

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA, VADODARA

Ph. D. ENTRANCE TEST (PET) 2025

Signature of Invigilator

Roll.
No.

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Paper - II
Pharmacy

Maximum Marks: 50

No. Of Printed Pages: 8

Instruction for the Candidate:

1. This paper consists of **FIFTY (50)** multiple choice type questions. Each Question carries **ONE (1)** mark.
2. There is no Negative Marking for Wrong Answer.
3. A separate OMR Answer Sheet has been provided to answer questions. Your answers will be evaluated based on your response in the OMR Sheet only. No credit will be given for any answering made in question booklet.
4. Defective question booklet or OMR if noticed may immediately replace by the concerned invigilator.
5. Write roll number, subject code, booklet type, category and other information correctly in the OMR Sheet else your OMR Sheet will not be evaluated by machine.
6. Select most appropriate answer to the question and darken appropriate oval on the OMR answer sheet, with black / blue ball pen only. **DO NOT USE PENCIL** for darkening. In case of over writing on any answer, the same will be treated as invalid. Each question has exactly one correct answer and has four alternative responses (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.
Example: (A) ● (B) ● (C) ● (D) ● where (B) is correct response.
7. Rough Work is to be done in the end of this booklet.
8. If you write your Name, Roll Number, Phone Number or put any mark on any part of the OMR Answer Sheet, except for the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, such as change of response by scratching or using white fluid, you will render yourself liable to disqualification.
9. Calculators, Log tables any other calculating devices, mobiles, slide rule, text manuals etc are **NOT** allowed in the examination hall. If any of above is seized from the candidates during examination time; he/ she will be immediately debarred from the examination and corresponding disciplinary action will be initiated by the Center Supervisor as deemed fit.
10. **DO NOT FOLD** or **TEAR** OMR Answer sheet as machine will not be able to recognize torn or folded OMR Answer sheet.
11. **You have to return the OMR Answer Sheet to the invigilator at the end of the examination compulsorily** and must not carry it with you outside the Examination Hall. You are however, allowed to carry original question booklet on conclusion of examination.

Paper - II
Pharmacy

Note: This paper contains **FIFTY (50)** multiple-choice questions. Each Question carries **ONE (1)** mark.

1.	Which of the following is NOT a part of the structure penicillin? A. Thiazolidine ring B. Dhydrofuran ring C. β -Lactam ring D. Dihydrothiazine ring
2.	Flumazenil is an antidote used to reverse the effects of: A. Barbiturates B. Benzodiazepines C. Beta-blockers D. Opioids
3.	Molnupiravir, used for treating mild to moderate COVID-19, acts by: A. Protease inhibition B. Blocking neuraminidase C. Inducing viral error catastrophe D. Inhibiting integrase
4.	Choose the technique which is a part of indirect drug design method A. Docking based virtual screening B. Homology modelling C. 3D-QSAR D. Molecular docking
5.	Which of the following drugs can cause QT prolongation and must be monitored in MDR-TB patients? A. Rifampicin B. Levofloxacin C. Bedaquiline D. Pyrazinamide
6.	Hybridization is defined as: A. Crossing of genetically different plants or animals B. Doubling of chromosomes C. Transfer of genetic material to offspring D. Mutation caused by chemicals
7.	Which brain pathway is mainly affected in Parkinsonism? A. Nigrostriatal pathway B. Mesolimbic pathway C. Spinothalamic tract D. Pyramidal tract
8.	The imbalance in Parkinsonism is due to: A. Increased GABA and decreased acetylcholine B. Decreased dopamine and relative increase in acetylcholine C. Increased serotonin and decreased dopamine D. Increased norepinephrine and decreased glutamate
9.	Estrogen is primarily secreted by which of the following: A. Corpus luteum B. Granulosa cells of the developing follicle C. Theca interna cells D. Endometrium
10.	Which of the following organs is not part of the lymphatic system? A. Spleen B. Thymus C. Pancreas D. Lymph nodes

11.	Heterocyclic ring INDOLE is present in A. Flurbiprofen B. Sulindac C. Indomethacin D. Diclofenac
12.	Furosemide belong to class of A. ACE inhibitors B. Aldosterone antagonist C. H ₂ receptor antagonist D. Loop diuretics
13.	Glucosidic bond in sucrose is : A. α 1-4 B. β 1-4 C. α 1-2 D. β 1-2
14.	The side chain of histidine contain: A. Indole ring B. Phenol ring C. Imidazole ring D. Guanidino ring
15.	A reversible non-competitive inhibitor binds reversibly at a site other than the active site. This binding leads to : A. Increase in K _m and V _{max} remains constant B. Increase in V _{max} and K _m remains constant C. Decrease in V _{max} and K _m remains constant D. No change in V _{max} and K _m
16.	Which of the following alkyl halides is most likely to undergo rearrangement in an S _N ¹ reaction? A. 3-Bromopentane B. 2-Chloro-3,3-dimethylpentane C. 3-Chloropentane D. Bromocyclohexane
17.	Chemical name of procaine is A. 2-Diethylaminoethyl 4-aminobenzoate B. <i>N,N</i> -Diethyl 4-amminobenzoate C. 4-Aminobenzamidoethyl amine D. 4-Amino-2-diethylaminoethylbenzoate
18.	Codeine differs from Morphine structure by A. N-Methyl group B. Cl group C. OC ₂ H ₅ group D. OMe Group
19.	Which of the following is not a primary factor that affects the rate of an S _N ¹ reaction? A. Stability of the carbocation B. Concentration of the nucleophile C. Nature of the leaving group D. Steric hindrance
20.	The chemical structure of the antihistamine drug diphenhydramine isderivative. A. Ethanolamine B. Alkylamine C. Piperazine D. Aminoalkylbenzene
21.	Which of the following is the correct IUPAC name for a 3-membered heterocyclic ring containing one oxygen atom? A. Aziridine B. Oxirane C. Thiirane D. Oxetane

