CINEC CAMPUS
Beyond A Graduate

PAST PAPERS

Faculty	*Department / Section/Division*
Not Applicable	*Learning Resource Centre*

Past Papers

Faculty of health science

Bachelor of Science honours in cosmetic science

Year 3 – Semester I

Document Control & Approving Authority	*Senior Director – Quality Management & Administration*		
1st Issue Date: 2017.011.30	*Revision No.00*	*Revision Date: 12.01.2023*	*Validated by: Librarian*

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences
Bachelor of Science Honours in Cosmetic Science
Cosmetic Technology I
BCS 3143
Batch 04
3rd year 1st Semester
End Semester Examination SEQ

Date: 07th March 2023
Time: 9.00 am – 12.00 pm (Three hours)

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **all** questions.
- You should write legibly in black or blue ink.

01. **(100 marks)**

1.1 List **05** key factors to consider when designing a vacuum transfer system. (20 marks)

1.2 Describe the functionalities of the below systems. (30 marks)

1.2.1. Dust explosion zones
1.2.2. Managing systems of unintended outputs (LEV, and dust extractors)
1.2.3. Gravitational powder transfer systems

1.3 Pharmaceutical finished product XYZ needs to be conveyed to an overhead tank using a pressure pump. The batch size is 5000 L and this needs to be designed to be transferred within 5 mins. The full length of the pipe to transfer the excipient is 20 m with a pressure drop of 700 Pa/m. The total height between the excipient tank and the manufacturing tank is 15 m.

The density of the excipient is $1075 kgm^{-3}$

Gravitational acceleration (g) = $9.81 ms^{-2}$

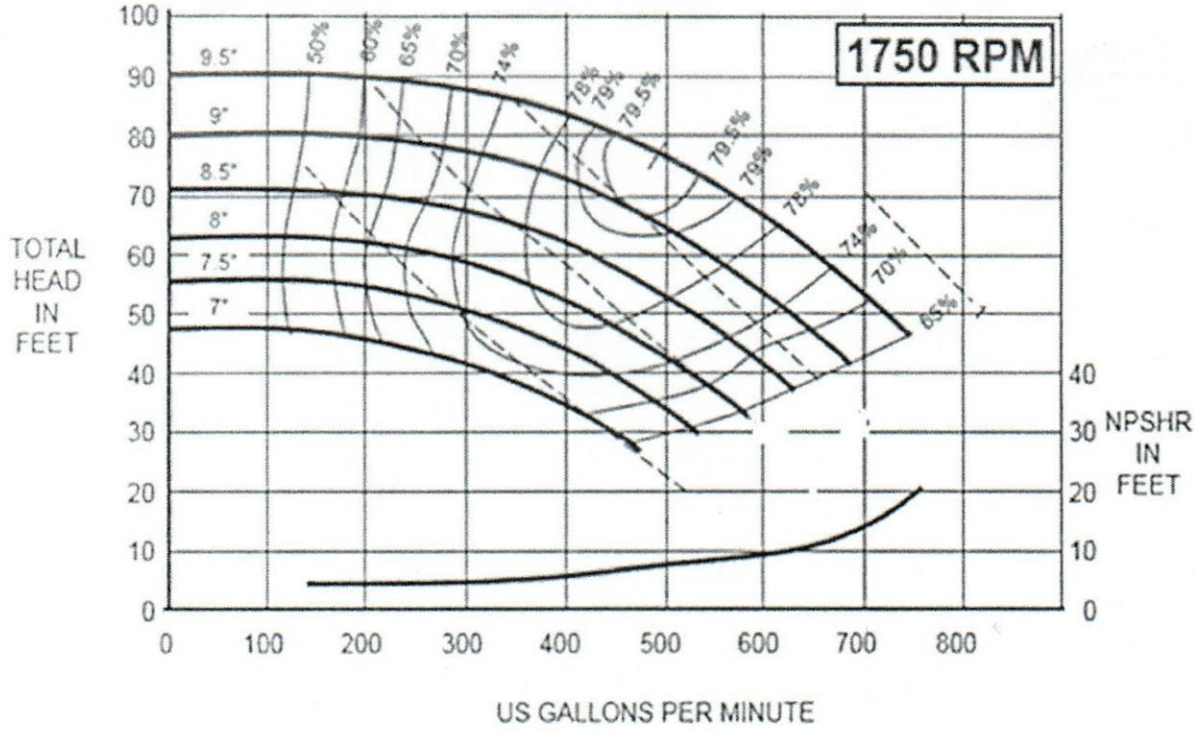
1m = 3.28ft

1 GPM (Gallons per minute) =3.79 lpm (Liters per min)

The pump curve is given below.

1.3.1. Find the pump efficiency from the pump curve diagram. (25 marks)
1.3.2. Find the required pump power using the equations (P). (25 marks)

$P(Power) = Q^* \Delta P / \eta$
$\Delta P = \rho gh + \Delta P1 * L$



02. **(100 marks)**

2.1 List the **03** different zones in a solubility curve. (20 marks)

2.2 Briefly describe the types and the mechanism of continuous crystallization. (20 marks)

2.3 Describe the following **02** types of crystallization. (30 marks)

2.3.1. Crystallization using Cooling

2.3.2. Crystallization using the addition of a new solvent to reduce solubility at a given temperature

2.4 Outline the crystallization process of **01** of the industrial crystallizers. (30 marks)

03. **(100 marks)**

3.1 State **03** commercial applications of using centrifugation systems in the pharmaceutical industry. (15 marks)

3.2 Briefly describe the following. (20 marks)

3.2.1. Fixed angle rotors

3.2.2. Ultracentrifugation

3.3 Describe **01** type of industrial centrifuges. (30 marks)

3.4 Pharmaceutical suspension contains solid spherical particles of diameter 1×10^{-2} mm which are to be sedimented using a continuous centrifuge.

3.4.1. Calculate U_t. (15 marks)

$$U_t = \frac{d_p^2(\rho_s - \rho_f)g}{18\mu}$$

3.4.2. What is the maximum possible feed rate to remove the solid particles completely? (10 marks)

3.4.3. Why do you need to limit the feed rate below this value? (10 marks)

Data;
Particle density = 1200 kg/m3
Liquid density = 1000 kg/m3
Liquid viscosity = 1.1 x 10-3 Pa. S
Length of the centrifuge = 150 mm
Outer liquid radius = 24 mm
Inner liquid radius = 8 mm
Speed of the centrifuge = 500RPM (rev per min)
RPM = ω * 60 / 2π
Ln (3) = 1.09

For complete separation:

$$t_s \leq t_R$$

Critical condition:

$$t_s = t_R$$

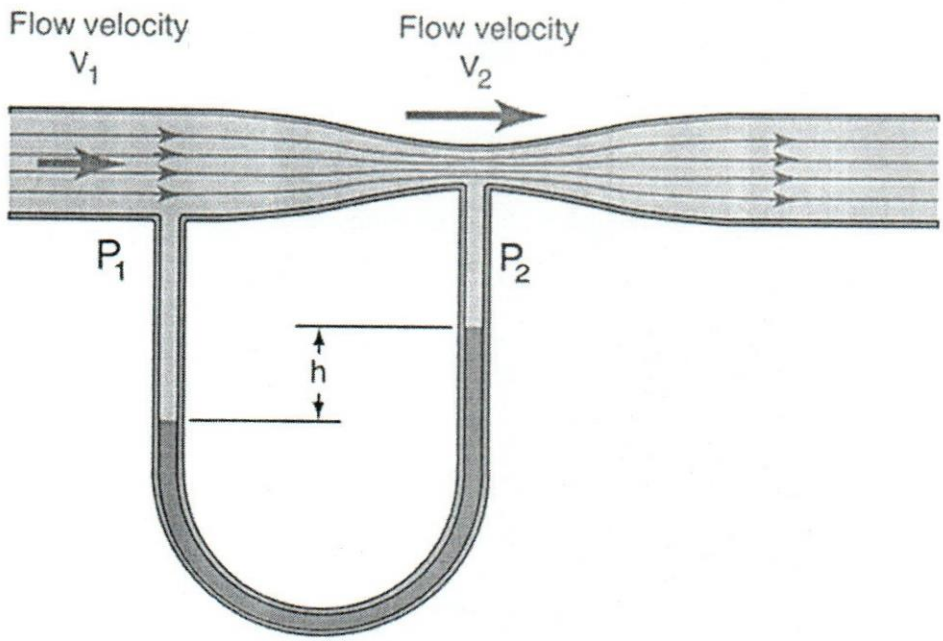
$$\frac{g \ln(r_B / r_A)}{U_t \omega^2} = \frac{\pi(r_2^2 - r_1^2)l}{Q}$$

