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**B.Sc. (Pharmaceutical Manufacturing & Quality) (Semester - II) (New)
(CBCS) Examination: March/April - 2025
Sterile Manufacturing in Pharma (G20-0201)**

Day & Date: Friday, 09-May-2025
Time: 12:00 PM To 02:00 PM

Max. Marks: 60

Instructions: 1) All question are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative.

08

- 1) Sterile dosage forms are usually _____.
 - a) Parenteral
 - b) Ophthalmic Preparation
 - c) Irrigating preparations
 - d) All of these
- 2) Ideal requirements of sterile dosage form are _____.
 - a) Sterility
 - b) free from particulate matter
 - c) Prepared under aseptic condition
 - d) all of above
- 3) Sterile preparation intended to be administered _____.
 - a) Orally
 - b) Parenterally
 - c) Both A & B
 - d) None of above
- 4) Which water is used for administration of Injection
 - a) Purified water
 - b) Water for Injection
 - c) Distilled water
 - d) Sterile waler for injection
- 5) For loading, unloading and monitoring sterile intermediate products in manufacturing machine involves _____.
 - a) Aseptic practice
 - b) Environmental controls
 - c) Continuous monitoring
 - d) all of above
- 6) GDP ensures _____.
 - a) integrity
 - b) accuracy
 - c) Legibility
 - d) all of above
- 7) A high efficiency air filter is _____.
 - a) HEPA filter
 - b) Final filter
 - c) Diluents
 - d) Web filter
- 8) Methods that maintain sterility _____.
 - a) Aseptic technique
 - b) Blenching
 - c) A clean person
 - d) Admixture

B) State true or false.**04**

- 1) Aseptic techniques are methods used to maintain pH.
- 2) Injectable liquids typically filled using aseptic technique
- 3) Plastic are used for aseptic filling of injectable products.
- 4) Sterile products are administered orally.

Q.2 Answer the following. (Any Six)**12**

- a) Write definition of
 - 1) Sterilization
 - 2) Pyrogen
- b) Write techniques used for inspecting quality of raw material.
- c) Write potential contamination risks during machine operations
- d) What is ALCOA+
- e) Write techniques used for inspecting quality of containers.
- f) Write role of machine operator in controlling and handling raw materials.
- g) Explain importance of maintain sterility.
- h) Write common issues encountered during machine operating.

Q.3 Answer the following. (Any Three)**12**

- a) Write techniques for inspecting and verifying the containers and closures.
- b) Write gowning procedure as per clean room guideline.
- c) Write and note on personal hygiene.
- d) Write the use of PPE during sterile formulation.

Q.4 Answer the following. (Any Two)**12**

- a) Write procedures for loading, unloading and monitoring sterile intermediate products in manufacturing machines
- b) Write safe and efficient handling practices to prevent contamination and ensure product quality.
- c) How to operate pharmaceutical manufacturing equipment effectively and safely.

Q.5 Answer the following (Any Two)**12**

- a) Write a note on GDP
- b) Write cleanliness standards during machine operations.
- c) Write environmental conditions within manufacturing areas.

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B.Sc. (Pharmaceutical Manufacturing & Quality) (Semester - II) (New)
(CBCS) Examination: March/April - 2025
Pharmaceutical Packaging (G20-0202)

Day & Date: Saturday, 10-May-2025
 Time: 12:00 PM To 02:00 PM

Max. Marks: 60

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative. 08

- 1) What type of packaging comes into direct contact with the drug Product?
 a) Primary packaging b) Secondary packaging
 c) Tertiary packaging d) Ancillary packaging
- 2) Water attack test is used to test the limits of alkali particularly in _____.
 a) Type-I b) Type-II
 c) Type-III d) Umber colored glass
- 3) Which color glass containers provide protection to light-sensitive products?
 a) Red b) Brown
 c) Pink d) Yellow
- 4) What are the major disadvantages of glass as a packing material?
 a) Fragility b) Weight
 c) Transparent d) Can be easily labeled
- 5) Which of the following type is non-parental type of glass?
 a) I b) II
 c) III d) IV
- 6) Type II glass is called as _____.
 a) General soda lime class
 b) NP glass
 c) BS glass
 d) Treated Soda lime glass
- 7) Aerosol containers are manufactured using which metal _____.
 a) Tin plate b) Aluminum
 c) Brass d) None
- 8) Carton's are type of packaging material.
 a) Primary b) Secondary
 c) Tertiary d) None

