

MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY,
BATHINDA

Ph.D. Entrance Examination of Pharmacy

ANSWER KEY

Question No.	Answer	Question No.	Answer
Q1	D	Q21	B
Q2	C	Q22	A
Q3	B	Q23	D
Q4	D	Q24	C
Q5	A	Q25	B
Q6	B	Q26	A
Q7	B	Q27	C
Q8	D	Q28	D
Q9	C	Q29	C
Q10	B	Q30	D
Q11	D	Q31	B
Q12	B	Q32	A
Q13	A	Q33	B
Q14	D	Q34	C
Q15	C	Q35	B
Q16	D	Q36	C
Q17	B	Q37	A
Q18	C	Q38	B
Q19	A	Q39	D
Q20	C	Q40	C

Rakul
19/1/24

Ph.D. Entrance Examination of PHARMACEUTICAL SCIENCES

- Q1. An inverse agonist has
- Affinity = 1; Intrinsic Activity = 1
 - Affinity = 1; Intrinsic Activity = 0 to 1
 - Affinity = 0; Intrinsic Activity = 0
 - Affinity = 1; Intrinsic Activity = -1
- Q2. Usually in basic research, we consider wash-out period of any new chemical entity from systemic circulation after
- 2 half life
 - 4 half life
 - 7 half life
 - 3 half life
- Q3. Main side effect and clinical use of Morphine are
- Cardiac depression and analgesic
 - Respiratory depression and analgesic
 - Cardiac stimulant and analgesic
 - Respiratory stimulant and analgesic
- Q4. For atypical antipsychotics, which statement is true
- Devoid of extrapyramidal side effects
 - Have multi-receptor interactions
 - Can lead to metabolic side effects
 - All of the above
- Q5. Beta blockers are not indicated in diabetes because they
- Mask symptoms of hypoglycemia
 - Increase hyperglycemic state
 - Precipitates hypokalemia
 - Increase urinary output
- Q6. First line of drug for congestive heart failure is
- Digoxin
 - Angiotensin converting enzyme inhibitors
 - Nitroglycerine
 - Sodium nitroprusside
- Q7. First line of drug for typhoid is
- Chloramphenicol
 - Ciprofloxacin
 - Azithromycin
 - Tramadol
- Q8. Select correct neurodegenerative disease
- Alzheimer's disease
 - Parkinson's disease
 - Huntington's disease
 - All of the above
- Q9. Erythropoietin is secreted from
- Liver
 - Pancreas
 - Kidney
 - Lungs

- Q10. Tachyphylaxis is rapid development of
- Toxicity
 - Tolerance
 - Efficacy
 - Affinity
- Q11. For Isabgol, which statement is true
- Absorb water up to 40 times of its weight
 - Slow down gastric emptying time
 - Epidermal and adjacent collapsed layers of the seeds of the plant *Plantago ovata*
 - All the above
- Q12. *Curcuma longa* Linn
- Possess strong inflammatory properties and is a superior oxidant
 - contain curcuminoids curcumin, dihydrocurcumin, desmethoxycurcumin, monodemethoxycurcumin, bisdemethoxycurcumin, and cyclocurcumin
 - an annual tree belonging to the family Zingiberaceae
 - All the above
- Q13. For glycosides, which statement is not true
- Sugar moiety is aglycon or genin and non-sugar moiety is glycon
 - Glycosides are classified by the aglycone residue, such as phenolic glycosides, flavonoid glycosides, etc. or by bioactivity, such as cardiac glycosides, antibiotic glycosides
 - Both a & b
 - None
- Q14. After collection, crude drugs cannot be dried by
- Sun drying
 - Vacuum dryer
 - Spray dryer
 - Freeze dryer
- Q15. Select the incorrect statement
- Crude drugs are classified according to kingdom, subkingdom, division, class, order, family, genus and species
 - Organized drugs consist of the cellular organization in the form of anatomical features.
 - Adulteration is defined as substituting original crude drug partially or wholly with other different-looking substances
 - Organoleptic evaluation refers to the methods of analysis like colour, odour, taste, size, shape, and special features, such as: touch, texture, etc.
- Q16. For cod liver oil, which statement is true
- a source of vitamins A and D and a fat called omega-3
 - used for heart health, depression, arthritis
 - contains certain "fatty acids" that prevent the blood clotting, reduce pain and swelling
 - All the above
- Q17. Five major classes of plant hormones are
- Auxins, cytokine, gibberellins, abscisic acid and ethylene
 - Auxins, cytokinins, gibberellins, abscisic acid and ethylene
 - Auxins, cytokinins, gibberellins, ascorbic acid and ethylene
 - Auxins, cytokinins, gibberellins, abscisic acid and xylene
- Q18. Tetraploidy is induced by treatment with
- Nitrogen and Sulphur mustard
 - U.V. radiation
 - Colchicine
 - Nitrous acid