$$Q = \frac{U_t \omega^2 \pi(r_2^2 - r_1^2)l}{g \ln(r_2 / r_1)}$$

04 **(100 marks)**

4.1 Draw the flow behavior of all **03** flow types according to the motion of the fluid and describe its characteristics. (30 marks)

4.2 Derivate the following equations for the Venturi meter according to the diagram given below.



D1= Diameter of Inlet.
D2= Diameter of the throat.
A2= Throat area in m2.
P1= Pressure at the inlet in N/m2.
P2= Pressure at the throat in N/m2.
v1= Velocity at inlet in m/sec
v2= Velocity at throat in m/sec.
h= Pressure heads.

4.2.1. State Bernoulli's equation. (10 marks)

4.2.2. Derivate the equation for inlet velocity of Venturi meter, $V_1 = \sqrt{\frac{2(P_1-P_2)}{\rho[\left(\frac{A_1}{A_2}\right)^2-1]}}$ (40 marks)

4.2.3. Derivate the equation for the theoretical discharge of Venturi meter, $Q = \frac{A_1A_2}{\sqrt{A_1^2-A_2^2}}\sqrt{2gh}$ (20 marks)

05 **(100 marks)**

5.1 State the theory of filtration. (10 marks)

5.2 Describe **01** type of filtration model with the diagram. (30 marks)

5.3 The pressure drop across an element of cake thickness can be predicted from the laminar term of Ergun equation as follows:

$$\Delta P_C = \frac{150\mu Lv(1-\varepsilon)^2}{\emptyset^2\varepsilon^3 D_P^2}$$

5.3.1. Differentiate from Cake thickness (L). (20 marks)

5.3.2. State the equation for mass of element of cake. (dm_c) (20 marks)

5.3.3. For the incompressible cakes, if the constant value α_L is given by: $\frac{150(1-\varepsilon)}{\emptyset^2\rho_p\varepsilon^3 D_P^2}$

Derive the equation. $dp_c = \frac{\mu v \alpha_L}{A} dm_c$

(20 marks)

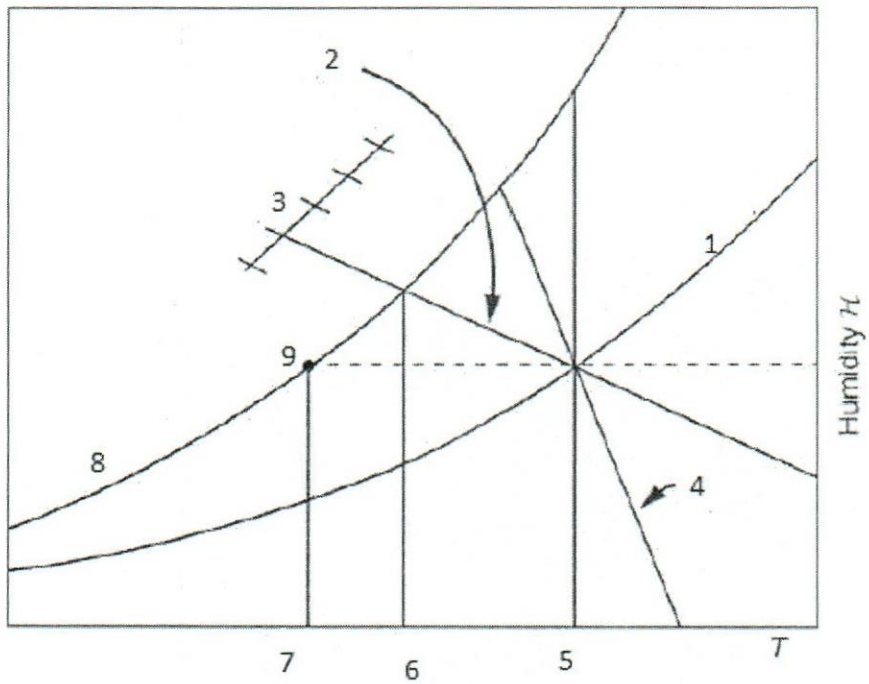
$\mu = Dynamic\ viscosity\ of\ fluid$
$v = flow\ velocity$
$\varepsilon = porosity\ of\ layer$
$\emptyset = particle\ sphericity$
$D_p = Diameter\ of\ particles$
$\rho_p = Particle\ density$
$A = cross\ sectional\ area\ of\ cake$

06 **(100 marks)**

6.1 What is the importance of dew point temperature and relative humidity in the pharmaceutical industry? (10 marks)

6.2 Describe common issues that can arise from poor humidity control in the pharmaceutical industry. (30 marks)

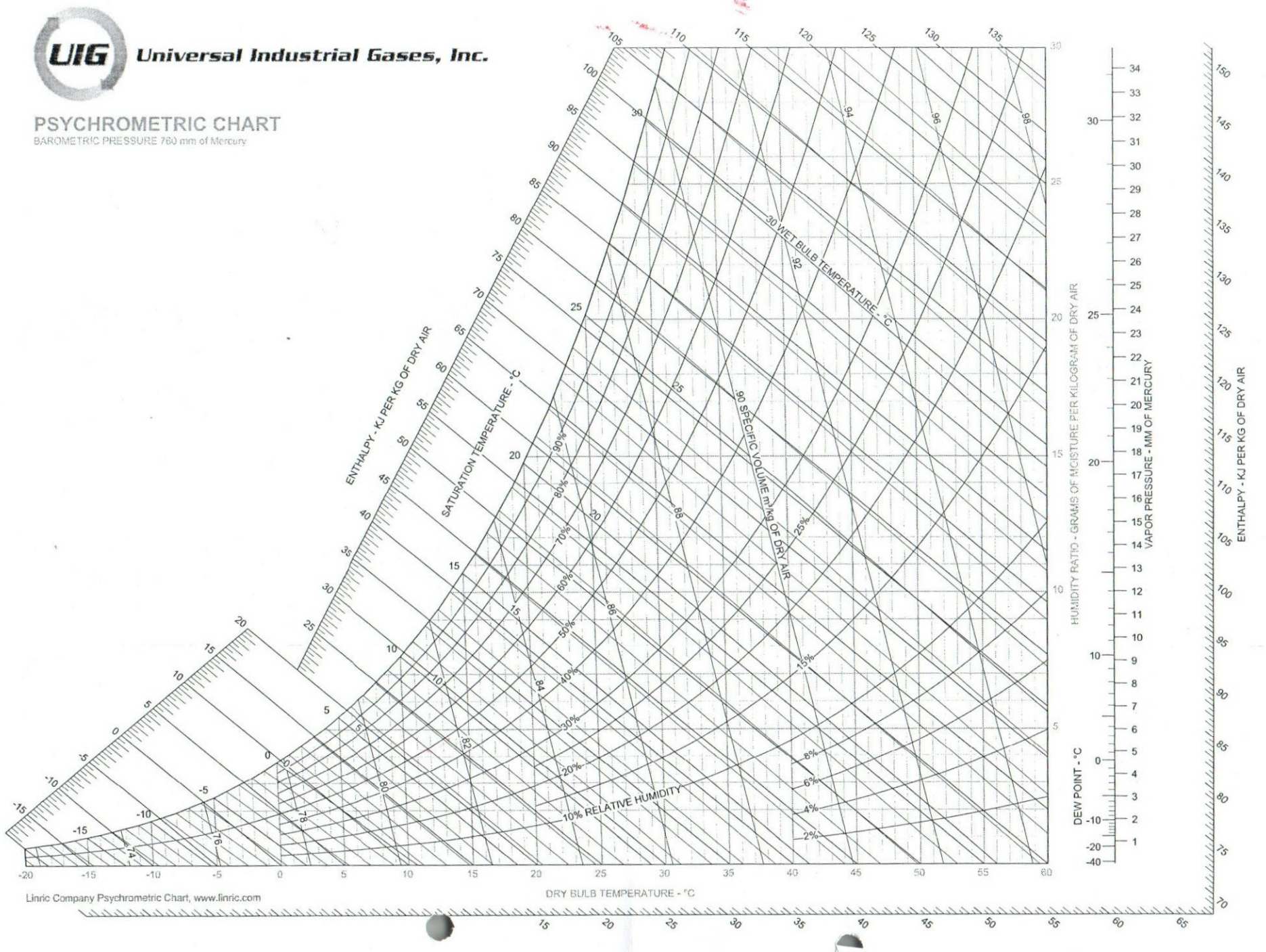
6.3 Name each line and curve from 1 to 9 in the below psychrometric chart. (30 marks)