B) State true or false**04**

- 1) Carton's are Tertiary type of packaging material.
- 2) The Materials comes to contact the product is called Primary packaging Materials.
- 3) Blister packaging is secondary packaging materials.
- 4) One general function of packaging is to identify the relevant product.

Q.2 Answer the following. (Any Six)**12**

- a) What are the ideal requirements of packaging materials?
- b) What are the different advantages of Packaging?
- c) Define packaging and labelling.
- d) Why product recall is required?
- e) Discuss the advantages of Plastics as packaging materials.
- f) Discuss different types of the rubber used in Pharmaceutical Packaging.
- h) Deline Pharmaceutical Packaging. Give its advantages.
- i) Write note on: Papers used in packaging

Q.3 Answer the following. (Any Three)**12**

- a) Explain in detail types of Pharmaceutical Packaging materials.
- b) Discuss in detail advantages of glass.
- c) What are different types of glass materials used in Packaging?
- d) What are the possible packaging forms of solid dosages forms?

Q.4 Answer the following. (Any Two)**12**

- a) What are the functions of pharmaceutical packaging materials?
- b) Discuss in detail ideal requirements of Pharmaceutical Packaging materials.
- c) Discuss in detail different types of closures and closures liners.

Q.5 Answer the following (Any Two)**12**

- a) Discuss in detail packaging protocol for pharmaceutical dosage form.
- b) What are the Quality Control tests for Pharmaceutical Packaging materials?
- c) Discuss in detail environmental issues for Pharmaceutical Packaging materials.

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**B.Sc. (Pharmaceutical Manufacturing & Quality) (Semester - II) (New)
(CBCS) : Examination March/April - 2025
Pharmaceutical Engineering - I (G20-0203)**

Day & Date: Tuesday, 13-May-2025
Time: 12:00 PM To 02:00 PM

Max. Marks: 60

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Multiple choice questions.

08

- 1) Ball mill is also called as _____.
 - a) Pebble mill
 - b) Hammer mill
 - c) Edge runner mill
 - d) Cutter mill
- 2) Ball mill is based on the principle of _____.
 - a) Impact
 - b) Attrition
 - c) Cutting
 - d) Both a & b
- 3) Which of the following materials are used for making of sieves?
 - a) Iron
 - b) Coated Iron
 - c) Copper
 - d) All of above
- 4) Evaporation is _____ phenomenon.
 - a) Surface tension
 - b) Bulk
 - c) Surface
 - d) Both b & c
- 5) Distillation is _____ phenomenon.
 - a) Surface tension
 - b) Bulk
 - c) Interfacial tension
 - d) Surface
- 6) Which of the following is not part of distillation?
 - a) Blades
 - b) Condenser
 - c) RBF
 - d) Receiver
- 7) Tray dryer is also called as _____ dryer.
 - a) Pebble
 - b) Shelf
 - c) Evaporating pan
 - d) None of the above
- 8) Drying is done at _____.
 - a) Equal boiling point
 - b) High Degree
 - c) Below boiling point
 - d) None of these

B) Write True or False.**04**

- 1) Distillation is based on boiling point of liquids.
- 2) Evaporation gives concentrated product.
- 3) Drying gives semisolid product.
- 4) Sieves are used for reduction of particles.

Q.2 Answer the following. (Any Six)**12**

- a) Classify the evaporators.
- b) Draw a neat labeled diagram of steam distillation unit.
- c) Write the mechanisms of size reduction.
- d) Draw neat labeled diagram of Cyclone separator.
- e) Give applications of drying
- f) Give the various laws involved in size reduction
- g) Give the general instrumentation for distillation
- h) What is distillation? Give its types.

