



SHAHEED BENAZIR BHUTTO UNIVERSITY SHERINGAL

Pharmacy 4<sup>th</sup> Professional Annual Examinations 2023

Paper-IV (Pharmacy Practice-IV (Hospital Pharmacy))

Roll No: \_\_\_\_\_  
Sign: \_\_\_\_\_

Section-A

Note Please:

1. This is Section A. You have to return this sheet to the examiner within **30** minutes.
2. Copying, cutting, talking is strictly prohibited, and lead to the cancellation of your paper.

**Time Allowed: 30 Minutes**

**Maximum Marks: 40**

**I. Select the most appropriate statements / (Fifteen questions with 4 statements each carrying 2 marks) (30)**

**1-Medication errors are:**

- i. Unavoidable
- ii. Avoidable
- iii. Harmful to the patient
- iv. Both second and third

**2- Different types of inpatient dispensing are;**

- i. Floor stock
- ii. Only prescription
- iii. Unit dose dispensing
- iv. All

**3-Following might be considered illegal ways of dispensing during off-hours**

- i. Through nurse
- ii. Emergency boxes
- iii. Pharmacist on-call
- iv. None

**4. Hospital formulary is designed by:**

- i. Group of physicians
- ii. Nurses
- iii. P &TC
- iv. Only pharmacists

**5-Ambulatory patients include:**

- i. Emergency
- ii. Primary and secondary care OPD
- iii. Tertiary care
- iv. all.

**6-Which of the following cannot be considered pharmacist responsibility/act;**

- i. Purchasing/stocking medicine
- ii. Distribution of medicine
- iii. Administration of medicine
- iv. Dispensing

**7-Hospital formulary is mandatory to be followed by;**

- i. Only physicians
- ii. Nurses
- iii. Pharmacists
- iv. All health care staff

**8-Following are some of the important medication errors;**

- i. Wrong dosage form error
- ii. Omitted error
- iii. Wrong route error
- iv. All

**P.T.O.....**

**9-Following is the part of physical plant of a hospital pharmacy:**

- i. Planning
- ii. Workload
- iii. Location
- iv. All

**10- Nuclear Pharmacy is a branch of Pharmacy that deals with;**

- i. Dispensing of radio-pharmaceuticals
- ii. Compoundind of radio-pharmaceuticals
- iii. Storage of radio-pharmaceuticals
- iv. All

**11- Experiment continuum theory is the basis for :**

- i. Investigational use of drugs
- ii. Safer use of drugs
- iii. Effective use of drugs
- iv. None

**12-Under schedule iii following drugs come;**

- i. Marijuana and heroine
- ii. Stimulants (Amphetamine)
- iii. H1 receptor antagonists
- iv. Sedatives

**13- DRAP under the drug act 1976 was revised and re functionalized in;**

- i. 2010
- ii. 2011
- iii. 2012
- iv. 2013

**14-LSD can be best described as;**

- i. Hallucinating
- ii. Stimulant
- iii. Depressant
- iv. None

**15-Investiational use of drug is applied to FDA for approval in following situations;**

- i. For unapproved drug.
- ii. For approved drug with a new aspect of indication.
- iii. Permission for use of an unapproved drug in emergency.
- iv. All of the above

**II. True/False statements/Fill in the blanks (Ten statements each carrying I mark) (10)**

1. Ambulatory and outpatients are the same. T / F
2. A centralized location in the hospital does not suit out-patient pharmacy. T / F
3. Hospital formulary does not necessarily follow a standard format. T / F
4. Medication errors and Prescribing errors are quite the same. T / F
5. ASHP stands for Americans organization of hospital and pharmacist. T / F
6. Hyperthyroidism and blood disorders can be treated with radiopharmaceuticles. T / F
7. P &TC have regular meetings every 4 months after. T / F
8. Prescription review, filling, dispensing, administration all are pharmacist act. T / F
9. Pharmacy and therapeutic committee is not fully responsible to design Hospital formulary.T / F
10. Cytotoxic dispensing doesn't involve aseptic dispensing. T / F



