



PUNJAB BOARD OF TECHNICAL EDUCATION

21-A, Kashmir Block Allama Iqbal Town, Lahore

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Ref No. PBTE/R&D/2013/503

Dated:- 22-02-2013

To

All Concerned Principals,
Govt. College of Technology /
Affiliated Polytechnic Institutions with PBTE
Lahore.

Subject: **BIFURCATION / DIVISION OF THE MARKS OF THE SUBJECT "UNIT OPERATION-III (ST-314)" OF DAE SUGAR TECHNOLOGY (3RD YEAR)**

The bifurcation / division of the subject "Unit Operation-III (ST-314)" of DAE Sugar Technology has been made and will be available at PBTE website i.e. www.pbte.edu.pk (News & Updates Section) for the guidance of teachers and students for the DAE Examination 2013 and onward.

ST-314 UNIT OPERATION-III

Paper "A" (Course Contents / Topics) Marks = 75	Paper "B" (Course Contents / Topics) Marks = 75
A. Technology of Juice Evaporation & Concentration 1- Object of Evaporation and its Significance 2- Amount of Water to be Evaporated 3- Principles of Multiple Effect Evaporation 4- Choice of Number of Effects 5- Impact of Sedimentation (Scaling) on the Efficiency of Evaporator 6- Methods of Scale Removal 7- Performance of Multiple Effect Evaporation 8- Possible Causes of Unsatisfactory Operations of a Multiple Effect Evaporator 9- Factors Affecting the Heat Transfer 10- Heat Transmission in an Evaporator 11- Optimum Heating Level of Calandria 12- Steam Economy and Efficient Evaporation 13- Types of Multiple Effect Evaporators and their Characteristics 14- Evaporator Instrumentation Control Systems	B 5- Methods of Grain Formation (Seeding) 6- Character of Grain Formation 7- Development of Grains (Crystals) to Final Size/Shape by Feeding and Boiling 8- False Grain (Secondary Grain) and Conglomestrate Formation 9- Pan Boiling Systems 10- Types of the Vacuum Pans and their Characteristics 11- Vacuum Pan Control Systems 12- Crystallization in Motion 13- Types of Centrifugal Machines and their Characteristics 14- Purging and Massecuite Conditioning C- Drying, Cooling, Packaging and Storage of Sugar; Raw and Refined 1- Drying and Cooling of Raw Sugar 2- Packaging of Raw and Refined Sugar 3- Bulk Storage in Bags and Silos 4- Caking of Raw Sugar

Paper "A" (Course Contents / Topics) Marks = 75	Paper "B" (Course Contents / Topics) Marks = 75
<p>15- Evaporator Calculation</p> <p>16- Entrainment Losses and their Control Measures</p> <p>17- Type of Entrainment Separator and their Characteristics</p> <p>18- Advantages and Disadvantages of Barometric Condenser</p> <p>19- The Location and Venting of Non-Condensable Gases</p> <p>B- Technology of Sucrose Crystallization and Purging</p> <p>1- Introduction</p> <p>2- General Aspect of Crystallization</p> <p>3- Kinetics of Sucrose Crystallization</p> <p>4- Vacuum Pan Control Instrument</p>	<p>C</p> <p>5- Relationship between Raw Sugar Quality and its refining Properties.</p>

It is requested that all concerned teachers and students may be informed accordingly.

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SECRETARY

CC To.

- 1- PS to Chairman, PBTE, Lahore.
- 2- PA to GM Academics, TEVTA, Lahore.
- 3- PA to Secretary, PBTE, Lahore.
- 4- PA to Controller of Examinations, PBTE, Lahore.
- 5- The Manager Curriculum, TEVTA, Lahore.
- 6- The Senior Research Officer, PBTE, Lahore.
- 7- The Deputy Controller of Examinations (Conduct), PBTE, Lahore.
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- 16- The Assistant Controller of Examinations (P&P-II), PBTE, Lahore.
- 17- The Web Administrator, PBTE, Lahore for Web Hosting.