Q.3 Answer the following questions. (Any Three)**12**

- a) Write a note on sieve shaker.
- b) Discuss sieving method of size separation.
- c) Write factors influencing the size reduction.
- d) Write definition of
 - i) Drying
 - ii) CMC
 - iii) EMC
 - iv) FMC

Q.4 Answer the following questions. (Any Two)**12**

- a) Write a note on simple distillation
- b) Draw a neat labeled diagram of steam jacketed cattle and write its principle and working.
- c) Enlist the theories of drying and draw the diagram of drying curve.

Q.5 Answer the following questions. (Any Two)**12**

- a) Discuss the fluidized bed dryer.
- b) Classify the dryers. Give the applications of dying.
- c) What is evaporation? Differentiate between evaporation and other heat process.

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B.Sc. (Pharmaceutical Manufacturing & Quality) (Semester - II) (New)
(CBCS) Examination: March/April - 2025
Industrial Microbiology (G20-0204)

Day & Date: Wednesday, 14-May-2025
Time: 12:00 PM To 02:00 PM

Max. Marks: 60

Instructions: 1) All question are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative.

08

- 1) Downstream processing does not involve _____.
a) Cell disruption b) Product recovery
c) Product purification d) Primary screening
- 2) Phenyl acetic acid is precursor used in _____ production.
a) Amylase b) Penicillin G
c) Vitamin B12 d) Lysine
- 3) During Penicillin fermentation temperature of the system is maintained at for _____ optimum production.
a) Room temperature b) 26°C
c) 36°C d) 46°C
- 4) Which microorganism is commonly used for industrial production of citric acid?
a) *Saccharomyces cerevisiae* b) *Aspergillus niger*
c) *Escherichia coli* d) *Lactobacillus bulgaricus*
- 5) Which component in fermentation media is mainly responsible for nitrogen supply?
a) Molasses b) Glucose
c) Corn steep liquor d) Sodium chloride
- 6) Malt used for Beer fermentation is prepared from _____.
a) Molasses b) Ground nut
c) Pea nut d) Barley
- 7) Vortex formation during fermentation process is prevented by _____.
a) Baffles b) Spargers
c) Impellers d) Antifoam agents
- 8) The batch culture is an _____ culture system.
a) open b) closed
c) isolated d) semi closed

B) Write True or False. 04

- 1) The recovery of ethanol is carried out by using distillation.
- 2) Spargers are used for disruption of vortex formation.
- 3) Fermentation is a method of microbial strain improvement.
- 4) Industrial microbiology involves the large-scale production of products like vaccines and hormones using microorganisms.

Q.2 Answer the following. (Any Six) 12

- a) What is a sparger? List its types.
- b) Give the name of the microorganisms used in Penicillin fermentation.
- c) What are hops?
- d) Enlist industrially important organisms with their products.
- e) Define Continuous fermentation.
- f) Define biofuels with two examples.
- g) Enlist different methods of downstream processing.
- h) What are antifoaming agents? Give one example.

Q.3 Answer the following. (Any Three) 12

- a) Explain the microbial production of vitamin B12.
- b) Explain in brief harvest and recovery of vitamins from fermented broth.
- c) Draw a neat labelled diagram of fermenter.
- d) Batch Fermentation process.

Q.4 Answer the following. (Any Two) 12

- a) What is the difference between solid state and submerged fermentation?
- b) Explain in detail Wine production.
- c) What is downstream process? Explain in detail filtration process used as recovery process.

Q.5 Answer the following. (Any Two) 12

- a) Explain the various types of fermenters with examples and their specific uses.
- b) Write a note on streptomycin production.
- c) What is fermenter? Explain the function of different parts of a fermenter.

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**B.Sc. (Pharmaceutical Manufacturing & Quality) (Semester - II) (New)
(CBCS) Examination: March/April - 2025
Engineering for non-engineer (G20-0205)**

Day & Date: Thursday, 15-May-2025
Time: 12:00 PM To 02:00 PM

Max. Marks: 60

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternative.

