Subject Code—2731

P.G.D.B.S.T. EXAMINATION

(New Scheme)

(Re-appear)

PGDBST-01

WHEAT GRAIN STRUCTURE, QUALITY AND MILLING

Time : 3 *Hours* *Maximum Marks :* 100

Note : Attempt *Five* questions in all. Q. No. 1 is compulsory.

1. (a) Two wheat samples 4·0 and 1·5 kg having 10·0 and 11·5% moisture respectively are to be conditioned to 15% moisture. Calculate the total amount of water for wheat conditioning ?

   (b) List any *three* books with authors related to this course.

2. Differentiate the following :
   (a) Break System and Reduction System
   (b) Strong Wheat and Weak Wheat
   (c) Warm, Hot and Steam Conditioning
   (d) Milling of Atta and Milling of Flour
   (e) Straight Grade Flour and Patent Flour.

3. (a) Explain the term 'Wheat Quality'. How does it matter for different persons dealing with wheat ?
   (b) Explain the quality characteristics of wheat suitable for milling and baking ?

4. How can you differentiate hard and soft wheats ? Explain how opaqueness and vitreousness are related to hardness of wheat ?

5. How the air classification is done ? Explain different stream and their use in different products.

6. Briefly describe the gradual reduction process of milling by drawing flow sheet. What is the significance of extraction rate ?

7. (a) How does durum wheat differ from common wheat ?

   (b) Why do we conditioning of wheat before milling ?

   (c) At what moisture would you condition biscuit wheat, bread wheat and pasta wheat before milling ?

8. Describe the different criteria of wheat quality. Explain chemical criteria by giving significance of each parameter ?

Subject Code—2732

P.G.D.B.S.T. EXAMINATION

(New Scheme)

(Re-appear)

PGDBST-02

FUNCTIONALITY OF WHEAT FLOUR COMPONENTS AND BAKERY INGREDIENTS

Time : 3 *Hours* *Maximum Marks :* 100

Note : Attempt any *Five* questions. All questions carry equal marks.

1. Explain the difference between Osborne and Shewry classification of wheat proteins. Why is strong flour recommended for bread making and weak flour is recommended for biscuit making ?

2. Discuss manufacturing techniques, uses and functionality of wheat gluten.

3. Describe the role of water and shortening in the bread, biscuits and cookie.

4. Which ingredients are known as dough improvers/conditioners ? Explain functions of oxidizing and reducing agents in dough system and in enhancing quality of bakery products.

5. Discuss the functions of milk and milk products, malt and anti-microbial agents in bakery products.

6. List major enzymes of wheat and explain their technological significance.

7. Discuss production, properties and functions of yeast in fermented bakery products.

8. Discuss the functions of salt and sweetening agents in bakery products.

Subject Code—2733

P.G.D.B.S.T. EXAMINATION

(New Scheme)

(Re-appear)

PGDBST-03

QUALITY TESTING OF WHEAT FLOW AND BAKERY PRODUCTS

Time : 3 *Hours* *Maximum Marks :* 100

Note : Attempt any *Five* questions. All questions carry equal marks.

1. Describe principle and method of estimation of protein, ash, fat and starch damage in flour. Indicate the relationship of diastatic activity and maltose value.

2. Describe method and principle of estimation of gluten quantity. How is gluten quantity related to end use quality of bakery products ?

3. Discuss the importance of falling number test in influencing the quality of bakery products. Describe principle and method of falling number test.

4. Classify dough rheological instruments and indicate principle of operation of each category of instrument. Which instruments are known as recording dough mixers ? Describe procedure of farinograph to run a test on flour dough.

5. Which rheological measurements are recorded on extensograph and what is the importance of these measurements in assessing flour quality ? Describe procedure of extensograph to run a test on flour dough.

6. Discuss application and procedure of viscoamylograph in assessing dough properties.

7. Explain the importance of BIS/PFA standards for bakery ingredients and products. Specify standards for atta, maida and semolina.

8. Why is dough-raising capacity of yeast assessed ? Discuss method of assessing dough raising capacity of yeast in relation to wheat dough.

