

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2011.

Ph.D. (BIOCHEMICAL PHARMACOLOGY)

COURSE CODE : 162

Register Number :

*Signature of the Invigilator
(with date)*

COURSE CODE : 162

Time : 2 Hours

Max : 400 Marks

Instructions to Candidates :

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.
2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.
3. Read each question carefully and shade the relevant answer (A) or (B) or (C) or (D) in the relevant box of the ANSWER SHEET using HB pencil.
4. Avoid blind guessing. A wrong answer will fetch you—1 mark and the correct answer will fetch 4 marks.
5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.
6. Do not open the question paper until the start signal is given.
7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.
8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.
9. Use of Calculators, Tables, etc. are prohibited.

1. Which one of the following antihypertensive drugs can precipitate a hypertensive crisis following abrupt cessation of therapy?
(A) Clonidine (B) Diltiazem
(C) Enalapril (D) Losartan
2. Which of the following drugs is fibrinolytic?
(A) Ticlopidine (B) Streptokinase
(C) Aspirin (D) Warfarin
3. Which one of the following drugs binds bile acids in the intestine, thus preventing their return to the liver via the enterohepatic circulation?
(A) Niacin (B) Fenofibrate
(C) Cholestyramine (D) Probucol
4. Carbonic anhydrase enzyme inhibitor
(A) Acetazolamide (B) Amiloride
(C) Furosemide (D) Mannitol
5. New class of anti diabetic drugs
(A) Biguanides (B) Mglitinides
(C) Alfa glucosidase inhibitors (D) Thiazolidinediones
6. Selective estrogen receptor modulator
(A) Tamoxifen (B) Flutamide
(C) Danazol (D) Clonidine
7. Omalizumab used in following disease
(A) Cancer (B) Asthma
(C) Angina (D) Ulcer

8. Indicate the drug, which has greater potency of the local anesthetic action:
- (A) Lidocaine (B) Bupivacaine
(C) Procaine (D) Mepivacaine
9. Which of the following cholinomimetics is commonly used in the treatment of glaucoma?
- (A) Pilocarpine (B) Lobeline
(C) Acetylcholine (D) Neostigmine
10. Indicate an antimuscarinic drug, which is effective in the treatment of mushroom poisoning :
- (A) Pralidoxime (B) Pilocarpine
(C) Homatropine (D) Atropine
11. Indicate the indirect-acting sympathomimetic agent :
- (A) Epinephrine (B) Phenylephrine
(C) Ephedrine (D) Isoproterenol
12. Nonselective alfa-receptor antagonists are most useful in the treatment of:
- (A) Asthma (B) Cardiac arrhythmias
(C) Pheochromocytoma (D) Chronic hypertension
13. Indicate the mechanism of barbiturate action (at hypnotic doses):
- (A) Increasing the duration of the GABA-gated Cl⁻ channel openings
(B) Directly activating the chloride channels
(C) Increasing the frequency of Cl⁻ channel opening events
(D) All of the above
14. Which of the following agents is a full antagonist of opioid receptors?
- (A) Meperidine (B) Buprenorphine
(C) Naloxone (D) Butorphanol

15. Lithium carbonate is useful in the treatment of:
- (A) Petit mal seizures (B) Bipolar disorder
(C) Neurosis (D) Trigeminal neuralgia
16. Indicate the drug belonging to proton pump inhibitors
- (A) Pirenzepine (B) Ranitidine
(C) Omeprazole (D) Trimethaphan
17. This drug is a Class II antiarrhythmic drug
- (A) Flecainide (B) Propranolol
(C) Lidocaine (D) Verapamil
18. Antibiotic inhibiting bacterial RNA synthesis is
- (A) Erythromycin (B) Rifampin
(C) Chloramphenicol (D) Imipinem
19. Tick the group of antibiotics having an antimalarial effect
- (A) Aminoglycosides (B) Tetracyclins
(C) Carbapenems (D) Penicillins
20. All of the following antiviral drugs are antiretroviral agents, EXCEPT
- (A) Acyclovir (B) Zidovudine
(C) Zalcitabine (D) Didanosine
21. What kind of substances can't permeate membranes by passive diffusion?
- (A) Lipid-soluble (B) Non-ionized substances
(C) Hydrophobic substances (D) Hydrophilic substances
22. Which route of drug administration is most likely to lead to the first-pass effect?
- (A) Sublingual (B) Oral
(C) Intravenous (D) Intramuscular
23. The substance binding to one receptor subtype as an agonist and to another as an antagonist is called
- (A) Competitive antagonist (B) Irreversible antagonist
(C) Agonist-antagonist (D) Partial agonist