**SHAHEED BENAZIR BHUTTO UNIVERSITY SHERINGAL**

**Pharmacy 4<sup>th</sup> Professional Annual Examinations 2023**

**Paper-IV (Pharmacy Practice-IV (Hospital Pharmacy))**

**Section-B**

**Time Allowed: 2 hours and 30 minutes**

**Maximum Marks: 60**

**Note: Attempt any three questions out of five. Each question carries equal (20) marks.**

- III.** a. Define and classify Hospital.  
b. Discuss organization of the hospital.
- IV.** a. What is Pharmacy and Therapeutic committee, describe its members and constitution.  
b. Describe its functions and objectives.
- V.** a. Describe investigational drugs.  
b. A detailed description of protocol and procedures related to these drugs.
- VI.** a. Describe Aseptic dispensing.  
b. Describe dispensing of TPN and IV admixtures.
- VII.** Write notes on any four of the “five” from the following, each carry equal marks.
- (a) Radiopharmaceuticals
  - (b) Surgical supplies
  - (c) Hospital Formulary
  - (d) Dispensing during off hours
  - (e) Classification of controlled substances



**Note Please:**

1. This is Section A. You have to return this sheet to the examiner within **30** minutes.
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**Time Allowed: 30 Minutes**

**Maximum Marks: 40**

**Q.1: Choose the correct answer.**

**(30)**

1. Which of the following drug-induced diseases presents with redness of the skin, bright red rashes, hot burning or itchy skin and in sever cases with lymphadenopathy, pyrexia, thirst and shivering with heat and fluid loss from the skin?
  - a. Pruritus
  - b. Erythematous eruptions
  - c. Vesicular and bullous eruptions
  - d. Urticaria
2. Which of the following types of clinical trials have no fixed duration?
  - a. Clinical trials involve pharmacokinetic estimation
  - b. Assessment of efficacy for NDA submission
  - c. Clinical trials involve assessment of bioavailability
  - d. Clinical trials involve postmarketing surveillance
3. Which of the following drug-induced diseases, has a prodromal phase of malaise with/without sore throat and fever, followed by a bullous phase in which the epidermis peels off?
  - a. Toxic epidermal necrolysis
  - b. Vesicular and bullous eruptions
  - c. Stevens - Johnson syndrome
  - d. Urticaria
4. Which of the following drugs interacts with grapefruit juice, leading to an increased concentration of unmetabolized drug in the blood?
  - a. Buspirone, midazolam & carbamazepine
  - b. Clomipramine, nifedipine & cyclosporine
  - c. Simvastatin & lovastatin
  - d. All of the above
5. Which of the following approaches involves assessment of presenting condition & potential need; the desired goals & outcomes; the recommended regimen; and monitoring/evaluation?
  - a. PWDT approach
  - b. DRPs approach
  - c. CORE approach
  - d. PRIME approach
6. "All of the following statements are true about the interaction of digoxin with verapamil EXCEPT:
  - a. Mechanism involves the inhibition of p-glycoprotein.
  - b. Digoxin levels are increased, resulting in an elevated risk of digoxin toxicity.
  - c. All calcium channel blockers cause similar drug interactions.
  - d. Quinidine use with digoxin results in similar drug interactions."
7. Which of the following drugs injure bile duct, leading to drug-induced cholestasis:
  - a. Oral contraceptives
  - b. Carbimazole
  - c. Ciclosporin
  - d. All of the above
8. Which of the following approaches is used to formulate drug related problems while working on pharmacotherapy plan?
  - a. CORE approach
  - b. PRIME approach
  - c. Evidence-Based Medicine
  - d. SOAP Notes
9. Which of the following drug is recommended for pruritus associated with drug-induced liver diseases involving partial biliary obstruction?
  - a. Cetirizine
  - b. Dexamethasone
  - c. Cholestyramine
  - d. Lactulose
10. A 38-year-old male patient is having the following labs profile. Identify abnormal values:  
Sodium=142mEq/L; Chloride=100mEq/L; Potassium=4mEq/L; ALT=150U/L;  
RBC=5million/uL; Hemoglobin=16g/dL; Creatinine-serum=0.8mg/dL; ESR=10mm/h;  
WBC=15000/uL.