Subject Code—2734

P.G.D.B.S.T. EXAMINATION

(New Scheme)

(Re-appear)

PGDBST-04

RHEOLOGY AND CHEMISTRY OF DOUGH

Time : 3 *Hours* *Maximum Marks :* 100

Note : Attempt any *Five* questions. All questions carry equal marks.

1. Explain the terms :
   (i) Dough rheology
   (ii) Shear stress and strain
   (iii) Viscometry
   (iv) Linear viscoelastic behaviour.

2. Explain the differences between empirical and fundamental testing of wheat dough. Define empirical and fundamental testing.

3. Explain the influence of gluten polypeptides on mixing characteristics of dough.

4. Discuss the basis of wheat gluten viscoelasticity. Discuss its importance in gas retention and bread making.

5. Explain the importance of oxidizing and reducing agents on rheology of dough.

6. Discuss the effects of water and yeast on dough rheology.

7. Explain the role of amylases and proteases enzymes on the rheological behaviour of the dough.

8. Give a brief account of importance of sugar and emulsifier in dough behaviour during processing.

Subject Code—2735

P.G.D.B.S.T. EXAMINATION

(New Scheme)

(Re-appear)

PGDBST-05

BREAD INDUSTRY AND PROCESSES

Time : 3 *Hours* *Maximum Marks :* 100

Note : Attempt *Five* questions in all. Q. No. **1** is compulsory.

1. Tick, correct and justify :

(a) Sound and heavy grains have high water pickup rate than small kernels. (True/False)

(b) Strong wheat flour will have high/low mixing tolerance index value. (True/False)

(c) Albumin and globulins are storage proteins. (Yes/No)

(d) For spongue dough method strong/weak flour is required. (True/False)

(e) Amylase is leached from starch by heating starch below/above gelatinization temperature. (True/False)

(f) Keyholing is the phenomena of expanding side walls of bread due to high α-amylase. (True/False)

(g) In waxy cereals the amount of amylase in starch is 25-27%. (True/False)

(h) Wheat flour with low liquefaction no. produces good loaf breads because of high alpha-amylase enzyme. (True/False)

2. Give the phenomena of :

(a) Gelatinization

(b) Bread Staling

(c) Keyholing

(d) Development of gluten

(e) Maturation of flour.

3. (a) Why does the gluten proteins interact to form a strong elastic material ?

(b) What are the three most important quality characteristics of wheat/flour suitable for bread making ?

4. (a) How can you assess the quality of bread ?
   (b) Describe the microbial spoilage of bread. How can it be prevented ?

5. Write short notes on any *five* of the following :
   (a) Staling inhibitors
   (b) Multigrain bread
   (c) Bread improvers
   (d) Vital wheat gluten
   (e) Over mixing of dough
   (f) Gas Production and Gas Retention.

6. (a) Can bread of good volume be produced in a system containing no gluten ?
   (b) What is ADD process of bread making ? How is it different from traditional method of bread making ?

7. Highlight the status of bakery industry. Discuss the emerging technologies in bakery industry for production of variety breads.

8. (a) Enlist the ingredients required for bread making by describing their functions.
   (b) Explain the changes occur during mixing, fermentation and baking of bread loaf.

Subject Code—2736

P.G.D.B.S.T. EXAMINATION

(New Scheme)

(Re-appear)

PGDBST-06

SOFT WHEAT PRODUCTS & PROCESSES

Time : 3 *Hours* *Maximum Marks :* 100

Note : Attempt any *Five* questions. All questions carry equal marks.

1. Explain the role of major ingredients in biscuits and cookie making.

2. Describe procedure to judge cake quality and the role of major ingredients in cake baking.

3. How do biscuits differ from crackers, cookies and cakes ? Classify cookies and discuss various types of cookies.

4. Why are different zones of temperature maintained to bake cookies and biscuits ? Discuss the importance of each temperature zone of baking in biscuit production.