- Q19. The following sequence of steps are involved in hybridization of plant
- Choice of parents – Emasculation- Bagging - Pollination
 - Pollination - Choice of parents – Emasculation - Bagging
 - Choice of parents – Bagging – Emasculation - Pollination
 - Choice of parents - Pollination – Emasculation- Bagging
- Q20. Major steps of Tissue Culture are
- Micropropagation phase • Multiplication phase • Root formation phase
 - Initiation phase • Callus phase • Root formation phase
 - Initiation phase • Multiplication phase • Root formation phase
 - Initiation phase • Multiplication phase • Protoplast phase
- Q21. Loading dose depends upon
- Clearance
 - Volume of distribution
 - Half life
 - None
- Q22. Volume of distribution of warfarin is approximately
- 10 liters
 - 20 liters
 - 30 liters
 - 70 liters
- Q23. Particle size in the range of 0.2 – 100 μm can be measured by
- Conductivity Method
 - Sieving Method
 - Sedimentation Method
 - Optical Microscopy
- Q24. The phenomenon of thixotropy is influenced by several factors like
- pH, temperature, humidity, polymer concentrations, polymer modification or combinations
 - pH, temperature, carbon dioxide, oxygen, nitrogen
 - pH, temperature, polymer concentrations, polymer modification or combinations, addition of cations or anions
 - carbon dioxide, oxygen, nitrogen, sugar, buffers
- Q25. The HLB scale ranges from 0 to 20. In the range of 3.5 to 6.0, surfactants are more suitable for use in
- O/W/O emulsions
 - W/O emulsions
 - W/O/W emulsions
 - O/W emulsions
- Q26. Fluidized bed coating and Coextrusion the nature of core material is
- Solid
 - Liquid
 - Gas
 - Solid and Liquid
- Q27. Effective vaccines delivered via inhalation can lead to both strong mucosal and systemic immunity. The first such product against COVID-19—a collaborative effort between pharma company CanSino Biologics (CanSinoBIO, Tianjin, China) and respiratory device developer Aerogen (Galway, Ireland)—received regulatory approval in China in early September 2022 is
- Covin Air
 - Covid Air
 - Convidecia Air
 - Convia Air

Q28. Choose the incorrect statement

- a) Solid dosage drugs may be easier to manufacture, they present more challenges regarding regulatory requirements
- b) Semi-solid dosage drugs are more challenging to manufacture, they are subject to fewer regulatory obstacles
- c) Chewable tablets are a versatile dosage form offering several advantages including oral drug delivery without the need for water, ease of swallowing, the stability advantages of solid dosage forms, and patient-centric drug delivery.
- d) The mechanical properties of a tablet are not important to ensure tablet durability and low friability after compression, during packaging, shipping, and handling.

Q29. Spansules are capsules that release medication

- a) In gel form
- b) Immediately
- c) At a steady rate over a period of many hours
- d) Like aerosol

Q30. Tablets should be subjected to a number of tests before they are deemed fit for marketing and consumption. Non-Pharmacopoeial test for tablet is

- a) Content uniformity test
- b) Weight uniformity test/ weight variation test
- c) Disintegration time test
- d) Friability test

Q31. Very recently, U.S. Food and Drug Administration (FDA) granted accelerated approval of a new drug for the treatment of early-stage Alzheimer's disease

- a) Modafinil
- b) Leqembi
- c) Aricept
- d) Razadyne

Q32. The lipid/water partition coefficient denotes the ratio of the concentration of a drug in

- a) Two immiscible or slightly miscible phases
- b) Two miscible or slightly immiscible phases
- c) Both
- d) None

Q33. Schedule Y is related to

- a) OTC sale of medicine
- b) Clinical trial of medicine
- c) Prescription based sale of medicine
- d) None

Q34. Langmuir's theory of adsorption states that

- a) Layers of gasses adsorbed on liquid surfaces possess as multimolecular nature
- b) Layers of gasses adsorbed on solid surfaces possess as multimolecular nature
- c) Layers of gasses adsorbed on solid surfaces possess as unimolecular nature
- d) Layers of gasses adsorbed on liquid surfaces possess as unimolecular nature

Q35. All natural processes are accompanied by a net gain in entropy of the system and its surroundings.

- a) First Law of thermodynamics
- b) Second Law of thermodynamics
- c) Third Law of thermodynamics
- d) None

- Q36. Lipinski rule of 5 helps in distinguishing between drug like and non drug like molecules. It predicts high probability of success or failure due to drug likeness for molecules complying with 2 or more of the following rules except
- Molecular mass less than 500 Dalton
 - Less than 5 hydrogen bond donors
 - High hydrophilicity (expressed as LogP more than 5)
 - Less than 10 hydrogen bond acceptors
- Q37. Beckmann rearrangement is an acid-induced rearrangement of oximes to give
- Amides
 - Amine
 - Alcohol
 - Ketone
- Q38. The functional groups involved in enzyme immobilization were identified as under except
- Free amino and carboxyl groups
 - Ketone group of histidine
 - Sulfhydryl group of cysteine
 - Phenolic groups and hydroxyl groups of serine and threonine
- Q39. The Kjeldahl method may be broken down into the following main steps
- digestion, distillation, filtration and titration
 - filtration, distillation, and titration
 - digestion, distillation, and filtration
 - digestion, distillation, and titration
- Q40. Mass analysis is the separation of streams of ions according to their individual
- mass-to-volume (m/v) ratio
 - mass-to-enthalpy (m/e) ratio
 - mass-to-charge (m/z) ratio
 - none