**P.T.O.....**

- a. Sodium, WBC & Hemoglobin
  - b. WBC & ALT
  - c. ALT, ESR & Potassium.
  - d. None
11. A 36-year-old patient presents with an ADR characterized by a reasonable temporal relationship, unlikely to be attributed to disease processes or other drugs, and with a reasonable dechallenge response. How would you classify it according to WHO Categories?
- a. Certain
  - b. Probably
  - c. Possible
  - d. Conditional
12. Which of the following is the liver test abnormalities criteria for drug-induced hepatitis (hepatocellular)?
- a.  $ALP \geq 2 \times ULN$  &  $R \leq 2$
  - b.  $ALT \geq 3 \times ULN$  &  $R \geq 5$
  - c.  $ALT \geq 3 \times ULN$  &  $R > 2$  to  $< 5$
  - d.  $ALP \geq 2 \times ULN$  &  $R > 2$  to  $< 5$
13. Which drug has U.S. Boxed Warning about ototoxicity, nephrotoxicity, and concurrent use of other neurotoxic/nephrotoxic products?
- a. Ceftriaxone
  - b. Gentamicin
  - c. Tetracycline
  - d. Ciprofloxacin
14. DoTS Classification of ADRs is related to:
- a. Dose & TIME course
  - b. SUSceptibility factors
  - c. Both a & b
  - d. Immunogenicity
15. All are true about tardive dyskinesia EXCEPT:
- a. A chronic disorder of the nervous system.
  - b. Characterized by involuntary jerky movements of the face, tongue, jaws, trunk, & limbs.
  - c. A Type-B ADR.
  - d. A late side effect of antipsychotic drugs.

**Q. 2: Mark true or false for the following statements:**

**(10)**

1. Angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers, calcium channel blockers, and thiazide diuretics are first-line options for hypertension.
2. Phase 3 randomized controlled trials have the widest entry criteria among all phases of clinical trials.
3. Inhaled corticosteroids are the preferred long-term control therapy for persistent Asthma.
4. The dose of ciprofloxacin should be adjusted when the creatinine clearance is less than 40ml/min.
5. In clinical decision process, a selective decision involves selecting one from a choice of many already available.
6. Acute severe asthma presents with episodic dyspnea with wheezing, chest tightness, and coughing that may occur spontaneously, with exercise, or after exposure to known allergens.
7. Tetracyclines interfere with the synthesis of lipoproteins, leading to drug-induced steatosis.
8. Clinical trials typically involve drug screening, animal research, and human evaluation.
9. Controlled-release formulations of theophylline can be influenced by food, resulting in variable effects that depend on the specific product and the type of food consumed.
10. PPI-based 3-drug regimen for 10-14 days is considered first-line therapy to eradicate *Helicobacter pylori* infection.



**SHAHEED BENAZIR BHUTTO UNIVERSITY SHERINGAL**  
**Pharmacy 4<sup>th</sup> Professional Annual Examinations 2023**  
**(Clinical Pharmacy-I)**  
**Section-B**

**Time Allowed: 2:30 Minutes**

**Maximum Marks: 60**

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**NOTE:** Attempt any three questions. All questions carry equal marks.

**Q. No. III. Discuss the following:**

- a. Phase-1 & Phase-3 clinical trials.
- b. Different designs of clinical trials.

**Q. No. IV. Discuss the following:**

- a. Discuss type-A adverse drug reactions in detail.
- b. Explain causality assessment of adverse drug events.

**Q. No. V. Discuss the following:**

- a. Discuss drug-interactions involving alteration of excretion.
- b. Drug interactions involving alteration of p-glycoprotein transport system.

**Q. No. VI. Discuss the following:**

- a. Treatment of pneumonia
- b. Treatment of hypertension

**Q. No. VII. Discuss any two of the following:**

- a. Primary drug literature
- b. Clinical drug profile of ciprofloxacin
- c. Drug-induced skin diseases



SHAHEED BENAZIR BHUTTO UNIVERSITY SHERINGAL

PHARMACY 4<sup>TH</sup> PROFESSIONAL ANNUAL EXAMINATIONS 2023

Pharmaceutics VII (Industrial Pharmacy)

Section-A

Roll No: \_\_\_\_\_

Sign: \_\_\_\_\_

**Note Please:**

1. This is Section A. You have to return this sheet to the examiner within \_\_\_\_\_
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**Time Allowed: 30 Minutes**