5. Define Crackers. Discuss unit operations used in the processing of crackers.

6. Discuss unit operations used in the preparation of soft dough biscuits.

7. Classify cake and give their formulations and explain each category in brief.

8. Discuss different cake faults and explain ways to eliminate cake faults.

Subject Code—2731-X

P.G.D.B.S.T. EXAMINATION

(Old Scheme)

(Re-appear)

PGDBST-01

WHEAT GRAIN STRUCTURE, QUALITY AND MILLING

Time : 3 *Hours* *Maximum Marks :* 80

Note : Attempt *Five* questions in all. Q. No. **1** is compulsory.

1. (a) Two wheat samples 4·0 and 1·5 kg having 10·0 and 11·5% moisture respectively are to be conditioned to 15% moisture. Calculate the total amount of water for wheat conditioning ?

(b) List any *three* books with authors related to this course.

2. Differentiate the following :
   (a) Break System and Reduction System
   (b) Strong Wheat and Weak Wheat
   (c) Warm, Hot and Steam Conditioning
   (d) Milling of Atta and Milling of Flour
   (e) Straight Grade Flour and Patent Flour.

3. (a) Explain the term 'Wheat Quality'. How does it matter for different persons dealing with wheat ?
   (b) Explain the quality characteristics of wheat suitable for milling and baking ?

4. How can you differentiate hard and soft wheats ? Explain how opaqueness and vitreousness are related to hardness of wheat ?

5. How the air classification is done ? Explain different stream and their use in different products.

6. Briefly describe the gradual reduction process of milling by drawing flow sheet. What is the significance of extraction rate ?

7. (a) How does durum wheat differ from common wheat ?

   (b) Why do we conditioning of wheat before milling ?

   (c) At what moisture would you condition biscuit wheat, bread wheat and pasta wheat before milling ?

8. Describe the different criteria of wheat quality. Explain chemical criteria by giving significance of each parameter ?

Subject Code—2732-X

P.G.D.B.S.T. EXAMINATION

(Old Scheme)

(Re-appear)

PGDBST-02

FUNCTIONALITY OF WHEAT FLOUR COMPONENTS AND BAKERY INGREDIENTS

Time : 3 *Hours* *Maximum Marks :* 80

Note : Attempt any *Five* questions. All questions carry equal marks.

1. Explain the difference between Osborne and Shewry classification of wheat proteins. Why is strong flour recommended for bread making and weak flour is recommended for biscuit making ?

2. Discuss manufacturing techniques, uses and functionality of wheat gluten.

3. Describe the role of water and shortening in the bread, biscuits and cookie.

4. Which ingredients are known as dough improvers/conditioners ? Explain functions of oxidizing and reducing agents in dough system and in enhancing quality of bakery products.

5. Discuss the functions of milk and milk products, malt and anti-microbial agents in bakery products.

6. List major enzymes of wheat and explain their technological significance.

7. Discuss production, properties and functions of yeast in fermented bakery products.

8. Discuss the functions of salt and sweetening agents in bakery products.

Subject Code—2733-X

P.G.D.B.S.T. EXAMINATION

(Old Scheme)

(Re-appear)

PGDBST-03

QUALITY TESTING OF WHEAT FLOW AND BAKERY PRODUCTS

Time : 3 *Hours* *Maximum Marks :* 80

Note : Attempt any *Five* questions. All questions carry equal marks.

1. Describe principle and method of estimation of protein, ash, fat and starch damage in flour. Indicate the relationship of diastatic activity and maltose value.

2. Describe method and principle of estimation of gluten quantity. How is gluten quantity related to end use quality of bakery products ?

3. Discuss the importance of falling number test in influencing the quality of bakery products. Describe principle and method of falling number test.

4. Classify dough rheological instruments and indicate principle of operation of each category of instrument. Which instruments are known as recording dough mixers ? Describe procedure of farinograph to run a test on flour dough.

5. Which rheological measurements are recorded on extensograph and what is the importance of these measurements in assessing flour quality ? Describe procedure of extensograph to run a test on flour dough.

6. Discuss application and procedure of viscoamylograph in assessing dough properties.

7. Explain the importance of BIS/PFA standards for bakery ingredients and products. Specify standards for atta, maida and semolina.

8. Why is dough-raising capacity of yeast assessed ? Discuss method of assessing dough raising capacity of yeast in relation to wheat dough.