22.	Which of the following antiviral agents is a long-acting injectable used for HIV pre-exposure prophylaxis? A. Emtricitabine B. Cabotegravir C. Lamivudine D. Dolutegravir
23.	Caffeine is the example of A. Amino alkaloids B. True alkaloids C. Pseudo alkaloids D. Proto alkaloids
24.	Rosettes of Calcium oxalate crystals are found in A. Senna B. Rhubarb C. Cinchona D. Licorice
25.	If Flavonoids are dissolved in alkalis it givescolour A. Blue B. Green C. Yellow D. Red
26.	Nutmeg obtained from Myristica fragrans is a A. Seed B. Fruit C. Arillus D. Kernel
27.	Liquorice extract and glycyrrhetic acid are useful in treatment of A. Hypertension B. Rheumatoid arthritis C. Dementia D. Skin disease
28.	Citral is a suitable substance for synthesis of A. Vitamin A B. Vitamin B C. Vitamin C D. Vitamin D
29.	Aconite is belongs to which of the following alkaloid A. Steroidal B. Terpenoidal C. Indole D. Quinoline
30.	The detector that is not used in HPLC is: A. UV detector B. Fluorescence detector C. Flame ionization detector D. Photo diode array detector
31.	Which of the following is an example of a volumetric method used in pharmaceutical analysis? A. Gas chromatography B. High-performance liquid chromatography C. Titration D. Spectrophotometry

32.	<p>What does an endotherm in a DSC thermogram indicate?</p> <p>A. Release of heat B. Decomposition of drug C. Degradation of drug D. Absorption of heat</p>
33.	<p>The electrode which can be used as a pH electrode is:</p> <p>A. Calomel electrode B. Glass electrode C. Platinum electrode D. Dropping mercury electrode</p>
34.	<p>The unit of magnetic field in NMR is</p> <p>A. Cycles/sec B. Tesla C. Pulse/sec D. Gauss</p>
35.	<p>A drug shows zero-order release from a matrix system. Which condition is true?</p> <p>A. Drug concentration-dependent release B. Constant release rate over time C. Release decreases exponentially D. Higuchi model follows</p>
36.	<p>In microencapsulation, coating rupture is influenced most by:</p> <p>A. Wall thickness B. Molecular weight C. Diffusion coefficient D. Wettability</p>
37.	<p>Laminar flow hood uses HEPA filters to remove particles of size:</p> <p>A. $>0.5 \mu\text{m}$ B. $>0.3 \mu\text{m}$ C. $>0.45 \mu\text{m}$ D. $>1.0 \mu\text{m}$</p>
38.	<p>Which of the following methods ensures maximum sterility assurance level (SAL)?</p> <p>A. Dry heat sterilization B. Autoclaving C. Gamma irradiation D. Filtration</p>
39.	<p>In parenteral emulsions, droplet size must be:</p> <p>A. $<0.5 \mu\text{m}$ B. $<5 \mu\text{m}$ C. $>10 \mu\text{m}$ D. $<1 \mu\text{m}$</p>
40.	<p>Which of the following is not a property of an ideal ophthalmic vehicle?</p> <p>A. Isotonic B. Sterile C. pH 4.0 D. Non-irritating</p>
41.	<p>Noyes-Whitney equation relates to:</p> <p>A. Permeation B. Dissolution C. Complexation D. Diffusion</p>
42.	<p>The extent of drug absorption is described by:</p> <p>A. AUC B. C_{max} C. T_{max} D. K_a</p>

43.	Which of the following monoclonal antibodies targets the HER2 receptor and is commonly used in the treatment of HER2-positive breast cancer? A. Bevacizumab B. Rituximab C. Cetuximab D. Trastuzumab
44.	The ICH guideline Q8 deals with: A. Stability studies B. GMP C. Pharmaceutical development D. Analytical procedures
45.	Freeze-drying is preferred over spray-drying when: A. Speed is critical B. Drug is heat-sensitive C. High volume needed D. Hygroscopic powders desired
46.	Which schedule of the Drugs and Cosmetics Act deals with life-saving drugs? A. Schedule G B. Schedule H C. Schedule X D. Schedule I
47.	Pharmacy Act, 1948 provides for: A. Drug price control B. Registration of pharmacists C. Clinical trial regulation D. Establishment of drug control labs
48.	Choose the technique which is a part of direct drug design method A. Docking B. 2D-QSAR C. 3D-QSAR D. Pharmacophore
49.	The following statement is true for Lipinski's rule of five for a compound to show drug like properties: A. No more than 5 hydrogen bond donors B. No more than 5 hydrogen bond acceptors C. No more than 10 hydrogen bond donors D. Molecular weight more than 500
50.	Which sterilization method is best for heat-sensitive enzymes? A. Autoclaving B. Dry heat C. Radiation D. Membrane filtration

Rough Work: