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BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

DCHST – FOURTH SEMESTER EXAMINATION

SUGAR TECHNOLOGY CHEMICAL CONTROL

Time : 3 Hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Define the terms *(a)* MIXED JUICE and *(b)* FINAL MOLASSES.

2. Explain SUGAR LOSSES in POL BALANCE.

3. Calculate OVERALL EXTRACTION.

DATA :

POL in SUGAR PRODUCED % CANE = 11.2

POL% CANE = 13.70

4. Explain the determination of POL% BAGASSE BY use of RAPI-POL EXTRACTOR.

5. **DATA :**

BAG.%CANE = 30.00

BRIX.%BAG = 3.5

MOISTURE% BAG = 49.50

CALCULATE FIB. % CANE

6. Define B.F.C.W. % FIBRE.

7. Explain VIRTUVAL PURITY OF MOLASSES.

8. CALCULATE the quantity of NON-SUGARS PRESENT in 1500 tons of M.J.

BX. % M.J. = 15.80

Pty. of M.J. = 81.50

9. Explain the importance of MILL SANITATION.

10. Pty. of M.J. = 84.75

Pty. of L.M.J. = 71.12

Pty. of P.J. = 88.95

Calculate ERQV of *(a)* M.J. and *(b)* L.M.J.

PART—B

8×5=40

Instructions : (1) Answer **all** questions.
(2) Each question carries **eight** marks.
(3) If any data is not given assume your own relevant data.

11. *(a)* Derive the S.J.M. formula for AVAILABLE SUGAR.

(OR)

(b) **DATA :**

CANE CRUSHED	=	6800 MT
MJ. EXTRACTED	=	5900 MT
A.W.	=	130 MT
BX% P.J.	=	16.50
POL% M.J.	=	14.80
PURITY OF L.M.J.	=	70.50
POL% BAG.	=	3.90
MOISTURE% BAG	=	50.50

Calculate *(a)* M.E and *(b)* R.M.E.

12. *(a)* By stock taking procedure, calculate (i) AVAILABLE SUGAR and (ii) AVAILABLE MOLASSES.

Material	BX.%	POL%	SP. GRAVITY	VOLUME
A.M/C	90.22	80.83	1.48	1200 m^3
F.M.	91.67	31.08		

(OR)

(b) List various chemicals used in sugar industry.

13. *(a)* From the following DATA, calculate ACTUAL to THEORETICAL MOLASSES% CANE.

DATA :

BX.% M.J.	=	16.40
M.J. Pty.	=	83.88
M.J.% Cane	=	90.78
P.J. Pty.	=	86.05
POL% F.C.	=	1.35
F.C.% Cane	=	3.65
BX.% F.M.	=	94.84
Pty. of F.M.	=	31.30
Actual F.M.% Cane	=	3.21

(OR)

(b) Define brix, pol and purity of cane juices.

14. *(a)* From the following data :

Calculate *(i)* B.H.R., *(ii)* B.B.H.R. and *(iii)* B.H.P.

DATA :

BX% M.J.	=	15.24
POL% M.J.	=	13.94
M.J.%Cane	=	91.00
REC.%Cane	=	9.84
POL.%SUGAR	=	98.78
MOISTURE% Sugar	=	0.044

(OR)

(b) List various microorganisms that cause losses to the sugar.

15. *(a)* Calculate THEORETICAL RECOVERY% CANE from the following data.

DATA :

CANE CRUSHED	=	4800 MT
No. of M.J. Tanks Obtained	=	700
Wt. of M.J./Tank	=	6.5 MT
DIRT CORRECTION %M.J.	=	0.34
F.C. % CANE	=	3.52
BX. %M.J.	=	15.50
POL% M.J.	=	13.60
POL% F.C.	=	1.95
Pty. of F.M.	=	31.50
Pty. of CI.J.	=	81.50

(OR)

(b) Explain the importance of CHEMICAL CONTROL.

PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) The question carries **ten** marks.

(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. From the following DATA, calculate

(a) A.W.%FIBRE

(b) A.W. EXTRACTED IN M.J. % cane

(c) A.W. EXTRACTED in M.J. % A.W. on cane.

DATA :

A.W.% cane = 21.50

M.J. % cane = 92.00

FIB. % cane = 12.80

BX. % P.J. = 17.80

BX. % M.J. = 16.90

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