08

- 1) cGMP Stands for _____.
 a) Correct Good Manufacturing Practice
 b) Good Manufacturing Practice
 c) Current Good Manufacturing Practice
 d) Good Medicine Practice
- 2) The environmental factors controlled in clean room are _____.
 a) Humidity
 b) Temperature
 c) Pressure
 d) all of above
- 3) A regulatory agency or independent body conducts an audit for compliance is known as _____.
 a) Internal Audit
 b) External audit
 c) Regulatory audit
 d) Customer audit
- 4) High probability of resulting in a product recall or in an adverse physiological response by customer is considered as _____.
 a) Minor defect
 b) Critical defect
 c) Major defect
 d) All of above
- 5) cGMP set of regulations published by _____.
 a) FDA
 b) ISO
 c) CDSCO
 d) WHO
- 6) Clean room provide for the control of _____.
 a) Material
 b) Equipment
 c) Airborne particles
 d) Personal Hygiene
- 7) GDP ensures _____.
 a) Integrity
 b) Accuracy
 c) Legibility
 d) All of above
- 8) Preparation under aseptic condition are meant for _____.
 a) Sterile formulation
 b) Solid formulation
 c) Food industry
 d) Cosmetic

B) Write True or False. 04

- 1) Good documentation technique ensures the principles of ALCOA+
- 2) Airborne particles are not contamination source.
- 3) Personal hygiene is important parameter in clean room.
- 4) Internal audit conducted by regulatory bodies.

Q.2 Answer the following. (Any Six) 12

- a) Write definition of
 - 1) Clean room
 - 2) Particles
- b) Write the type of contamination in clean room and contamination sources.
- c) Draw neat labelled diagram of HVAC.
- d) Write different types of clean room walls system.
- e) Write principles of clean room design.
- f) Write importance of instrument calibration.
- g) Explain utilities management.
- h) Explain qualification test for enduring compliance.

Q.3 Answer the following. (Any Three) 12

- a) Write a note on Clean room.
- b) Explain examples and categorization of audit.
- c) Write a note on water treatment
- d) Write categorization of audit.

Q.4 Answer the following. (Any Two) 12

- a) Write role of pharmaceutical engineering and its significance in the pharmaceutical industry.
- b) Explain points considering during GMP audit.
- c) Explain GMP criteria for clean room walls and ceilings.

Q.5 Answer the following. (Any Two) 12

- a) Elaborate fundamentals of engineering in HVAC.
- b) Write importance of avoiding critical and major findings.
- c) Explain importance of engineering in GMP maintenance.

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Day & Date: Friday, 16-May-2025
Time: 12:00 PM To 02:30 PM

Max. Marks: 60

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Rewrite the following sentences by choosing the correct alternative. 08

- 1) The word ‘communication’ has been derived from the word ____

a) Latin	b) Greek
c) Roman	d) none of the above
- 2) ____ is not a type of non-verbal communication.

a) Smiling	b) Tone of voice
c) Interpersonal skills	d) Eye contact
- 3) ____ of the following is not a type of verbal communication.

a) Intrapersonal skills	b) Interpersonal skills
c) Public speaking	d) Haptics
- 4) The circle of communication process can be incomplete without ____.

a) Feedback	b) Decoding
c) Channel	d) Content
- 5) Decoding in the communication is related to ____

a) Sender	b) Source
c) Receiver	d) Channel
- 6) ‘Distance’ is an example of ____

a) Physical barriers	b) psychological barrier
c) linguistic barrier	d) semantic barrier
- 7) ‘Fear’ is an example of ____

a) Physical barriers	b) psychological barrier
c) linguistic barrier	d) semantic barrier
- 8) ____ of the following is not the part of communication process.

a) Sender	b) Message
c) Channel	d) Recoding

B) Write whether the following sentence is true or false. 04

- 1) Passive engagement with the speaker does not include basic listening skills.
- 2) 'Gestures' is an example of non-verbal communication.
- 3) GD in communication skills means Group Discussion.
- 4) Panel interview is not a type of interview.

Q.2 Answer the following: (Any Six) 12

- a) Write a note on importance of communication.
- b) What is verbal communication?
- c) What is communication?
- d) What is self-awareness?
- e) What is non-verbal communication?
- f) What is communication style matrix?
- g) What is channel?
- h) What is feedback?