24. Which of the following antiparkinsonism drugs is an anticholinergic agent?
(A) Amantadine (B) Selegilin
(C) Trihexyphenidyl (D) Bromocriptine
25. Which of the following opioid analgesics is a strong mu receptor agonist?
(A) Naloxone (B) Morphine
(C) Pentazocine (D) Buprenorphine
26. Half life ($t_{1/2}$) is the time required to:
(A) Change the amount of a drug in plasma by half during elimination
(B) Metabolize a half of an introduced drug into the active metabolite
(C) Absorb a half of an introduced drug
(D) Bind a half of an introduced drug to plasma proteins
27. What does "pharmacokinetics" include?
(A) Pharmacological effects of drugs
(B) Unwanted effects of drugs
(C) Chemical structure of a medicinal agent
(D) Distribution of drugs in the organism
28. Indicate the local anesthetic, which is a toluidine derivative
(A) Lidocaine (B) Bupivacaine
(C) Prilocaine (D) Procaine
29. Which of the following local anesthetics is a thiophene derivative?
(A) Procaine (B) Ultracaine
(C) Lidocaine (D) Mepivacaine
30. Local anesthetics are
(A) Weak bases (B) Weak acids
(C) Salts (D) None of the above
31. Indicate the location of M2 cholinoreceptor type
(A) Heart (B) Glands
(C) Smooth muscle (D) Endothelium

32. The symptoms of mushroom poisoning include all of the following EXCEPT
- (A) Salivation, lacrimation, nausea, vomiting
 - (B) Dryness of mouth, hyperpyrexia, hallucination
 - (C) Headache, abdominal colic
 - (D) Bradycardia, hypotension and shock
33. Which of the following cholinesterase inhibitors is irreversible?
- (A) Physostigmine
 - (B) Edrophonium
 - (C) Neostigmine
 - (D) Isoflurophate
34. Indicate cholinesterase activator
- (A) Pralidoxime
 - (B) Edrophonium
 - (C) Pilocarpine
 - (D) Isoflurophate
35. Which of the following cholinomimetics is used in the treatment of atropine intoxication?
- (A) Neostigmine
 - (B) Carbochol
 - (C) Physostigmine
 - (D) Lobeline
36. The symptoms of excessive stimulation of muscarinic receptors include all of the following EXCEPT:
- (A) Abdominal cramps, diarrhea
 - (B) Increased salivation, excessive bronchial secretion
 - (C) Miosis, bradycardia
 - (D) Weakness of all skeletal muscles
37. The excessive stimulation of muscarinic receptors by pilocarpine and choline esters is blocked competitively by
- (A) Edrophonium
 - (B) Atropine
 - (C) Pralidoxime
 - (D) Echothiophate

38. Which of the following drugs is useful in the treatment of Parkinson's disease?
- (A) Benztropine (B) Edrophonium
(C) Succinylcholine (D) Hexamethonium
39. Beta2 receptor stimulation includes all of the following effects EXCEPT
- (A) Stimulation of renin secretion
(B) Fall of potassium concentration in plasma
(C) Relaxation of bladder, uterus
(D) Tachycardia
40. Hyperglycemia induced by epinephrine is due to
- (A) Gluconeogenesis (beta2) (B) Inhibition of insulin secretion (alfa)
(C) Stimulation of glycogenolysis (beta2) (D) All of the above
41. Which of the following drugs has both alfa1-selective and beta-blocking effects?
- (A) Labetalol (B) Betaxolol
(C) Propranolol (D) Timolol
42. Hypnotic drugs are used to treat
- (A) Psychosis (B) Sleep disorders
(C) Narcolepsy (D) Parkinsonian disorders
43. Indicate the competitive antagonist of BZ receptors
- (A) Flumazenil (B) Picrotoxin
(C) Zolpidem (D) Temazepam
44. Granulocytopenia, gastrointestinal irritation, gingival hyperplasia, and facial hirsutism are possible adverse effects of
- (A) Phenobarbital (B) Carbamazepin
(C) Valproate (D) Phenytoin
45. The antiseizure drug, which induces hepatic microsomal enzymes, is
- (A) Lamotrigine (B) Phenytoin
(C) Valproate (D) None of the above