6.4 By using the given psychrometric chart,

6.4.1. If the dry bulb temperature is 15^0C and the relative humidity is 60%, what is the Dew point temperature? (15 marks)

6.4.2. How much heat energy (enthalpy) does air contain at a dry bulb temperature of 22^0C at saturation? (15 marks)


Universal Industrial Gases, Inc.
PSYCHROMETRIC CHART
BAROMETRIC PRESSURE 760 mm of Mercury
ENTHALPY - KJ PER KG OF DRY AIR
SATURATION TEMPERATURE - °C
WET BULB TEMPERATURE - °C
SPECIFIC VOLUME m³/KG OF DRY AIR
10% RELATIVE HUMIDITY
HUMIDITY RATIO - GRAMS OF MOISTURE PER KILOGRAM OF DRY AIR
VAPOR PRESSURE - MM OF MERCURY
DEW POINT - °C
ENTHALPY - KJ PER KG OF DRY AIR
DRY BULB TEMPERATURE - °C
Linric Company Psychrometric Chart, www.linric.com

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CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences
B.Sc. (Hons) in Cosmetic Science
BCS 3153 – Cosmetic Technology II
Batch - 04
3rd year 1st semester
End Semester SEQ Examination

Date : 02nd March 2023
Time : 9.00 am to 12. 00 pm

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.

MATERIALS REQURIED

- You may use a scientific calculator. This must not be programmable and may be inspected during the examination. Programmable calculators, PDAs and mobile phones are not permitted in the examinations.

01. **(100 marks)**

1.1. State **03** unique features of aerosol dosage forms. (15 marks)
1.2. State **05** cosmetically important aerosol formulations (15 marks)
1.3. Briefly explain the advantages and disadvantages of aerosol as a dosage form. (30 marks)
1.4. Write a brief description of following with respective to cosmetic aerosol dosage form. (40 marks)

1.4.1. Aerosol formulation components
1.4.2. Cold filling

02. **(100 marks)**

2.1. State **05** factors affecting trans dermal drug delivery. (15 marks)
2.2. State how Transdermal Delivery System defer from conventional dermatological preparation (15 marks)
2.3. Compare and contrast Matrix and Reservoir systems of Transdermal Patches. (20 marks)
2.4. List **05** advantages of Transdermal Drug Delivery Systems. (20 marks)
2.5. Briefly explain the following with respective examples. (30 marks)

2.5.1. Chemical enhancers
2.5.2. Iontophoresis
2.5.3. Sonophoresis

03. **(100 marks)**

3.1. List down **02** types of containers used in cosmetic industry. (10 marks)
3.2. State **05** requirements of an ideal containers. (15 marks)
3.3. State **03** types of packaging in cosmetic products along with examples. (15 marks)
3.4. Briefly explain the composition of glass materials used in cosmetic packaging. (25 marks)
3.5. "A packaging system must protect the cosmetic products without altering the composition of the product until the last dose is removed." Discuss this statement with explain drug-plastic considerations. (35 marks)

04. **(100 marks)**

4.1. Name **04** raw materials used in soap production. (20 marks)
4.2. What the observations that can be obtained when the INS factor increases? (15 marks)
4.3. State **03** basic methods of soap formulation in cosmetic industry with their saponification temperature. (15 marks)
4.4. Briefly describe the chemistry of soap formulation. (25 marks)
4.5. List the steps in finishing process in soap formulation (25 marks)

05. **(100 marks)**

5.1. What are the factors affecting the partition coefficient? (10 marks)
5.2. What is isosteres? (10 marks)
5.3. "Complexations reduce the rate of absorption but not affect the availability active molecules". Comment on this statement. (15 marks)
5.4. List **03** ideal properties of a cosmetic product. (15 marks)

5.5. A formulator is required to formulate an Oil-in-Water (O/W) emulsion of the basic formula as follow.

Liquid paraffin	50 g
Emulsifying agents (required HLB 10.5)	05 g
Water to	100 g

5.5.1. Calculate the fraction of Tween 80 (HLB of 15) and Span 80 (HLB of 4.3) used to produce a physically stable liquid paraffin emulsion. (20 marks)
5.5.2 Describe **03** factors that should be considered when formulating a cosmeceutical suspension. (30 marks)

06. **(100 marks)**

6.1. Write **03** non-aqueous solvents used in cosmeceutical solution preparations. (15 marks)
6.2. State the undesirable consequences of preparation of syrups by heat. (15 marks)
6.3. Briefly describe **01** type of cosmeceutically important sweet/viscid solution. (20 marks)
6.4. State **04** disadvantages of cosmeceutical solutions as a dosage form. (20 marks)
6.5. Write short notes on following non-aqueous solutions. (30 marks)
6.5.1. Elixir
6.5.2. Liniments

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

Bachelor of Science Honours in Cosmetic Science
Herbal Cosmetic Science
BCS 3124
BCS Batch 02
3rd year 1st Semester

End Semester Examination SEQ

Date: 28th February 2023
Time: 9.00 a.m. – 12.00 p. m.

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.

Question 01 **(100 marks)**

1.1 State five characteristics features of the plant kingdom members. (10 marks)
1.2 State three types of compound leaves. (6 marks)
1.3 Define the following terms.
1.3. 1 Phyllotaxy (10 marks)
1.3.2 Herbology (10 marks)
1.3.3 Crude drugs (10 marks)
1.4 What are the different ways of drug classification systems? (14 marks)
1.5 Discuss about 04 different ways that can be used to classify organized and unorganized drugs. (40 marks)

Question 02 **(100 marks)**

2.1 What are the different types of natural excipients? (24 marks)
2.2 Discuss about five different types of natural excipients. (25 marks)
2.3 Explain the merits and demerits of natural excipients. (30 marks)
2.4 What are the main steps of the post-harvest processing procedures? (06 mark)
2.5 Explain the primary processing step. (15 marks)

Question 03 **(100 marks)**

3.1 Explain the importance of plant derived drugs. (20 marks)

3.2 Explain a way to obtain a natural excipient from Isapghula Husk (*Plantago ovata*) (20 marks)
3.3 Discuss the use of three different plant species as pharmaceuticals. (60 marks)

Question 04 **(100 marks)**

Batch of raw material used for a extraction of a natural herbal ingredient to be added to a production of face cream was supplied to a cosmetic manufacturing facility. A sample of a raw material (Plant leaves) was sent the quality control laboratory to test for any adulterations.

