
 - c) Livestock
 - d) Field crops
22. Which among the following is the number one export crop of Bhutan?
- a) Rice
 - b) Chilli
 - c) Cardamom
 - d) Orange
23. What is the full form of PAM ?
- a) Policy for agriculture mechanization
 - b) Method of rice cultivation
 - c) Production, Accessibility and Marketing – triple gem concept for MoA
 - d) Integrated Pest Management
24. Major nutrients required by crops are:
- a) Nitrogen, Zinc and Calcium
 - b) Phosphorus, Zinc & Boron
 - c) Nitrogen, Phosphorus & Potassium
 - d) Potassium, Boron & Nitrogen
25. What percent of Bhutanese population is depended on agriculture?
- a) 79 %
 - b) 59 %
 - c) 69 %
 - d) 65 %
26. CIMMYT is the internal centre for which of the following crop or crops?
- a) Rice
 - b) Maize
 - c) Maize and wheat
 - d) Barley and buckwheat

27. What percent of Bhutanese population lives under poverty?
- a) 23.2 %
 - b) 35.0 %
 - c) 20.5 %
 - d) 5.2 %
28. Bumthang started to grow which among the following crops since last five years only ?
- a) Potato
 - b) Wheat
 - c) Coconut
 - d) Rice
29. School Agriculture Programme is a joint programme of the Ministry of Agriculture and:
- a) Ministry of Health
 - b) Ministry of Labour and Human Resources
 - c) Ministry of Education
 - d) Ministry of Economic Affairs
30. Ministry of Agriculture in Bhutan is also known as:
- a) Agriculture Sector
 - b) Forestry & Environment Sector
 - c) Energy Sector
 - d) Renewable Natural Resources (RNR) Sector

Section A2

Four short questions of 5 marks each. Answer all the four questions. Write your answers in the answer book provided.

1. What is seed treatment and its objectives? What are the basic requirements of seed health tests?
2. Citrus Greening (Huanlongbing- HLB) is a serious disease of citrus and it has posed a big threat to the citrus industry in the country. Describe in short its symptoms, spread and control measures.
3. As an Agriculture Extension Officer in the eastern part of the country, where farming is mostly practiced on steep slopes and lands are prone to soil degradation, how would you advice the farmers to manage land and improve soil condition and soil fertility for crop production?
4. Discuss the importance and role of agro-meteorological services in enhancing agriculture production and land use planning?

Section B: Attempt only one of the case studies. Use answer books provided to write your answers. (Total marks: 50)

Case study 1

Organic farming is gaining increasing importance. Define organic farming. Discuss in brief its importance in the Bhutanese context and the benefits of adopting Organic Farming approaches?

The use of chemicals and fertilizers are limited in Bhutan due to various reasons. Bhutan can claim to be organic by default; according to your understanding of being organic can we call all of Bhutanese farming system as organic? Write a short paragraph justifying your argument.

Organic agriculture is seen by some a going backwards and following traditional farming techniques. Mention three points to show that it is in fact moving forward with wisdom and science.

Some believe that it is expensive to adopt organic farming approaches since certification required is at high costs. In Bhutan price premium is not assured so do you think that certification should be compulsory? Discuss and write your arguments.

OR

Case study 2

The Royal government accorded high priority to agriculture development and adopted an policy approach to attain food self sufficiency and food security in the past Five Year Plans. What is food self sufficiency and food security in Bhutanese context? Give examples of past efforts of the Ministry of Agriculture to achieve these policy objectives. What is the current status of Bhutan on food self sufficiency and security?

Bhutan has limited arable land and a difficult terrain for farming. The cost of production is high and farm labour is scarce. Under these circumstances, is it advisable to continue to adopt a policy of attaining food self sufficiency considering that some of the cereals could be imported at cheaper price and Bhutan is also preparing to join the WTO? Put your arguments to support your statement. Present a proposal highlighting a future directions for development of agriculture both for food security and rural livelihood.