



PAST PAPERS

Faculty	Department / Section/Division
Not Applicable	Learning Resource Centre

Past Papers

Faculty of Health Sciences

**Higher diploma in Pharmaceutical & cosmetic sciences**

**(Year 2 – Semester II)**

Document Control & Approving Authority	Senior Director – Quality Management & Administration
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1 <sup>st</sup> Issue Date: 2017.011.30	Revision No.00	Revision Date: 19.04.2023	Validated by: Librarian
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**Faculty of Health Sciences**  
**Higher Diploma in Pharmaceutical & Cosmetic Sciences**  
**HD 2253 - Validation, Calibration & Quality Control**  
**Batch - 01**  
**2<sup>nd</sup> Year 2<sup>nd</sup> semester**  
**End Semester Examination - Assignment**

**INDEX NUMBER:** .....

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**Date** : 23<sup>rd</sup> December 2022  
**Time** : 01.30 p.m. – 02.30 p.m. (One Hour)

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**INSTRUCTIONS TO CANDIDATES**

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

**01****(100 marks)**

1.1. Describe the main stages of the equipment qualification process considering the example of purchasing a syrup manufacturing vessel for a pharmaceutical company ABC with batch size of 5000L. Include important elements to be considered at each stage.

**02****(100 marks)**

2.1. Describe the steps of the change control process to be followed to increase the batch size of a balm product from 500kg to 750kg. Include important elements to be considered at each stage.

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**Faculty of Health Sciences**  
**Higher Diploma in Pharmaceutical & Cosmetic Sciences**  
**HD 2243 – Utility and Control Systems**  
**Batch - 01**  
**2<sup>nd</sup> Year 2<sup>nd</sup> semester**  
**End Semester Examination - Assignment**

**INDEX NUMBER:** .....

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**Date** : 22<sup>nd</sup> December 2022  
**Time** : 01.30 p.m. – 02.30 p.m. (One Hour)

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**INSTRUCTIONS TO CANDIDATES**

- This question paper consists of **TWO** questions.
- Answer **ALL** questions.
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**01****(100 marks)**

- 1.1. Draw the construction of a pressure gauge used for monitoring steam pressure. (50 marks)
- 1.2. Explain the following terms of Steam.
- 1.2.1. Saturated Steam. (25 marks)
- 1.2.2. Superheated steam. (25 marks)

**02****(100 marks)**

- 2.1. High Hardness can be caused a lot of problems in industries.
- 2.1.1. What is the difference between permanent hardness and temporary hardness? (20 marks)
- 2.1.2. Which methods can be used to remove or reduce each hardness type? (25 marks)
- 2.2. Briefly describe how a deionization system works. (25 marks)
- 2.3. Describe two types of hydraulic pumps used in industries and explain their operating principles of them using diagrams. (30 marks)



**Faculty of Health Sciences**  
**Higher Diploma in Pharmaceutical & Cosmetic Sciences**  
**HD 2243 – Utility and Control Systems**  
**Batch - 01**  
**2<sup>nd</sup> year 2<sup>nd</sup> semester**  
**End Semester SEQ Examination**

INDEX NUMBER: .....

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**Date** : 22<sup>nd</sup> December 2022  
**Time** : 09.00 a.m to 12.00 p.m. (Three Hours)

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**INSTRUCTIONS TO CANDIDATES**

- This question paper consists of **SIX** questions.
- Answer **ALL** questions.
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**Question 01** (100 marks)

- 1.1. Define what is the KWHr with regard to electrical supply. (10 marks)
- 1.2. What do you measure in Weber and Tesla and state their relevance in science? (15 marks)
- 1.3. State **03** temperature measurements widely used in the industry and briefly describe how do you convert them each other. (35 marks)
- 1.4. Explain what is meant by Lumen and Lux and state their importance in the Industrial setting. (40 marks)

**Question 02** (100 marks)

- 2.1. Describe why the following electrical systems are connected to different consumers and state their basic differences.
- 2.1.1 Single-phase systems (25 marks)
- 2.1.2 Three-phase systems (25 marks)
- 2.2. Discuss how electrical power consumed by the following systems are calculated.
- 2.2.1 Single-phase systems (25 marks)
- 2.2.2 Three-phase systems (25 marks)