4.1 What is a simple initial method that could be used to identify any adulteration? (25 marks)
4.2 If the R_f value of the spot observed from authentic sample of the above ingredient is 0.6 cm. When you spot an extract of the sample received as raw material, following data was recorded. Distance Solvent Travelled = 5 cm, distance solute travelled = 3 cm. Confirm whether the sample is adulterated. Briefly explain your answer. (50 Marks)
4.3 Name 3 types of adulteration. (12.5 Marks)
4.4 What the most advanced method of detection of adulteration? (12.5 Marks)

Question 05 **(100 marks)**

5.1 Name five vegetable oils used in cosmetics. (12.5 Marks)
5.2 What are the 2 types major lipids compounds found in a vegetable oil? (12.5 Marks)
5.3 Briefly explain the 3 ways of preventing rancidity (50 Marks)
5.4 Name 2 carbohydrates-based gums used in cosmetics. (12.5 Marks)
5.5 Briefly explain their use of above 2 gums mentioned in section. (12.5 Marks)

Question 06 **(100 marks)**

6.1 List 5 functional properties of Hyaluronic acid. (12.5 Marks)
6.2 To which class of primary metabolites Hyaluronic acid belongs to? (12.5 Marks)
6.3 What are 3 constituents in the skin which are mainly responsible for ageing of the skin? (12.5 Marks)
6.4 What are 3 enzymes responsible for the degradation of above 3 constituents of the skin? (12.5 Marks)
6.5 Name 5 mineral raw materials used in cosmetics (12.5 Marks)
6.6 What are the 4 heavy metals that must be tested in a final cosmetic product before registration and marketing? (12.5 Marks)
6.7 Briefly explain the letters **CI** followed by a numeric code found in a list of ingredients in some cosmetics. (25 Marks)

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CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

B. Sc. (Hons) in Cosmetic Science

BCS 3133
Dermatology- I
3rd Year 1st Semester

End Semester SEQ Examination

BCS 2nd Batch

Date	**: 21st February 2023**
Time	**: 9.00 a.m. – 12.00 p.m. (Three hours)**

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.

Question 1 **(100 marks)**

1.1 List four (04) characters important to identify the combination skin. (20 marks)

1.2 List four (04) characters important to identify the oily skin. (20 marks)

1.3 Write short notes on followings.

1.3.1 Stratum corneum (20 marks)

1.3.2 Melanocytes (20 marks)

1.4 Define following terms.

1.4.1 Hirsute (10 marks)

1.4.2 Glabrous (10 marks)

Question 2 **(100 marks)**

2.1 Name three main chemical components present in human skin. (15 marks)

2.2 What are the two primary forms of Melanin. (10 marks)

2.3 Describe the structure of sebaceous gland. (35 marks)

2.4 Describe the functions of sebum. (25 marks)

2.5 Write a short note on arrector pili. (15 marks)

Question 3 **(100 marks)**

3.1 List five (05) main causes for acne. (10 marks)

3.2 Write short notes on followings.

3.2.1 White heads (20 marks)

3.2.2 Black heads (20 marks)
3.2.3 Acne pustules (20 marks)
3.2 Describe the process of development and formation of acne. (30 marks)

Question 4 **(100 marks)**
4.1 What is psoriasis? (15 marks)
4.2. What are the general features of psoriasis? (15 marks)
4.3 Write short notes on followings.
4.3.1 Candidiasis (20 marks)
4.3.2 Cellulitis (20 marks)
4.4 Describe different types of folliculitis. (30 marks)

Question 5 **(100 marks)**
5.1 Describe the importance of Vitamin A on human skin. (25 marks)
5.2 Describe the importance of Vitamin E on human skin. (25 marks)
5.3 Describe the specific characters of skin in 40 to late 50 years old (25 marks)
5.4 Explain how pH of the skin importance for the protection role of it. (25 marks)

Question 6 **(100 marks)**
6.1 Describe the benefits of laser therapy. (20 marks)
6.2 Write a short note on followings.
6.2.1 Fractional laser resurfacing (20 marks)
6.2.2 Dermal filler (20 marks)
6.2.3 Chemical peeling (20marks)
6.3 Describe possible adverse effects of non-surgical nose shaping by fillers. (20 marks)

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences
Bachelor of Science Honors in Cosmetic Sciences
Cosmetic Technology I
BCS 3143
Batch 05
3rd year 1st Semester
End Semester Examination SEQ

INDEX NUMBER: .....

Date: 28th November 2023
Time: 9.00 am – 12.00 pm (Three hours)

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **all** questions.
- You should write legibly in black or blue ink.

01. **(100 marks)**

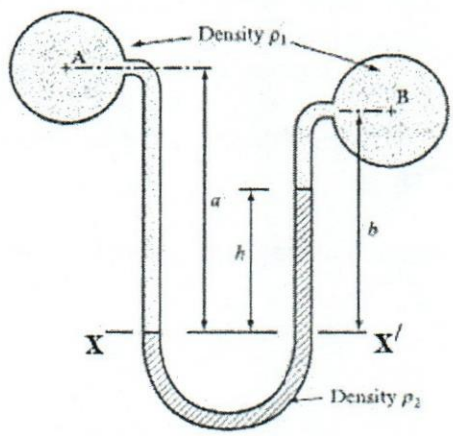
1.1.

1.1.1. What is a manometer? (10 marks)

1.1.2. Write down the classification of manometers. (10 marks)

1.1.3. Briefly describe the construction specialty of a single column manometer related to its intended usage. (20 marks)

1.2.A U-tube manometer measures the pressure difference between points A and B in a liquid with density ρ1. The U-tube contains mercury with density ρ2.



1.2.1. Write an equation for Pxx/ considering left hand side limb. (10 marks)

1.2.2. Write an equation for Pxx/ considering right hand side limb. (10 marks)

1.2.3. Calculate the difference of pressure if a = 1.5 m, b = 0.75 m and h = 0.5 m if the liquid at A and B is water (ρ_1=1000 kg/m^3) and $\rho_2 = 13.6\rho_1$, (g = 10 ms^{-2}). (20 marks)

1.3.The following tables show the parts of the in-process quality report and final quality report of a liquid formulation.

In-process quality report

Parameter	Specification	Result	Pass/Fail
pH	5.5 – 6.5 at 30 ±2°C	5.87 at 29.5°C	Pass
Viscosity	1000-1500 cP at 30 ±2°C	1250 cP at 35°C	Pass

Final quality report

Parameter	Specification	Result	Pass/Fail
pH	5.5 – 6.5 at 30 ±2°C	5.88 at 29.0°C	Pass
Viscosity	1000-1500 cP at 30 ±2°C	1770 cP at 29.2°C	Fail

1.3.1. Briefly describe the reason for the difference in viscosity readings in two reports. (20 marks)

02. **(100 marks)**

2.1. State the types of flow. (10 marks)

2.2. Reynolds Number is expressed as in the following equation.

$$Re = \frac{\rho V D}{\mu}$$

2.2.1. State the terms of the Reynolds number. (10 marks)

2.2.2. What is the reason for the Reynolds Number does not have any dimensions and units? (10 marks)

2.2.3. Differentiate flow types according to the Reynolds Number. (20 marks)

2.3.