**Maximum Marks: 40**

**Q.I. Choose the most suitable one**

**(30)**

- 1). In lyophilization the evacuation of water from a sample is done by \_\_\_\_\_  
a). Deep freezing    b). Sublimation    c). Freez drying    d). Condensation
- 2). Heat transfer can be calculated by the equation \_\_\_\_\_  
a).  $q = UA(t_1 - t_2)$     b).  $q = UA(t_1 - t_2) / Q$     c).  $2q = UA(t_1 - t_2)$     d).  $q = 2UA(t_1 - t_2)$
- 3). Wrapping material around the product that serve to contain, identify and make the product marketable & keep it clean. \_\_\_\_\_  
a). Packaging    b). Marketing    c). Packing    d). stability
- 4). Coloured glass should not transmit more than 10% of light of the wavelength in the range. \_\_\_\_  
a). 290-----450nm    b). 245-----255nm    c). 290-----299nm    d). 290-----30nm
- 5). Which dosage form is also known as pseudo plastic systems .  
a). Pastes    b). Gel and magmas    c). Creams    d). Collidions
- 6). Which of the following membrane separation technique would be most suitable for reduction of bacteria in skim milk?  
a) Reverse osmosis    b) Nano filtration    c) Ultra filtration    d) Membrane filtration
- 7). Pyrogens are removed from water by membrane filter of pore size.  
a). 0.1 micron    2). 0.2 micron    c). 0.5 micron    d). none of them
- 8). In USP the limits of particulate matter in particles per container  $\geq 0.5\mu$  \_\_\_\_\_  
a). 600    b). 9000    c). 850    d). 6000
- 9). In class D the particle ranges upto 100,000 of size \_\_\_\_\_  
a). 0.2 micron    b). 0.5 micron    c). 0.01 micron    d). 0.9 micron

**P.T.O.....**

- 10). The manufacture of parenteral solutions is ordinarily performed in \_\_\_\_\_
- a). ISO 7    b). ISO 5                    c). ISO 7b                    d). ISO 8                    e). none of them
- 11) \_\_\_\_\_ is not the example of Pneumatic dryers.
- a) Spinning disk atomizer                    b) Rotary drum dryer
- c) Pressure nozzle dryer                    d) Pneumatic atomizer
- 12) In hammer mill the speed of hammers are \_\_\_\_\_
- a) 8000 cpm                    b) 2000 cpm                    c) 7600 cpm                    d) 5200 cpm
- 13) \_\_\_\_\_ will be the viable count of bacteria in class D area
- a) 5000                    b) 500                    c) 100                    d) 10
- 14) Which one is not the cycle of dry heat sterilization\_\_\_\_\_
- a) 170°C for 1 hour                    b) 120°C for 2 hours                    c) 140°C for 4 hours
- 15) Thermal conductivity for Aluminum is \_\_\_\_\_
- a) 200                    b) 379                    c) 43                    d) 242

**QII: Write “T” for correct and “F” for incorrect statement. (10)**

1. Hammering and knifing are the examples of attrition [    ]
2. Creams and ointments are sterilized by autoclaving [    ]
3. Vaporization takes place above 120°C [    ]
4. Picking problem is due to unstable die in the compression machine [    ]
5. Peeling is the coating defect in film coating of compressed tablets [    ]
6. Egg beater is an example of agitator mixer [    ]
7. %MC calculation for granules is USP method [    ]
8. HPMC is used as enteric coating polymer [    ]
9. LOD % and MC% both are same for a pharmaceutical material. [    ]
10. Lachman, 3<sup>rd</sup> Ed is the founder of lypholyzation [    ]



**SHAHEED BENAZIR BHUTTO UNIVERSITY SHERINGAL**  
**PHARMACY 4<sup>TH</sup> PROFESSIONAL SUPPLEMENTARY EXAMINATIONS 2023**  
**Pharmaceutics VII (Industrial Pharmacy)**

**Section-B**

**Time Allowed: 2:30 Minutes**

**Maximum Marks: 60**

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**Note: Attempt any Three Questions. All questions carry equal marks.**

- Q3: a) Define mixing, mechanism of mixing and different types of mixers 10
- b) Write a detailed note on agitator types of mixers. 10
- Q4: Write a detail note on tablet problems and its rectification with suitable explanation.
- Q5: (a) Classify and explain different types of evaporators 10
- (b) Explain working principle of whipped film evaporator with diagram. 10
- Q6: Write note on any two of the following.
- I. Sugar coating 10
- II. Hazards in pharmaceutical industry 10
- III. Clean room concept 10
- IV. Fluidized bed dryer 10
- Q7: Write detail note on any two of the following.
- I. Filter Aids 10
- II. Friability test for tablets 10
- III. Hammer Mill 10