46. Indicate an irreversible inhibitor of GABA aminotransferase (GABA-T)
- (A) Diazepam (B) Phenobarbital
(C) Vigabatrin (D) Felbamate
47. Which of the following drugs is used in the treatment of Parkinsonian disorders?
- (A) Phenytoin (B) Selegiline
(C) Haloperidol (D) Fluoxetine
48. Indicate a selective inhibitor of monoamine oxidase B
- (A) Levodopa (B) Amantadine
(C) Tolcapone (D) Selegiline
49. Select the narcotic analgesic, which is an antagonist or partial mu receptor agonist:
- (A) Fentanyl (B) Pentazocine
(C) Codeine (D) Methadone
50. Indicate the nonopioid agent of central effect with analgesic activity:
- (A) Reserpine (B) Propranolol
(C) Clopheline (D) Prazosin
51. Select the antiseizure drug with an analgesic component of effect
- (A) Carbamazepine (B) Ethosuximide
(C) Phenytoin (D) Clonazepam
52. Indicate the atypical antipsychotic drug
- (A) Haloperidol (B) Clozapine
(C) Thioridazine (D) Thiothixene
53. Indicate the antipsychotic drug, which is a butyrophenone derivative:
- (A) Droperidol (B) Thioridazine
(C) Sertindole (D) Fluphenazine
54. Indicate the antipsychotic drug having H₁-antihistaminic activity:
- (A) Clozapine (B) Chlorpromazine
(C) Olanzapine (D) All of the above

55. Indicate the irreversible MAO inhibitor, which is a hydrazide derivative:
- (A) Moclobemide (B) Selegiline
(C) Tranylcypramine (D) Phenzelzine
56. Which of the following benzodiazepines has the shortest duration of action?
- (A) Triazolam (B) Clorazepate
(C) Prazepam (D) Clordiazepoxide
57. Caffeine does not cause:
- (A) Inhibition of gastric secretion (B) Hyperglycemia
(C) Moderate diuretic action (D) Increase in free fatty acids
58. Which of the following agents is related to cannabis?
- (A) Heroin (B) Ecstasy
(C) Hashish (D) Crack
59. Which of the following general anesthetics belongs to inhalants?
- (A) Thiopental (B) Desfluran
(C) Ketamine (D) Propofol
60. Which of these groups of drugs is used for asthma treatment?
- (A) Methylxanthines (B) M-cholinoblocking agents
(C) Beta2 - stimulants (D) All of above
61. Choose the drug which is a H₂-receptor antagonist
- (A) Omeprazole (B) Pirenzepine
(C) Carbenoxolone (D) Ranitidine
62. Which drug is an analog of prostaglandin E₁?
- (A) Misoprostole (B) De-nol
(C) Sucralfate (D) Omeprazole
63. Pernicious anemia is developed due to deficiency of:
- (A) Erythropoetin (B) Vitamin B₁₂
(C) Iron (D) Vitamin B₆

64. Select the drug used for pernicious anemia
- (A) Ferrous lactate (B) Cyanocobalamin
(C) Iron dextran (D) Ferrous gluconate
65. An adverse effect of oral iron therapy is
- (A) Anemia (B) Thrombocytopenia
(C) Headache (D) Constipation
66. Which of the following drugs has low-molecular weight?
- (A) Dicumarol (B) Enoxaparin
(C) Phenprocoumon (D) Heparin
67. Indicate the drug belonging to antagonists of heparin
- (A) Aspirin (B) Dicumarol
(C) Dalteparin (D) Protamine sulfate
68. Tick the drug used as an oral anticoagulant:
- (A) Heparin (B) Daltreparin
(C) Dicumarol (D) Enoxaparin
69. The non-glycoside positive inotropic drug is
- (A) Digoxin (B) Strophantin K
(C) Dobutamine (D) Digitoxin
70. This is a drug of choice for acute treatment of ventricular tachycardias:
- (A) Flecainide (B) Sotalol
(C) Lidocaine (D) Verapamil
71. Which of the following antianginal agents is a calcium channel blocker?
- (A) Nitroglycerin (B) Dipyridamole
(C) Minoxidil (D) Nifedipine
72. This drug blocks alpha-1 adrenergic receptors
- (A) Prazosin (B) Clonidine
(C) Enalapril (D) Nifedipine

73. This drug activates alpha-2 adrenergic receptors
- (A) Labetalol (B) Phentolamine
(C) Clonidine (D) Enalapril.
74. Tick the diuretic agent having a potent and rapid effect
- (A) Furosemide (B) Spironolactone
(C) Dichlothiazide (D) Indapamide
75. Migraine is a disorder connected with
- (A) Thrombosis of cerebral vessels
(B) Brain hemorrhage
(C) Dysfunction of regulation of cerebral vessel tonus
(D) Malignant growth in brain
76. Vasopressin possesses the following:
- (A) Antidiuretic property
(B) Vasodilatation property
(C) Release of a thyroid hormone into the plasma
(D) Diuretic property
77. Oxytocin produces the following effects
- (A) It causes contraction of the uterus
(B) It assists the progress of spermatozoa into the uterine cavity
(C) It brings about milk ejection from the lactating mammary gland
(D) All of the above
78. Currently used antithyroid drugs include the following, EXCEPT
- (A) Propylthiouracil (PTU) (B) Diatrizoate sodium (Hypaque)
(C) Methimazole (Tapazole) (D) Potassium perchlorate
79. The action of insulin is potentiated by
- (A) Sulphonylureas (B) Glucagon
(C) Biguanides (D) None of the above