2.3.1. State the Bernoulli's equation. (10 marks)

2.3.2. Water enters to a horizontal pipe of non-uniform cross-section with a velocity of 0.6 m/s and leaves from the other end with a velocity of 0.4 m/s. At the first end, pressure of water is 1600 N/m^2. Calculate the pressure of water at the other end. (Density of water = 1000 kg/m^3) (20 marks)

2.4. Describe the importance of using "Pressure relief valves" in the industry. (20 marks)

3.1. Write **five (05)** factors influencing the filtration rate. (10 marks)
3.2. State **four (04)** characteristics of filter aids. (20 marks)
3.3.
3.3.1. What is a filter media? (10 marks)
3.3.2. Briefly describe why glass wool is used as a special filter media in the industry. (20 marks)
3.4. Describe the construction of an industrial reverse osmosis plant by using a diagram. (40 marks)

04. **(100 marks)**

4.1. State **three (03)** merits and demerits of material handling systems in the pharmaceutical industry. (15 marks)
4.2. Classify the gas handling systems. (20 marks)
4.3. State **three (03)** types of dynamic pressure pumps. (15 marks)
4.4. Briefly describe **one (01)** type of dynamic pressure pump. (20 marks)
4.5. Describe the mechanism of action of a piston pump. (30 marks)

05. **(100 marks)**

5.1. Define adiabatic saturation temperature. (10 marks)
5.2. Inside the manufacturing facility of the pharmaceutical plant recommended RH range is 40 % - 60%. The following table shows the wet bulb and dry bulb readings at two different stages.

1.

Dry bulb reading	-63 °F
Wet bulb reading	-54 °F

2.

Dry bulb reading	70 °F
Wet bulb reading	68°F

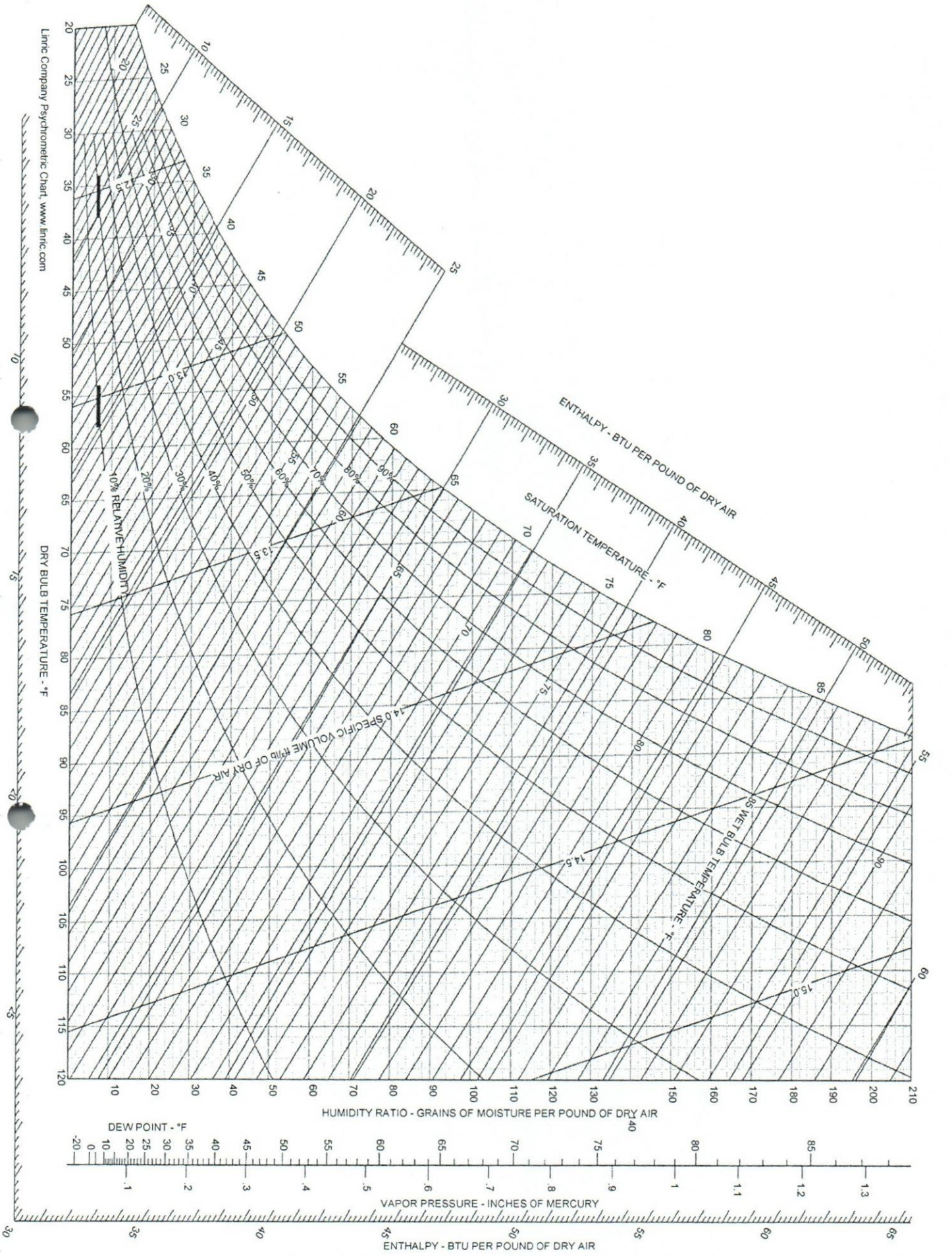
5.2.1. Find relative humidity values from the psychrometric chart related to the above two stages. (20 marks)
5.2.2. Comment on the above two stages separately concerning the ability to run a production process. (20 marks)
5.2.3. If there is an issue in environmental conditions at one of the above stages, what is the decision you can make as the production executive to carry out the production process correctly? (20 marks)
5.3. Describe the mechanism of action of the HVAC unit by using a diagram. (30 marks)

6.1. State **three (03)** types of rotors available in basic centrifuge machines. (15 marks)

6.2. State the types of sedimentation centrifuges and describe the principle, construction, and working process of one of them. (35 marks)

6.3. Briefly describe "crystal caking and its prevention". (20 marks)

6.4. Describe how a continuous crystallizer is different from a batch crystallizer. (30 marks)


Linric Company Psychrometric Chart, www.linric.com
DRY BULB TEMPERATURE - °F
ENTHALPY - BTU PER POUND OF DRY AIR
SATURATION TEMPERATURE - °F
10% RELATIVE HUMIDITY
14.0 SPECIFIC VOLUME ft³/lb OF DRY AIR
WET BULB TEMPERATURE - °F
HUMIDITY RATIO - GRAINS OF MOISTURE PER POUND OF DRY AIR
DEW POINT - °F
VAPOR PRESSURE - INCHES OF MERCURY
ENTHALPY - BTU PER POUND OF DRY AIR

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CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

BSC. (HONS) BIOMEDICAL SCIENCE/ BSC. (HONS) INDUSTRIAL PHARMACEUTICAL SCIENCE/ BSC. (HONS) COSMETIC SCIENCE

BMS 3113 - Pharmacology I

3rd Year 1st Semester

End Semester SEQ Examination

5th Batch

INDEX NUMBER: .....