**Question 03** (100 marks)

- 3.1. Write short notes on the following components used in the pharmaceutical industry for sterilization.
- 3.1.1 Autoclaves (10 marks)
- 3.1.2 Steam jacketed vessels (15 marks)
- 3.1.3 Hot Air generation (15 marks)
- 3.2. State the procedure that needs to be carried out before using an autoclave before sterilizing pharmaceutical products. (10 marks)
- 3.3. Following data are for a single stage three cylinder single action air compressor.
- Diameter  $D = 0.4$  m
- Stroke  $S = 0.6$  m
- Dead space  $C = 0.04$  m<sup>3</sup>
- The compressor shaft rotates at  $n = 190$  rpm

The air inside is compressed at pressure from  $P_1 = 0.1 \text{ MPa}$  to  $P_2 = 0.25 \text{ MPa}$  at  $T = 20^\circ\text{C}$

Polytrophic coefficient  $M = 1.2$

Mechanical Efficiency  $N_{\text{mech}} = 0.90$

Adiabatic Efficiency  $N_{\text{ad}} = 0.85$

Air density  $\rho = 1.189 \text{ kg/m}^3$  at  $20^\circ\text{C}$

For air  $K = 1.4$

Gas Constant  $R = 8.314 \text{ Jmol}^{-1}\text{k}^{-1}$

Air molar weight  $M = 29 \text{ gmol}^{-1}$

Determine,

3.3.1 the flow rate of the compressor. (25 marks)

3.3.2 the consumed power of the compressor. (25 marks)

#### Question 04

(100 marks)

4.1 An air compressor works at  $25^\circ\text{C}$  has

Suction capacity =  $12 \text{ m}^3/\text{min}$

Air Relative Humidity = 70%

At  $25^\circ\text{C}$  maximum humidity =  $23.1 \text{ g/m}^3$

Compression ratio = 1:6

At  $80^\circ\text{C}$  maximum humidity =  $290 \text{ g/m}^3$

At  $35^\circ\text{C}$  maximum humidity =  $39.6 \text{ g/m}^3$  at sea level.

4.1.1 What is the water weight of the air compressor suction volume? (15 marks)

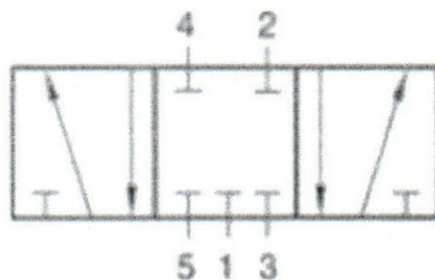
4.1.2 How much air volume is generated by the compressor per minute? (15 marks)

4.1.3 During the compression air temperature rises to  $80^\circ\text{C}$ . What is the Relative Humidity at that temperature? (15 marks)

4.1.4 Using a cooler compressed air is cooled to  $30^\circ\text{C}$ . How much condensate weight will be released? (15marks)



4.2 The following image is a symbol of a directional control valve.



4.2.1 Identify this valve.

(10 marks)

4.2.2 Describe the actuation of the valve for each position.

(30 marks)

### Question 05

(100 marks)

5.1. Following data are for a Reverse Osmosis plant.

The feed flow rate is 1500 liters/Hr and permeate flow rate is 1200 Liters/Hr.

5.1.1 Draw **02** diagrams showing the difference between Osmosis and Reverse Osmosis.

(20 marks)

5.1.2 Salt rejection % = 95 and feed conductivity is 200  $\mu$ s. What is the permeate conductivity?

(10 marks)

5.1.3 There are 4 RO vessels and each vessel contains 4 RO membranes and a RO membrane has 400  $\text{ft}^2$  of the surface area. Find the flux.

(20 marks)

5.1.4 Calculate the recovery percentage.

(20 marks)

5.2 Describe how distillation can be used to purify water and its effectiveness in the pharmaceutical and cosmeceutical industry.