Subject Code—2734-X

P.G.D.B.S.T. EXAMINATION

(Old Scheme)

(Re-appear)

PGDBST-04

RHEOLOGY AND CHEMISTRY OF DOUGH

Time : 3 *Hours* *Maximum Marks :* 80

Note : Attempt any *Five* questions. All questions carry equal marks.

1. Explain the terms :
   (i) Dough rheology
   (ii) Shear stress and strain
   (iii) Viscometry
   (iv) Linear viscoelastic behaviour.

2. Explain the differences between empirical and fundamental testing of wheat dough. Define empirical and fundamental testing.

3. Explain the influence of gluten polypeptides on mixing characteristics of dough.

4. Discuss the basis of wheat gluten viscoelasticity. Discuss its importance in gas retention and bread making.

5. Explain the importance of oxidizing and reducing agents on rheology of dough.

6. Discuss the effects of water and yeast on dough rheology.

7. Explain the role of amylases and proteases enzymes on the rheological behaviour of the dough.

8. Give a brief account of importance of sugar and emulsifier in dough behaviour during processing.

Subject Code—2735-X

P.G.D.B.S.T. EXAMINATION

(Old Scheme)

(Re-appear)

PGDBST-05

BREAD INDUSTRY AND PROCESSES

Time : 3 *Hours* *Maximum Marks* : 80

Note : Attempt *Five* questions in all. Q. No. **1** is compulsory.

1. Tick, correct and justify :

(a) Sound and heavy grains have high water pickup rate than small kernels. (True/False)

(b) Strong wheat flour will have high/low mixing tolerance index value. (True/False)

(c) Albumin and globulins are storage proteins. (Yes/No)

(d) For spongue dough method strong/weak flour is required. (True/False)

(e) Amylase is leached from starch by heating starch below/above gelatinization temperature. (True/False)

(f) Keyholing is the phenomena of expanding side walls of bread due to high α-amylase. (True/False)

(g) In waxy cereals the amount of amylase in starch is 25-27%. (True/False)

(h) Wheat flour with low liquefaction no. produces good loaf breads because of high alpha-amylase enzyme. (True/False)

2. Give the phenomena of :

(a) Gelatinization

(b) Bread Staling

(c) Keyholing

(d) Development of gluten

(e) Maturation of flour.

3. (a) Why does the gluten proteins interact to form a strong elastic material ?

(b) What are the three most important quality characteristics of wheat/flour suitable for bread making ?

4. (a) How can you assess the quality of bread ?
   (b) Describe the microbial spoilage of bread. How can it be prevented ?

5. Write short notes on any *five* of the following :
   (a) Staling inhibitors
   (b) Multigrain bread
   (c) Bread improvers
   (d) Vital wheat gluten
   (e) Over mixing of dough
   (f) Gas Production and Gas Retention.

6. (a) Can bread of good volume be produced in a system containing no gluten ?
   (b) What is ADD process of bread making ? How is it different from traditional method of bread making ?

7. Highlight the status of bakery industry. Discuss the emerging technologies in bakery industry for production of variety breads.

8. (a) Enlist the ingredients required for bread making by describing their functions.
   (b) Explain the changes occur during mixing, fermentation and baking of bread loaf.

Subject Code—2736-X

P.G.D.B.S.T. EXAMINATION

(Old Scheme)

(Re-appear)

PGDBST-06

SOFT WHEAT PRODUCTS & PROCESSES

Time : 3 *Hours* *Maximum Marks :* 80

Note : Attempt any *Five* questions. All questions carry equal marks.

1. Explain the role of major ingredients in biscuits and cookie making.

2. Describe procedure to judge cake quality and the role of major ingredients in cake baking.

3. How do biscuits differ from crackers, cookies and cakes ? Classify cookies and discuss various types of cookies.

4. Why are different zones of temperature maintained to bake cookies and biscuits ? Discuss the importance of each temperature zone of baking in biscuit production.

5. Define Crackers. Discuss unit operations used in the processing of crackers.

6. Discuss unit operations used in the preparation of soft dough biscuits.

7. Classify cake and give their formulations and explain each category in brief.

8. Discuss different cake faults and explain ways to eliminate cake faults.