Date	**: 27th of November 2023**
Time	**: 9.00 a.m. – 12.00 p.m. (Three hours)**

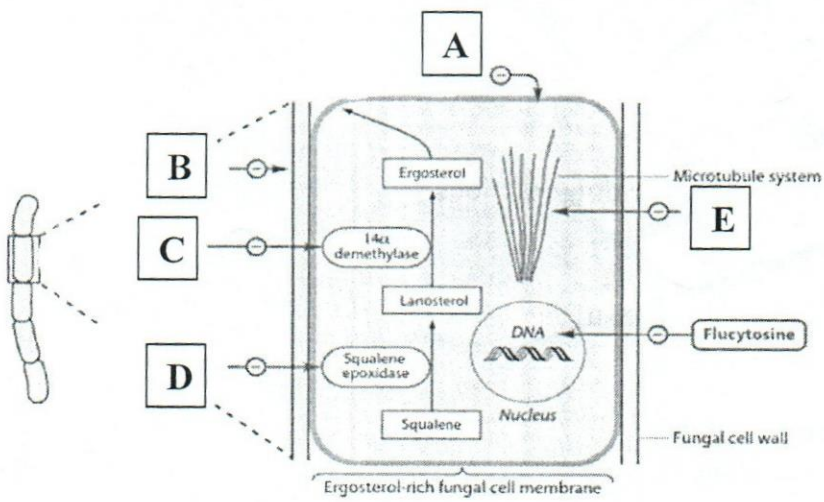
INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.
- You are not allowed to take out the examination paper

Question 1 **(100 marks)**

1.1 **Name** the drug class of 'Amphotericin'. (20 marks)

1.2 Below is an image from a fungus, **name the drugs** which are labeled from A to E. (25 marks)



1.3 **Name** 03 groups of antiviral drugs. (15 marks)

1.4 List **01 clinical uses** of the following drugs. (40 marks)

1.4.1 Loperamide

1.4.2 Scopolamine

1.4.3 Hyoscine

1.4.4 Lipofundin

Question 2 **(100 marks)**

2.1 List the **Clinical uses** of Aminoglycoside. (20 marks)

2.2 **List** the Sri Lankan drug regimen for tuberculosis. (40 marks)

2.3 State the **mechanism of action** and **one example** of drug for each of the following antihypertensive drug classes. (40 marks)

- 2.3.1 ACE Inhibitors
- 2.3.2 Alpha Blockers
- 2.3.3 Beta-blockers
- 2.3.4 Calcium Channel blockers

Question 3 **(100 marks)**

3.1 State the **mechanism of action** of atropine. (25 marks)

3.2 List **01 Clinical use** and **01 adverse effect** of the following diuretic subtypes (40 marks)

- 3.2.1 Carbonic Anhydrase Inhibitors
- 3.2.2 Loop diuretics
- 3.2.3 Thiazides
- 3.2.4 Potassium Sparing Diuretics

3.3 Describe **mode of action** of 'Omeprazole'. (25 marks)

Question 4 **(100 marks)**

4. 1 **Describe** the pharmacological concept of

- 4.1.1 First pass metabolism (25 marks)
- 4.1.2 Phase 01 metabolism (25 marks)
- 4.1.3 Bioavailability (25 marks)
- 4.1.4 First-order kinetics (25 marks)

Question 5

5.1 **Briefly describe** the **(100 marks)**

- 5.1.1 types of adverse drug reactions (25 marks)
- 5.1.2 drug interactions (25 marks)
- 5.1.3 Half-life of a drug (25 marks)
- 5.1.4 Phases of clinical trials (25 marks)

Question 6

6.1 State the **mode of action** of **(100 marks)**

- 6.1.1 Adrenaline (25 marks)
- 6.1.2 Warfarin (25 marks)
- 6.1.3 Aspirin (25 marks)
- 6.1.4 Alteplase (25 marks)

Library

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CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences
BSC. (HONS) COSMETIC SCIENCE

BCS 3124 Herbal Cosmetic Science
End Semester Examination SEQ
3rd Year 1st Semester
5th Batch

Date: 24th of November 2023
Time: 09.00 a.m – 12.00 p.m (Three Hours)

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.

Question 01 **(100 marks)**

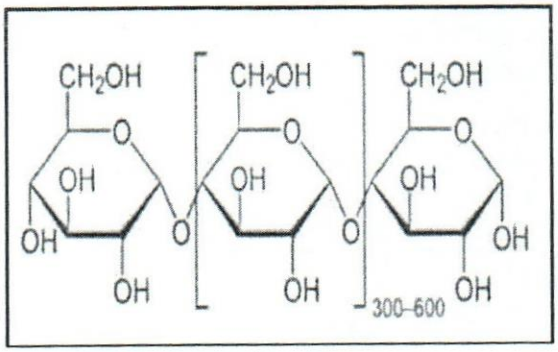
1.1 Define the term "Adulteration". (10 Marks)
1.2 State the main difference between intentional and unintentional adulteration. (15 Marks)
1.3 List **five (05)** different evaluation methods of adulteration. (15 Marks)
1.4 Describe the different methods of adulteration. (30 Marks)
1.5 Describe **five (05)** different ways of intentional adulteration can occur with examples. (30 Marks)

Question 02 **(100 marks)**

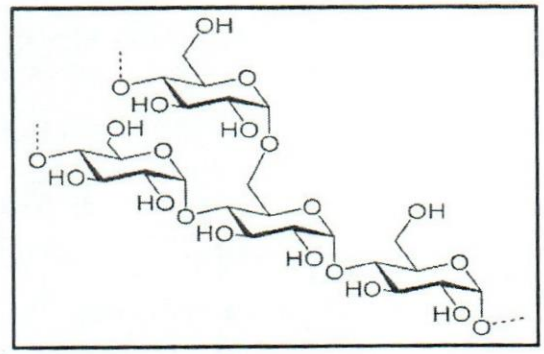
2.1 Write the main difference between fixed oils and fat, based on their physical properties. (10 Marks)
2.2 The following table contains the cosmeceutical important lipid sources. Complete the table. (40 Marks)

Name of the lipid	Biological Source (Write the Scientific name)	One cosmetic use
Castor oil	*(a)*	*(b)*
(c)	*Olea europoea*	*(d)*
Bees wax	*(e)*	*(f)*
(g)	*Sesamum indicum*	*(h)*

2.3 Starch is made as a mixture of the following two molecules (**A** and **B**). Identify the molecules **A** and **B**. (15 Marks)



A

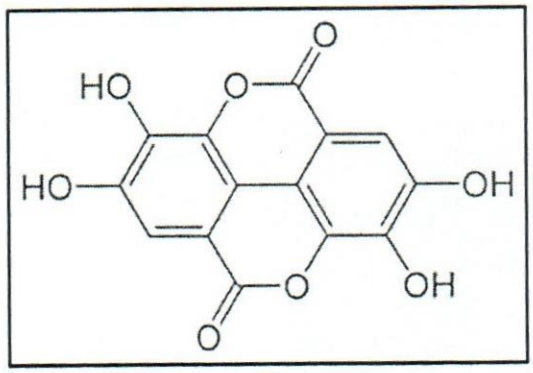


B

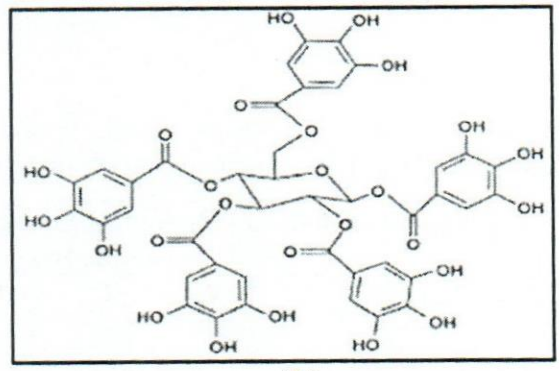
2.4 List **three (03)** differences between molecule **A** and **B** mentioned in 2.3. (15 Marks)
2.5 Describe the cosmeceutical use of different carbohydrates used in cosmetic industry. (20 Marks)

Question 03 **(100 marks)**

3.1
3.1.1 List **two (02)** major groups of tannins. (10 Marks)
3.1.2 Briefly describe the classification of tannins according to the Goldbeaters skin test. (20 Marks)
3.1.3 Name the following tannin compounds mentioned as **X** and **Y**. (20 Marks)