Roll No: \_\_\_\_\_

Sign: \_\_\_\_\_

**SHAHEED BENAZIR BHUTTO UNIVERSITY SHERINGAL**  
**PHARMACY 4<sup>TH</sup> PROFESSIONAL EXAMINATIONS 2023**  
**Paper-IV (Pharmaceutics-V (Biopharmaceutics and Pharmacokinetics))**  
**Section-A**

**Note Please:**

1. This is Section A. You have to return this sheet to the examiner within **30** minutes.
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**Time Allowed: 30 Minutes**

**Maximum Marks: 40**

**I. Select the most appropriate statements**

**(30)**

1. Those events that occurs after drug absorptions are called as,
  - a. Pharmacodynamics
  - b. Bioavailability
  - d. Relative bioavailability
  - e. Drug disposition
2. Assuming a hematocrit of 0.45 and renal blood flow of 1.2 L/min, calculate RPF,
  - a. 120 mL/min
  - b. 660 mL/min
  - c. 950 mL/min
  - d. 0.54 mL/min
3. The normal renal arterial pressure in the glomerulus falls to approximately,
  - a. 80 to 120 mm Hg
  - b. 45 to 60 mm Hg
  - c. 4 to 8 mm Hg
  - d. 0 mm Hg
4. If a drug is bound to tissues, its volume of distribution will be,
  - a. Small
  - b. Higher
  - c. no effect
  - d. Both a & b
5. Reversible–drug protein binding implies that the drug binds the protein with,
  - a. Weaker chemical bonds
  - b. hydrogen bonds
  - c. Van der Waals forces
  - d. All
6. Drug-protein binding (DPB) in hepatic diseases may be,
  - a. Enhanced
  - b. Reduced
  - c. no effect
  - d. None
7. Decrease in GFR leads to,
  - a. Increase half-life
  - b. Decrease renal excretion
  - c. Increase renal excretion
  - d. both a & b
8. If a drug is high molecular weight or is extensively protein bound, will be trapped in
  - a. Plasma compartment
  - b. Extracellular fluid
  - c. Total body compartment
  - d. None
9. Which of the following is not a pharmacokinetic parameter,
  - a. Absorption
  - b. Distribution
  - c. Excretion
  - d. Drug-receptor complex
10. A copy of a brand name drug which must have the same quality, same safety and same strength is known as;
  - a. Generic equivalence
  - b. Therapeutic equivalence
  - c. Brand name
  - d. Generic name

**P.T.O.....**

11. Extent of unaltered drug that reach systemic circulation can be assessed through
  - a. C<sub>max</sub>
  - b. T<sub>max</sub>
  - c. AUC
  - d. Volume of distribution
12. Passive diffusion of a water-soluble drugs across the membrane occurs through,
  - a. Aqueous channels
  - b. G-coupled proteins
  - c. Lipid porin channels
  - d. Non
13. Drugs with zero-order kinetics of elimination show which type of relationship between drug concentration and time
  - a. Parabolic
  - b. Hyperbolic
  - c. Linear
  - d. Non-linear
14. Renal drug excretion is highly depending on,
  - a. GFR
  - b. Normal kidney function
  - c. Drug metabolism
  - d. All
15. If 1 g of a drug is dissolved in an unknown volume of water. Upon assay, the concentration of this solution is 1 mg/mL. What is the original volume of this solution?
  - a. 1 mL
  - b. 10 mL
  - c. 500 mL
  - d. 1000 mL

## II. True/False Statements/Fill in the blanks

(10)

1. Renal plasma flow is an important factor in the rate of drug filtration at the glomerulus (T/F).
2. Protein-bound drug behave as large molecules and don't get filtered at glomerulus (T/F).
3. Reversible-drug protein binding accounts for certain types of drug toxicity. (T/F).
4. Vitamin B12 is transported across the gut wall by endocytosis (T/F).
5. Absorption process for most drug possess Fick's law of diffusion ( $J = -D \frac{dC}{dx}$ ) (T/F).
6. \_\_\_\_\_ is the rate of drug elimination divided by the plasma drug concentration.
7. Equation  $k = k_m + k_e$ , represent the \_\_\_\_\_.
8. In equation  $X = RBF (1-Hct)$ , "X" represent \_\_\_\_\_.
9. Drug \_\_\_\_\_ is time at which drug has lost half of its concentration.
10. \_\_\_\_\_ pharmacokinetics models are also known as blood flow or perfusion model.



