

MASTER OF TECHNOLOGY (FTBE) EXAMINATION, 2011

(2nd Semester)

CEREAL PROCESS ENGINEERING

Time : Three hours

Full Marks : 100

Use a separate Answer-Script for each part.

PART – I (60 marks)

Answer *any three* questions.

1. a) Mention the working principle of each equipment required for cleaning of wheat. What are the objectives of conditioning of wheat and indicate the methods used for it.
b) Give the diagrammatic expression of milling process of wheat indicating the steps of grinding. 10+10=20
2. a) Discuss about the world production and trade of rice. Give a flow diagram of modern rice milling explaining the working principle of each machine.
b) How parboiled rice is produced? Give the advantages and disadvantages of parboiled rice. What are the utilization of byproducts of rice milling? 10+10=20
3. a) Discuss the main steps of milling of barley indicating the milled barley products. Discuss also the food uses of barley and rice based products.
b) Discuss the nutritional values and product utilization of sorghum, oats and millets for food and animal feed.

10+10=20

[Turn over

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4. a) What are the effects of insect attack on cereal and cereal products? Mention the purpose of storage facilities of cereal indicating the type of insects that attack cereal and cereal products. How infestation can be prevented? How do you detect the insect infestation in cereals?
- b) How do you test the wheat flour for baking quality?
10+10=20
5. a) Give the operating principle of a bread dough divider with a neat sketch. How the divider is to be lubricated and what are the precautions in operating a divider?
- b) Discuss about the type and functioning of oven and associated equipment in a bakery industry. 10+10=20
6. Write short notes on (*any four*) : 5×4=20
- a) Nutrition, health benefits and utilization of wheat germ.
- b) Extraction, refining and specification of corn oil.
- c) Quality standard of corn and rice and nutritional benefits and use of bulgur wheat.
- d) High speed mixer for producing and developing of bread dough.
- e) Reciprocal and band slicer.
- f) Macaroni extrusion technology.

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PART – II (40 marks)

Answer *any two* questions.

All questions carry equal marks.

7. a) What do you mean by waxy starch, resistant starch and modified starch?
- b) Describe different methods for the fractionation and purification of amylose and amylopectin. $4\frac{1}{2}+15\frac{1}{2}$
8. a) Discuss about enzymes for hydrolysis of starch.
- b) State and explain gelatinization and retrogradation of starch.
10+10
9. What is extrusion cooking? What are the advantages of extrusion cooking? Mention the main differences between single screw and twin screw extruder. Discuss the effect of raw material on quality of extruded product. $1\frac{1}{2}+3\frac{1}{2}+5+10$
4. Write short notes on (*any three*) :
- a) Resistant starch
- b) Modified starch
- c) Aqueous leaching method of fractionation of starch
- d) β -amylase and Glucoamylase.