X



Y

3.2 Define following terms of crude drugs classification. (20 Marks)
3.2.1 Morphological classification
3.2.2 Chemo-taxonomical classification
3.3 Describe the importance of plant derived drugs. (30 Marks)

Question 04 **(100 Marks)**

4.1 Define the term Herbal Cosmetics. (10 Marks).
4.2 State **five (05)** major categories of herbal cosmetics. (20 Marks)
4.3 Discuss **three (03)** uses of Calcium as a mineral in cosmetic industry. (30 Marks)
4.4 Write **four (04)** benefits of mineral make up. (20 Marks)
4.5 List **four (04)** base powders used in mineral makeup (20 Marks)

Question 05 **(100 Marks)**

5.1 Write **two (02)** examples for Olio resins (10 Marks)
5.2 Describe chemical and physical properties of resins. (30 Marks)
5.3 List **five (05)** isolation methods of resins along with examples. (25 Marks)
5.4 Write **two (02)** examples for the following natural excipients. (15 Marks)
- 5.4.1 Disintegrants
- 5.4.2 Binders
- 5.4.3 Sweeteners

5.5 State **four (04)** ideal properties of diluents used in cosmeceutical formulations. (20 Marks)

Question 06 **(100 Marks)**

6.1 What is the main objective of sorting process in the post- harvesting processing procedures? (10 Marks)
6.2 Briefly describe parboiling process for storage and preparation of herbal drugs for commercial market. (25 Marks)
6.3 List **three (03)** Purposes of primary processing of herbal cosmetic products (15 Marks)
6.4 What are the special conditions in sweating process? (15 Marks)
6.5 Describe the storage conditions of herbal cosmetic products. (35 Marks)

CINEC CAMPUS
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Faculty of Health Sciences
Bachelor of Science (Hons) in Cosmetic Science
BCS 3153
Cosmetic Technology II
Batch - 05
3rd year 1st semester
End Semester SEQ Examination

INDEX NUMBER .....

Date : 22nd November 2023
Time : 9.00 am to 12. 00 pm

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.

MATERIALS REQURIED

- You may use a scientific calculator. This must not be programmable and may be inspected during the examination. Programmable calculators, PDAs and mobile phones are not permitted in the examinations.

01. **(100 marks)**

1.1. State **03** factors affecting the effectiveness of aerosol dosage forms. (15 marks)
1.2. State **05** cosmetically important aerosol formulations (15 marks)
1.3. Briefly describe the advantages and disadvantages of aerosol as a dosage form. (30 marks)
1.4. Write a brief description of following with respective to cosmetic aerosol dosage form. (40 marks)

1.4.1. Types of aerosol systems
1.4.2. Cold filling

02. **(100 marks)**

2.1. State **03** examples for penetration enhancers used in trans dermal drug delivery systems. (15 marks)
2.2. Write **03** design objectives of trans dermal drug delivery systems. (15 marks)

2.3. Compare and contrast Matrix and Reservoir systems of Transdermal Patches. (20 marks)
2.4. List **05** ideal properties of penetration enhancers. (20 marks)
2.5. Briefly explain the following with respective examples. (30 marks)
2.5.1. Chemical enhancers
2.5.2. Iontophoresis

03. **(100 marks)**

3.1. Draw **03** symbols on cosmetic packages and labels. (15 marks)
3.2 List **03** evaluation methods of packaging material. (15 marks)
3.3. State **04** types of glass containers used in cosmetic packaging. (20 marks)
3.4 Briefly describe drug - plastic consideration. (20 marks)
3.5. Describe advantages and disadvantages of plastic packaging materials. (30 marks)

04. **(100 marks)**

4.1 Classify cosmetics according to their functions. (10 marks)
4.2 Write the reaction between coconut oil and sodium hydroxide. (10 marks)
4.2. Name **03** raw materials used in soap production. (15marks)
4.3 Briefly describe the following terms. (20 marks)
4.3.1 Iodine number
4.3.2 Saponification value
4.4. Describe **03** basic methods of soap formulation in cosmetic industry. (45 marks)

05. **(100 marks)**

5.1 List **05** ideal properties of cosmetics. (25 marks)
5.2 What are the **05** physical properties affected by H - bonding? (25 marks)
5.3 Briefly describe the hydrophilic lipophilic balance value considered in formulation of pharmaceutical emulsion. (20 marks)
5.4 Following is the formula for Oil-in-Water type emulsion and the related HLB values.

		HLB
Beeswax	15 g	9
Lanolin	10 g	12
Solid paraffin	20 g	10
Cetyl alcohol	05 g	15
Emulsifier	02 g	
Preservative	0.2 g	
Paint	q.s.	
Purified water q.s	100 g	

5.4.1. Calculate the HLB value contributed by each oil-like component and the total HLB value of the emulsion contributed by the oil phase. (10 marks)
5.4.2. Calculate the percentage of hydrophilic and hydrophobic surfactants respectively to Obtain with the required emulsifier system. (15 marks)
Note: HLB value of hydrophilic surfactant is 14.3
HLB value of hydrophobic surfactant is 5

5.4.3. Calculate the weight of hydrophilic and hydrophobic surfactants respectively to be added to the emulsion. (05 marks)

Q6. **(100 marks)** 00012

6.1 State the composition of syrup USP and syrup BP. (15 marks)

6.2 Briefly describe the undesirable consequences of the preparation of syrup by heat. (20 marks)

6.3. State the classification of non-aqueous solutions. (20 marks)

6.4. Compare the flocculated and deflocculated suspensions. (20 marks)

6.5 Describe the function of electrolytes for use as a flocculating agent in preparation of suspensions. (25 marks)

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

B. Sc. (Hons) in Cosmetic Science

BCS 3133
Dermatology- I
3rd Year 1st Semester

End Semester SEQ Examination

BCS 3rd Batch

Date	**: 20th November 2023**
Time	**: 9.00 a.m. – 12.00 p.m. (Three hours)**

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.

Question 1 **(100 marks)**

1.1 Name four (04) active ingredients in chemical peel products. (20 marks)

1.2 Describe chemical peeling. (30 marks)

1.3 List four (04) characters of ideal rhinoplasty fillers. (20 marks)

1.4 Describe possible adverse effects of non-surgical nose shaping by fillers. (30 marks)

Question 2 **(100 marks)**

2.1 Define following terms related to the laser therapy.

2.1.1 Ablative laser therapy (15 marks)

2.1.2 Non-ablative laser therapy (15 marks)

2.2 List four (04) benefits of laser therapy. (20 marks)

2.3 Describe the advantages of blue LED treatment. (25 marks)

2.4 Describe mechanisms of laser hair reduction. (25 marks)

Question 3 **(100 marks)**

3.1 Write a short note on dermabrasion. (25 marks)

3.2 Describe the differences between dermabrasion and microdermabrasion. (25 marks)

3.3 Write a short note on dermal filler. (25 marks)

3.4 Describe importance of hyaluronic acid for skin. (25 marks)

Question 4 **(100 marks)**

4.1 List two (02) biochemical component present in human skin. (10 marks)

4.2 Describe changes in different skin structure with aging. (40 marks)
4.3 Describe the specific characters of skin in following ages.
4.3.1 Baby's' skin (25marks)
4.3.2 40 to late 50 years old (25 marks)

Question 5 **(100 marks)**

5.1 List different types of psoriasis. (20 marks)
5.2 Compare boils (furuncles) and carbuncles. (20 marks)
5.3 Describe different types of folliculitis. (30 marks)
5.4 Describe the importance of Vitamin A on human skin. (30 marks)

Question 6 **(100 marks)**

6.1 Write short note on dry skin. (20 marks)
6.2 What are the two primary forms of Melanin. (10 marks)
6.3 List the functions of melanocytes. (20 marks)
6.4 Describe the structure of sebaceous gland. (30 marks)
6.5 List main cell layers present in thin skin. (20 marks)

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

B. Sc. (Hons) in Cosmetic Science

BCS 3224
Beauty Culture- I
3rd Year 2nd Semester

End Semester SEQ Examination

2nd Batch

Date	**: 11th September 2023**
Time	**: 9.00 a.m. – 11.00 a.m. (Two hours)**

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **FOUR** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.