Q.3 Answer the following: (Any Three) 12

- a) What are the types of communication?
- b) Explain the communication process.
- c) What are the different communication style matrix?
- d) Write a note on written communication.

Q.4 Answer the following: (Any Two) 12

- a) Prepare and write presentation on communication process.
- b) What are the various types of barriers in communication?
- c) Suppose that you have completed your course of B. Sc (PMQ). Prepare and write interview for the post of drug inspector.

Q.5 Answer the following: (Any Two) 12

- a) Suppose that you have completed your course of B. Sc (PMQ). Prepare and write interview for the post of quality controller.
- b) Write a group discussion on the topic *One Nation and One Election*.
- c) Write a group discussion on the topic *Save the Girl Child*.

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**B.Sc. (Pharmaceutical Manufacturing & Quality) (Semester – II) (New)
(CBCS) Examination: March/April - 2025
Diversity and Inclusion: Sensitivity towards All Genders and People with
Disabilities (G20-0207)**

Day & Date: Saturday 17-05-2025
Time: 12:00 PM To 02:30 PM

Max. Marks: 60

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw the diagrams whenever necessary.

Q.1 A) Choose the correct alternative.

08

- 1) _____ in the workplace refers to recognizing and respecting the diverse needs, rights, and roles of individuals, regardless of their gender.

a) Gender sensitivity	b) Gender Diversity
c) Gender Equality	d) Gender Quality
- 2) In order to maintain Gender equality in the classroom a teacher should _____.

a) Provide same opportunity to the Boys and Girls
b) Discourage the girl to take part in curricular activity
c) Provide analytical work to the girls
d) None of the above
- 3) _____ refers to a person's biological and physiological characteristics.

a) Sex	b) Gender
c) Personality	d) Behaviour
- 4) Women in India are discriminated in _____.

a) Political life	b) Social life
c) Economic life	d) All the above
- 5) From which year The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act. came in to effect?

a) 2010	b) 2013
c) 2014	d) 2020
- 6) _____ year was declared 'International Disable Year' by UNO.

a) 1988	b) 1981
c) 1986	d) 1984

- 7) _____ lead to a multitude of negative consequences, impacting individuals and society as a whole.
- | | |
|-----------------|------------------|
| a) Stereotypes | b) prejudices |
| c) Both A and B | d) None of these |
- 8) _____ can hinder economic growth by limiting the potential of individuals and businesses.
- | | |
|-----------------|-------------------|
| a) unemployment | b) Discrimination |
| c) conflict | d) civil suit |

B) True or False. (One Mark Each)**04**

- 1) The harmful effects of prejudice can be passed down through generations, impacting family dynamics and mental health.
- 2) The National Commission for women was set up in 1992.
- 3) Gender diversity refers to not an equal ratio of men and women. The main objective of Prevention of Sexual Harassment (PoSH) Act. is protecting women from sexual harassment at the workplace.
- 4) Act. is protecting women from sexual harassment at the workplace.

Q.2 Write Short Notes. (Any Six)**12**

- a) Gender Sensitivity
- b) Workplace
- c) Work Environments
- d) Equal Opportunity
- e) Disabilities
- f) Stereotypes and Prejudices
- g) Diversity

Q.3 Write Short Notes. (Any Three)**12**

- a) Local Complaints Committee
- b) Redressal
- c) Interim Reliefs
- d) how will Creating Supportive Environments for People with Disabilities?

Q.4 Answer the following (Any Two)**12**

- a) Explain the concept of Sexual Harassment of Women at Workplace.
- b) What is the Procedure to Report Inappropriate Behaviour?
- c) What is the meaning of Embracing Diversity in the Workplace?

Q.5 Answer the following (Any Two)**12**

- a) What is Importance of Gender-Sensitive Behavior for Creating Safe and Inclusive Work Environments?
- b) Explain in details the Significance of an Equal Opportunity Work Culture.
- c) What are the Consequences of Stereotypes and Prejudices?