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**PHARMACY 4<sup>TH</sup> PROFESSIONAL EXAMINATIONS 2023**  
**Paper-IV (Pharmaceutics-V (Biopharmaceutics and Pharmacokinetics))**

**Section-B**

**Time Allowed: 2 hours and 30 minutes**

**Maximum Marks: 60**

- III.** What is compartment model? Discuss in details mammillary model (one-compartment, two-compartment and three compartment) along with oral/IV drug administration examples. **(20)**
- IV.** a) What is reversible and irreversible drug-protein binding? **(10 + 10 = 20)**  
b) Derived the kinetics of protein binding in light of law of mass action with single and multi-drug binding sites.
- V.** a) What is the purpose of bioavailability? **(10 + 10 = 20)**  
b) Explain relative and absolute bioavailability in details
- VI.** a) Determination of pharmacokinetics variations in renal and hepatic diseases.  
b) General approaches for dose adjustment in renal disease and hepatic diseases **(10 + 10 = 20)**
- VII.** Write a short note on any four of the “five” of the following **(20)**
- a) Forces which help in transmembrane movements
  - b) Physiologic pharmacokinetic model (flow model)
  - c) Biological half-life
  - d) Determination of Apparent volume of distribution ( $V_d$ ) of the drugs
  - e) Penicillin has a  $Cl_T$  of 15 mL/min. Calculate the elimination rate for penicillin when the plasma drug concentration,  $C_p$ , is 2 g/mL



**SHAHEED BENAZIR BHUTTO UNIVERSITY SHERINGAL**  
**PHARMACY 4<sup>TH</sup> PROFESSIONAL ANNUAL EXAMINATIONS 2023**  
**Pharmaceutics-IV (Pharmaceutical Quality Management)**  
**Section-A**

Roll No: \_\_\_\_\_

Sign: \_\_\_\_\_

**Note Please:**

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**Time Allowed: 30 Minutes**

**Maximum Marks: 40**

**Note: Part A is compulsory. Attempt it on the same sheet and hand it over to the supervisory staff after 30 minutes. Cutting/overwriting is not allowed.**

**Q1. Encircle the correct option among the choices**

**(30)**

1. According to USP & BP the disintegration time for uncoated tablets is
  - a) 20 & 15 minutes respectively
  - b) 15 & 30 minutes respectively
  - c) 30 & 20 minutes respectively
  - d) 30 & 15 minutes respectively
2. According to BP if 20 tablets are tested for uniformity of weight then how many tablets having average weight of 300 mg may fall but must not cross which of the following permitted deviation to pass the test?
  - a) 18 tablets,  $\pm 05\%$
  - b) 02 tablets,  $\pm 7.5\%$
  - c) 02 tablets,  $\pm 15\%$
  - d) 02 tablets,  $\pm 10\%$
3. If capsules fail the disintegration test due to aggregation then how many additional capsules are tested and how are they tested?
  - a) 05 capsules which are individually tested
  - b) 06 capsules which are collectively tested
  - c) 04 capsules which are individually tested
  - d) 05 capsules which are collectively tested
4. In fragility test of suppository how much weight is added with which time interval after initial weight of 600 g?
  - a) 100 g after 5 minutes interval
  - b) 200 g after 5 minutes interval
  - c) 400 g after 2 minutes interval
  - d) 200 g after 1 minute interval
5. In alcohol determination process, bumping can be prevented during distillation by adding
  - a) Silicon carbide
  - b) Water
  - c) Sulphuric acid
  - d) Calcium chloride
6. According to BP 1980 which of the following method is used for clarity test of small volume injections?
  - a) Coulter counter
  - b) HIAC counter
  - c) Microscopic examination after membrane filtration
  - d) Both a & c
7. Which animal is used for bioassay of posterior pituitary?
  - a) Pigeon
  - b) Rat
  - c) Guinea-pig
  - d) Rabbit
8. Which organism is used for bioassay of streptomycin?
  - a) *Micrococcus flavus*
  - b) *Bacillus subtilis*
  - c) *Bacillus pumilus*
  - d) *Bacillus cereus*