(30 marks)

**Question 06****(100 marks)**

- 6.1. Complete the following statement about hydraulic brake operation on vehicles fitted with disc brakes using the following words. (100 marks)

(Words: Compressible, Decreases, Force, Increased, Lines, Liquid, Master, Measure, Operate, Output, Piston, Pressure, Reliable, Shoes, Size, System, Transmitted)

A hydraulic 6.1.1..... uses brake fluid to transfer 6.1.2.....from the brake pedal to the pads or 6.1.3..... This transfer of pressure is 6.1.4..... and consistent because liquids are not 6.1.5..... That is, pressure applied to a 6.1.6.....in a closed system is 6.1.7.....by that liquid equally to every other part of that system. Apply a 6.1.8.....of 100 pounds per square inch (psi) (690 kPa) through the 6.1.9.....cylinder and you can 6.1.10..... 100 psi (690 kPa) anywhere in the 6.1.11.....and at each wheel where the brakes 6.1.12.....

The force can be 6.1.13..... at the output (i.e., at the wheel) by increasing the 6.1.14..... of the piston, though piston travel 6.1.15 ..... The force at the 6.1.16..... can be decreased by decreasing the size of the 6.1.17....., but the piston travel increases.



**Faculty of Health Sciences**  
**Higher Diploma in Pharmaceutical & Cosmetic Sciences**  
**HD 2223 – Workplace Communication Management**  
**Batch - 01**  
**2<sup>nd</sup> Year 2<sup>nd</sup> semester**  
**End Semester Assignment**

**INDEX NUMBER:** .....

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**Date** : 21<sup>st</sup> December 2022  
**Time** : 1.30 p.m. – 2.30 p.m. (One Hour)

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**INSTRUCTIONS TO CANDIDATES**

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



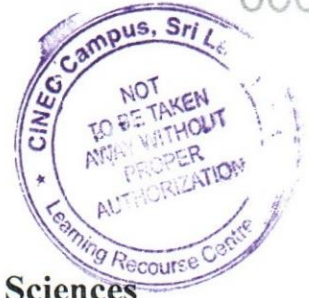
**Question 01****100 marks**

1.1 "Mintzberg (1990) describes the purpose of communication with others in the workplace as being able to inform, instruct, motivate or seek information."

- 1.1.1 Assuming that you are working in any of the best-known pharmaceutical companies in the world or in Sri Lanka, explain the purpose of communicate in line with Mintzberg's statement. (50 marks)
- 1.1.2 Creating your own scenario in the above-mentioned work-environment, discuss the importance of communication to the workplace. (50 marks)

**Question 02****100 marks**

- 2.1 Develop your own communication model example in line with the symbolic interaction model. You may use your own example (illustration) developed for the purpose. (50 marks)
- 2.2 Developing your own scenario, showcase how and why non-verbal communication would be important in your employment in the pharmaceutical industry. (50 marks)



**Faculty of Health Sciences**

**Higher Diploma in Pharmaceutical & Cosmetic Sciences**

**HD 2233 – Law, Operations Management and Marketing**

**Batch - 01**

**2<sup>nd</sup> year 2<sup>nd</sup> semester**

**End Semester SEQ Examination**

**INDEX NUMBER: .....**

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**Date : 20<sup>th</sup> December 2022**  
**Time : 09.00 a.m to 12.00 p.m. (Three Hours)**

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**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 Define 'Management'. (10 Marks)
- 1.2 Write **04** objectives of management. (25 Marks)
- 1.3 List **07** resources in management. (30 Marks)
- 1.4 Identify the most valuable resource for an organization from above resources mentioned in 1.3 and justify your selected answer. (35 Marks)

- Question 02** (100 Marks)
- 2.1 What is the difference between a single-use plan and a standing plan? (10 Marks)
- 2.2 Briefly describe what is 'the span of control' in an organization. (15 Marks)
- 2.3 Discuss the **07** stages of planning with a brief explanation for each step. (35 Marks)
- 2.4 Imagine you are a line manager of a Production Executive employee, and she/he has been complaining to you about her/his workload. However, when considering the budget of the company you are unable to recruit a new staff member.  
Explain to the employee how she /he could manage her workload using the Time Management Matrix. (40 Marks)

- Question 03** (100 Marks)
- 3.1 Define 'Extrinsic Motivation'. (10 Marks)
- 3.2 Compare and contrast the two motivational theories given below. (25 Marks)
- 3.2.1 Herzberg's Theory of Motivation
- 3.2.2 Two-factor Theory of Motivation
- 3.3 Describe **03** types of leadership. (30 Marks)
- 3.4 Examine the qualities of a leader in a Medical Product Manufacturing organization in a crisis situation such as Covid – 19 pandemic or inflation. (35 Marks)

- Question 04**
- 4.1 What is Human Resource Management? (10 Marks)
- 4.2 Design a **Job Specification** specimen for the role of 'Sales Executive'. (20 Marks)
- 4.3 Describe direct and indirect rewards for the employees by giving examples for each category. (30 Marks)
- 4.4 What is training and development? Discuss the need and basic purpose of training and development for an employee. (40 Marks)



**Question 05****(100 Marks)**

- 5.1 Define the term, (10 Marks)  
5.1.1 Raw Opium  
5.1.2 Prepared Opium
- 5.2 Name **05** persons who can handle and keep the poisons and poisonous substances. (10 Marks)
- 5.3 Briefly describe the method of sale of Arsenic. (30 Marks)
- 5.4 State the prohibitions in the manufacturing, importation, sale & distribution of food according to Food Act No.26 of 1980. (20 marks)
- 5.5 Write the main committee members of the food advisory committee according to Food Act No.26 of 1980. (20 marks)
- 5.6. State the procedure follow for the person who committed an offense by contravening the provisions of the Food Act. (10 marks)

**Question 06****(100 Marks)**

- 6.1 List **03** objectives of the National Medicines Regulatory Authority. (15 marks)
- 6.2 Briefly describe the procedure to follow when importing or accepting donations of any medicine, medical device or borderline product. (25 marks)
- 6.3 Write the main functions of the National Drug Quality Assurance Laboratory (NMQAL). (25 marks)
- 6.4 Discuss the application procedure for registration of medicine under the National Medicines Regulatory Authority Act No.5 of 2015. (35 marks)



**Faculty of Health Sciences**  
**Higher Diploma in Pharmaceutical & Cosmetic Sciences**  
**HD 2213 – Workplace Information Management**  
**Batch - 01**  
**2<sup>nd</sup> Year 2<sup>nd</sup> semester**  
**End Semester SEQ Examination**

**INDEX NUMBER:** .....

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**Date** : 19<sup>th</sup> December 2022  
**Time** : 9.00 a.m. – 11.00 a.m. (Two Hours)

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**INSTRUCTIONS TO CANDIDATES**

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

**01** (100 marks)

- 1.1. What are the regulatory bodies indicated from the below abbreviations? (15 marks)
- 1.1.1. MHRA
- 1.1.2. EMEA
- 1.1.3. FDA
- 1.2. State **02** reasons for why documentation is important in pharmaceutical manufacture. (20 marks)
- 1.3. Briefly describe **03** common errors made in documentation. (25 marks)
- 1.4. If a manufacturing plant is to purchase a tablet compression machine, describe the important parameters which you need to include in an URS (User Requirement Specifications) of a tablet compression machine. (40 marks)

**02** (100 marks)

- 2.1. Name three topics included in a Site Master File (SMF). (20 marks)
- 2.2. What are the documents denoted by these abbreviations. (15 marks)
- 2.2.1. AWS
- 2.2.2. STP
- 2.2.3. MFR
- 2.3. State **02** underlying causes for occurrence of data integrity violations. (25 marks)
- 2.4. Describe the DI principle violated in the following instances. (40 marks)
- 2.4.1. Incident 1 – Log in password of the machine operator is displayed near the machine so that the machine could be operated even when the usual operator is absent.
- 2.4.2. In an Analytical work sheet, the previous results had been covered up using Tippex (correction fluid) before writing the later result.
- 2.4.3. The equipment had the facility to provide results only up to one decimal but as the specifications were given to two decimals, number zero was written as the second decimal although the equipment was not capable of giving the results up to two decimals.