80. Currently used oral hypoglycemic thiazolidinediones include the following, EXCEPT
- (A) Pioglitazone (Actos) (B) Rosiglitazone (Avandia)
(C) Troglitazone (Rezulin) (D) All of the above
81. Tamoxifen is
- (A) Antiprogestin (B) Antiandrogen
(C) Antiestrogen (D) Androgen
82. Progesterone is secreted by
- (A) Ovarian follicles (B) Corpus luteum
(C) Granulosa and theca cells (D) All of the above
83. The major natural progestin is
- (A) Estradiol (B) Estron
(C) Progesterone (D) Estriol
84. H₂ histamine receptor subtype is distributed in
- (A) Smooth muscle, endothelium and brain
(B) Gastric mucosa, cardiac muscle, mast cells and brain
(C) Presynaptically in brain, mesenteric plexus and other neurons
(D) All of the above
85. Which of histamine H₁ antagonists is noted for the serotonin-blocking effect?
- (A) Brompheniramine (B) Cyproheptadine
(C) Suprastine (D) Dimedrol
86. Side effect of first-generation histamine H₁ antagonists is:
- (A) Aplastic anemia
(B) Vomiting, tinnitus, decreased hearing
(C) Sedation
(D) Gastric ulcers and upper gastrointestinal bleeding

87. Class of sirolimus (rapamycin) is
- (A) Immunoglobulins (B) Interferons
(C) Immunosuppressive agents (D) Monoclonal antibodies
88. Select a fat-soluble vitamin
- (A) Ascorbic acid (B) Tocopherol
(C) Thiamine (D) Riboflavin
89. Loosening of teeth, gingivitis and hemorrhage occur in the deficiency of:
- (A) Vitamin K (B) Vitamin B1
(C) Vitamin B6 (D) Vitamin C
90. This drug may block oxidation of low density lipoproteins (LDL)
- (A) Lovastatin (Mevacor) (B) Nicotinic acid (niacin)
(C) Gemfibrozil (Loprol) (D) Probucol (Lorelco)
91. Uricosuric drugs are the following, EXCEPT
- (A) Probenecid (B) Sulfinpyrazone
(C) Colchicine (D) Aspirin (at high dosages)
92. Indication of vitamin D3 is
- (A) Hypercalcemia (B) Paget's disease
(C) Hypophosphatemia (D) Osteomalacia
93. Mineralocorticoid effects cause
- (A) Increased catabolism
(B) Increased Na retention and K excretion
(C) Increased gluconeogenesis
(D) Deposition of fat on shoulders, face and abdomen
94. The drug can be used to treat nephrogenic diabetes insipidus
- (A) Hydrochlorothiazide (HydroDiuril) (B) Amiloride (Midamor)
(C) Both of the above (D) Neither of the above

95. The drug is the most potent diuretic
(A) Loop diuretics (B) Thiazide diuretics
(C) Potassium-sparing diuretics (D) Carbonic anhydrase inhibitors
96. Bacteristatic effect is
(A) Inhibition of bacterial cell division
(B) Inhibition of young bacterial cells growth
(C) Destroying of bacterial cells
(D) Formation of bacterial L-form
97. Antibiotics altering permeability of cell membranes are
(A) Glycopeptides (B) Polymyxins
(C) Tetracyclines (D) Cephalosporins
98. Mechanism of Amphotericin B action is
(A) Inhibition of cell wall synthesis
(B) Inhibition of fungal protein synthesis
(C) Inhibition of DNA synthesis
(D) Alteration of cell membrane permeability
99. Azoles have an antifungal effect because of:
(A) Inhibition of cell wall synthesis
(B) Inhibition of fungal protein synthesis
(C) Reduction of ergosterol synthesis
(D) Inhibition of DNA synthesis
100. Mechanism of Rifampin action is:
(A) Inhibition of mycolic acids synthesis
(B) Inhibition of DNA dependent RNA polymerase
(C) Inhibition of topoisomerase II
(D) Inhibition of cAMP synthesis
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