**P.T.O.....**

9. Death or convulsion in mice occur when the blood sugar level falls below
- 250  $\mu\text{g/ml}$
  - 300  $\mu\text{g/ml}$
  - 350  $\mu\text{g/ml}$
  - 400  $\mu\text{g/ml}$
10. According to USP which of the following is the limit for the size of particles of  $\geq 25 \mu\text{m}$  in clarity test for small volume injection?
- 10000 / ml
  - 1000 / ml
  - 500 / container
  - 1000 / container
  - 10000 / container
11. The duration of injection of digitalis to guinea pigs is from
- 10 – 20 minutes
  - 20 – 40 minutes
  - 20 – 30 minutes
  - 30 – 40 minutes
12. Completeness of extraction process of alkaloids from a crude drug can be confirmed by adding which of the following reagent to the last percolate?
- Phenolphthalein
  - Methyl red
  - Methyl blue
  - Methyl orange
  - None of the above
13. How much menstrum is used in rotating bottle apparatus for invitro evaluation of sustained action product?
- 30 ml
  - 90 ml
  - 200 ml
  - 60 ml
14. According to BP if 10 tablets are tested for uniformity of weight then what is the passing criteria for tablets having average weight of 50 mg?
- All tablets must be within  $\pm 10 \%$  except 02 which must be within  $\pm 20 \%$
  - All tablets must fall within  $\pm 7.5 \%$  except 01 which must be within  $\pm 10 \%$
  - All tablets must be within  $\pm 10 \%$  except 01 which must not cross the limit of  $\pm 15 \%$
  - All tablets must be within  $\pm 05 \%$  except 02 which must not cross the limit of  $\pm 15 \%$
15. According to BP (1980) which of the following sizes of particles are to be detected by different methods used for clarity test?
- $\geq 10 \mu\text{m}$  &  $\geq 25 \mu\text{m}$
  - $\geq 2 \mu\text{m}$  &  $\geq 5 \mu\text{m}$
  - $\geq 2 \mu\text{m}$  &  $\geq 10 \mu\text{m}$
  - $\geq 15 \mu\text{m}$  &  $\geq 25 \mu\text{m}$

**Q.2. Encircle 'T' for true answer and 'F' for false answer (10)**

- Tip – sealed ampoules are more likely to be incompletely sealed than those that have been pull-sealed. F/ T
- The length of the fiber that can be seen by necked eye is 300 microns. F/ T
- In the Disintegration test of capsules, 5 capsules are placed in the apparatus. F/ T
- If capping occurs in friability test then test fails. F/ T
- LAL is assayed with purified endotoxins and are accepted if they detect 0.001  $\mu\text{g} / \text{ml}$  concentration of purified endotoxins. F/ T
- Alkaloidal; salts are easily soluble in amyl alcohol F/ T
- In leaker test vials are submerged in a deeply colored solution F/ T
- The activity of insulin assayed in rabbit is convulsion / or death due to hypoglycemia F/ T
- Normal blood sugar level of mice are 1000  $\mu\text{g} / \text{ml}$  F/ T
- 1 mg of standard of prepared digitalis is equal to 0.01316 unit F/ T



**SHAHEED BENAZIR BHUTTO UNIVERSITY SHERINGAL**  
**PHARMACY 4<sup>TH</sup> PROFESSIONAL ANNUAL EXAMINATIONS 2023**  
**Pharmaceutics-IV (Pharmaceutical Quality Management)**  
**Section-B**

Time Allowed: 2 hours and 30 Minutes

Max: Marks 60

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Note: Attempt any three questions out of five. Each questions carry equal (20) marks

- Q3. Write detailed note on the following (20)
- a) Disintegration test of tablets
  - b) Content uniformity of tablets
- Q4. Write detailed note on the following (20)
- a) In-vitro pyrogen test
  - b) Bioassay of insulin
- Q5. Write detailed note on the following (20)
- a) Purification of alkaloids
  - b) Alcohol determination in liquids containing less than 30 % of alcohol
- Q6. Write detailed note on the following (20)
- a) Potency testing of vaccine
  - b) Bioassay of Vitamin D.
- Q7. Write detailed note any four of the following topics, all carry equal marks (20)
- 1. Viscosity
  - 2. Percolation
  - 3. Loss on drying
  - 4. GMP
  - 5. Friability