**03** (100 marks)

- 3.1 State **04** benefits of an information system in a modern workplace. (20 marks)
- 3.2 Briefly describe **05** components of an information system with appropriate examples. (20 marks)
- 3.3 Different employee categories in a business use information systems differently for their workplace commitments. Explain the statement with **04** different types of information systems in a workplace. (20 marks)
- 3.4 Systems that span the entire enterprise are serving all the levels of management, as well as the external parties of a business. Explain **04** major enterprise applications. (40 marks)

**04** (100 marks)

- 4.1 Explain the term 'Forecasting'. (20 marks)
- 4.2 State the **02** main approaches of forecasting. (20 marks)
- 4.3 List **04** quantitative business forecasting techniques. (20 marks)
- 4.4 Explain how to choose the right forecasting technique for a business. (40 marks)

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**Faculty of Health Sciences**  
**Higher Diploma in Pharmaceutical & Cosmetic Sciences**  
**HD 2233 – Law, Operations Management and Marketing**

**Batch - 01**

**2<sup>nd</sup> Year 2<sup>nd</sup> semester**

**End Semester Examination - Assignment**

**INDEX NUMBER: .....**

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**Date : 20<sup>th</sup> December 2022**  
**Time : 01.30 p.m. – 02.30 p.m. (One Hour)**

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**INSTRUCTIONS TO CANDIDATES**

- This question paper consists of **TWO** questions.
- Answer **ALL** questions.
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**01** (100 marks)

1.1 Critically evaluate why performance appraisal is important and explain the Performance Appraisal Cycle using examples.

**02** (100 marks)

2.1 Discuss the importance of effective communication between employers and employees to drive an organization to its objectives.



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**Faculty of Health Sciences**  
**Higher Diploma in Pharmaceutical & Cosmetic Sciences**  
**HD 2223 – Workplace Communication Management**  
**Batch - 01**  
**2<sup>nd</sup> Year 2<sup>nd</sup> semester**  
**End Semester SEQ Examination**

INDEX NUMBER: .....

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Date : 09<sup>th</sup> September 2022  
Time : 9.00 a.m. – 12.00 p.m. (Three Hours)

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**INSTRUCTIONS TO CANDIDATES**

- This question paper consists of **SIX** questions.
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**Question 01****(100 marks)**

1.1 "Communication is the sharing of a thought, an idea or a feeling."

- 1.1.1 Describe purposes of communication which an organization targets to achieve. (30 marks)
- 1.1.2 Defining verbal communication, briefly discuss verbal communication skills an interested party may seek to pursue. (30 marks)
- 1.1.3 List and explain all elements of effective communication. (40 marks)

**Question 02****(100 marks)**

- 2.1 List out at least 05 barriers to effective communication. (20 marks)
- 2.2 Differentiate between verbal and non-verbal communication. (30 marks)
- 2.3 Explain in detail at least 05 key types of Non-verbal communication. (50 marks)

**Question 03****(100 marks)**

- 3.1 Define and list down the salient features of effective and interactive communication (30 marks)
- 3.2 List and explain in detail at least 04 barriers and distortions to effective communication. (40 marks)
- 3.3 What is meant by Psychological aspects of communication? Explain at least 03 in detail. (30 marks)

**Question 04** (100 marks)

- 4.1 Compare and contrast oral communication from written communication. (30 marks)
- 4.2 List at least 05 determinant factors in communication which affects client's side of communication. (30 marks)
- 4.3 Explain in detail as to how you would be able to use communication for problem solving. (40 marks)

**Question 05** (100 marks)

- 5.1 Classify data types accordingly, with necessary examples for each data type you identified. (20 marks)
- 5.2 Discuss the impact of technology on communication. (40 marks)
- 5.3 Explain in detail the impact of social media on communication. (40 marks)

**Question 06** (100 marks)

- 6.1 What is paraphrasing? Briefly explain the concept. (20 marks)
- 6.2 Identify the 07-stepped process to writing reports. (40 marks)
- 6.3 Explain the 04 directions in which the communication may flow in a formal organizational setting. (40 marks)

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