Question 1 **(100 marks)**

1.1 Write short different types of makeup lighting given below.
- 1.1.1 Fluorescent lightning (20 marks)
- 1.1.2 Natural daylight (20 marks)
- 1.1.3 Filament lighting (20 marks)

1.2 List general procedure of makeup application. (20 marks)

1.3 Write a short note on concealers. (20 marks)

Question 2 **(100 marks)**

2.1 Write short notes on following massage techniques.
- 2.1.1 Effleurage (25 marks)
- 2.1.2 Petrissage (25 marks)
- 2.1.3 Friction (25 marks)
- 2.1.4 Tapotement` (25 marks)

Question 3 **(100 marks)**

3.1 List steps of a basic facial. (20 marks)

3.2 Write the difference between a facial and a clean up. (20 marks)

3.3 Describe main massage mediums. (30 marks)

3.4 Describe different varieties of face masks. (30 marks)

Question 4 **(100 marks)**

4.1 What is aromatherapy? (20 marks)

4.2 Describe the benefits of aromatherapy? (30 marks)

4.3 List five common ingredients which can use in the aromatherapy? (20 marks)

4.4 Describe the effects and benefits of Galvanic facial. (30 marks)

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

B. Sc. (Hons) in Cosmetic Science

BCS 3133
Dermatology- I
3rd Year 1st Semester

End Semester SEQ Examination

3rd Batch

INDEX NUMBER: .....

Date	**: 9th August 2022**
Time	**: 9.00 a.m. – 12.00 p.m. (Three hours)**

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.
- You are not allowed to take out the examination papers.

Question 1 **(100 marks)**

1.1 Write short notes on followings.

1.1.1. Dry skin (25 marks)

1.1.2. Oily skin (25 marks)

1.2 List main cell layers present in thin skin. (20 marks)

1.3 Describe characteristic features of each layers you mentioned in 1.2. (30 marks)

Question 2 **(100 marks)**

2.1 What are the different between eccrine and apocrine sweat glands? (25 marks)

2.2 What are the dermal papillae? (15 marks)

2.3 List four principle cells present in the epidermis. (20 marks)

2.4 What are the two primary forms of Melanin. (10 marks)

2.5 Describe the functions of melanocytes. (30 marks)

Question 3 **(100 marks)**

3.1 Describe the specific characters of skin in following ages.

3.1.1 Baby's' skin (25 marks)

3.1.2 40 to late 50 years old (25 marks)

3.2 Describe the benefits of laser therapy. (25 marks)

3.3 Write a short note on fractional laser resurfacing. (25 marks)

Question 4 **(100 marks)**

4.1 Write short notes on following cosmetic procedures.

4.1.1 Dermal filler (25 marks)

4.1.2 Chemical peeling (25 marks)

4.2 Describe possible adverse effects of non-surgical nose shaping by fillers. (25 marks)

4.3 Describe importance of hyaluronic acid for skin. (25 marks)

Question 5 **(100 marks)**

5.1 List different types of psoriasis. (15 marks)

5.2 List common causes for psoriasis. (15 marks)

5.3 Write short notes on followings.

5.3.1 Candidiasis (25 marks)

5.3.2 Cellulitis (25 marks)

5.4 Compare boils (furuncles) and carbuncles. (20 marks)

Question 6 **(100 marks)**

6.1 Explain how following conditions importance for the protection role of human skin.

6.1.1 pH of the skin (25 marks)

6.1.2 Skin Microbiome (25 marks)

6.1.3 Biomolecules of the Skin. (25 marks)

6.2 Describe the importance of Vitamin A on human skin. (25 marks)

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

Bachelor of Science Honours in Cosmetic Science
Herbal Cosmetic Science
BCS 3124
Batch 03
3rd year 1st Semester

End Semester Examination SEQ

INDEX NUMBER: .....

Date: 5th August 2022
Time: 9.00 a.m. – 12.00 p. m.

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.
- You are not allowed to take out the examination papers.

Question 01 **(100 marks)**

1.1 Give the scientific name of the plants where following natural herbal cosmetics are extracted?

1.1.1. Olive oil (5 marks)

1.1.2. Lavender oil (5 marks)

1.1.3. Aloe gel (5 marks)

1.1.4. Safflower petals (5 marks)

1.1.5. Peppermint oil (5 marks)

1.2 Briefly describe how the ancient Romans used a combination of natural plant extracts and minerals as a natural skin care cosmetic product (s). (25 Marks)

1.3 Name the major natural class of pigment(s) responsible the colouration of following

1.3.1 Red colour of Beta vulgaris roots (Beet Root) (5marks)

1.3.2 Orange colour of Carrots. (5marks)

1.3.3 Yellow colour of Pumpkin flesh (5marks)

1.3.4 White colour of Cactus flowers (5marks)

1.4 "Herbal cosmetology is a multibillion dollar industry which could encourage to bring dollars to the country during the current economic turmoil". Discuss this statement using **five (05)** arguments emphasising the strengths and natural resources currently available in Sri Lanka. (30 Marks)

Question 02 **(100 marks)**

2.1 With the aid of fully labelled diagram, illustrate the structure of a starch grain found in the endosperm of a castor (*Ricinus communis*) seed. (25 Marks)

2.2 With the aid of examples, distinguish between organised and unorganised drugs. (25 Marks)

2.3 Give **two (02)** examples for organised drugs and **three (03)** examples for unorganised drugs widely used in herbal cosmetology. (25 Marks)

2.4 Name **two (02)** phycocolloids commonly extracted from red algae and give the botanical name of one read alga used to extract those phycolloids and state **two (02)** uses of phycocolloids in cosmetology. (25 Marks)

Question 03 **(100 marks)**

3.1 With the aid a flow chart illustrate the main steps of herbal drug manufacture from field to market and label the pre-harvest and post-harvest quality control steps in your flow chart. (25 Marks)

3.2 What is meant by the term "green cosmetics"? Briefly describe the major reasons for the higher demand of the green cosmetics in the western markets. (25 Marks)

3.3 What are the main factors you need to consider while collecting herbs from the wild to manufacture herbal cosmetics? (25 Marks)

3.4. State three (03) methods employ to mass culture plants to extract natural chemicals for herbal cosmetic production (25 Marks)

Question 04 **(100 marks)**

4.1 Briefly describe different adulteration conditions. (20 marks)

4.2 Write short notes on **two** of the following. (2 x 20 marks= 40 marks)

a. Tragacanth Gum
b. Pectin
c. Acacia Gum

4.3 Briefly discuss the chemical composition of honey. (You may use chemical structures where necessary). (40 marks)

Question 05 **(100 marks)**

5.1 Comment on the following statement. (25 marks)

"All animal fats are solids at room temperature"

5.2 Identify the chemical test that is used to determine the identity, quality, and purity of castor oil. (15 marks)

5.3 Complete the following table. (60 marks)

Type of oil	Chemical structures	Cosmetic uses
Almond oil	1. 2.	1. 2.
Bees Wax	1. 2.	1. 2.
Kokum butter	1. 2.	1. 2.

Question 06 **(100 marks)**

6.1 List three principal constituents found in resins. (06 marks)

6.2 Describe the terms oleoresins, gum resins, and oleogum resins. (24 marks)

6.3 Briefly discuss the cosmetic uses of following resins. (30 marks)

a. Balsams of Peru
b. Benzoin
c. Colophony

6.4 Briefly discuss how tannins are classified. (40 marks)