

**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI**  
**Pharmacology-II (PHA F341)**  
**End Semester Examination (Closed Book) - PART A**  
**Date: 19/05/2022**                      **Total Weightage: 35%**                      **Marks: 50M**

**Marking Scheme: Each correct answer carries 1M and wrong answer carries -0.5M.**

#	Question
1	<p>A 60-year-old man is diagnosed with deep-vein thrombosis. The patient was treated with a bolus of heparin, and a heparin drip was started. One hour later, he was bleeding profusely from the intravenous site. The heparin therapy was suspended, but the bleeding continued. Protamine was administered intravenously, and the bleeding resolved. The protamine:</p> <p>A. Inactivates antithrombin.            B. Activates the coagulation cascade.            C. Activates tissue-plasminogen activator.            D. Ionically combines with heparin.</p>
2	<p>Which of the following agents interferes with most of the cytochrome P450 enzymes and, thus, leads to many drug-drug interactions?</p> <p>A. Famotidine.            B. Omeprazole.            C. Cimetidine.            D. Ondansetron.</p>
3	<p>A couple celebrating their fortieth wedding anniversary is given a trip to Peru to visit Machu Picchu. Due to past experiences while traveling, they ask their doctor to prescribe an agent for diarrhea. Which of the following would be effective?</p> <p>A. Omeprazole.            B. Loperamide.            C. Famotidine.            D. Lorazepam.</p>
4	<p>Which one of the following drugs binds bile acids in the intestine, thus preventing their return to the liver via the enterohepatic circulation?</p> <p>A. Niacin.            B. Fenofibrate.            C. Cholestyramine.            D. Fluvastatin.</p>
5	<p>Which of the following statements is true for therapy with insulin glargine?</p> <p>A. It is primarily used to control prandial hyperglycemia.            B. It should not be combined with any other insulin.            C. It is now used preferentially in Type 1 diabetics who are pregnant.            D. Pharmacokinetically, there is no peak activity, and the activity lasts about 24 hours.</p>
6	<p>Symptoms of hyperthyroidism include all of following except:</p> <p>A. Tachycardia.            B. Nervousness.            C. Poor resistance to cold.            D. Body wasting.</p>
7	<p>Which one of the following drugs decreases de novo cholesterol synthesis by inhibiting the enzyme 3-hydroxy-3-methylglutaryl coenzyme A reductase?</p> <p>A. Fenofibrate.            B. Niacin.            C. Cholestyramine.            D. Lovastatin.</p>

8	<p>The ability to reduce insulin resistance is associated with which one of the following classes of hypoglycemic agents?</p> <p>A. Meglitinides.  B. Sulfonylureas.  C. <math>\alpha</math>-Glucosidase inhibitors.  D. Thiazolidinediones.</p>
9	<p>Which of the following best describes the effect of propylthiouracil on thyroid hormone production?</p> <p>A. It blocks the release of thyrotropin-releasing hormone.  B. It inhibits uptake of iodide by thyroid cells.  C. It prevents the release of thyroid hormone from thyroglobulin.  D. It blocks iodination and coupling of tyrosines in thyroglobulin to form thyroid hormones.</p>
10	<p>Which one of the following hyperlipidemias is characterized by elevated plasma levels of chylomicrons?</p> <p>A. Type I  B. Type II  C. Type III  D. Type IV</p>
11	<p>An educated diabetes mellitus patient was pleading for an oral anti-diabetic drug free from hypoglycemic effect with an endocrinologist. This diabetes specialist advised</p> <p>A. Metformin  B. Glibenclamide  C. Tolazamide  D. Chlorpropamide</p>
12	<p>Unfractionated heparin preparations inhibits the actions of thrombin on fibrinogen by accelerating the interaction between thrombin and</p> <p>A. Hageman's factor  B. Antithrombin III  C. Factor VIII  D. Platelet factor IV</p>
13	<p>Cytotoxic anti-cancer drug therapy generally causes moderate to intense emesis. Oncologist to combat this often uses combination of anti-emetics. Aprepitant is an add on drug in this regimen which acts by</p> <p>A. Neurokinin 1 receptor antagonism  B. Blocking corticosteroid receptor  C. Inhibiting directly the vomiting centre  D. blocking peripheral stretch receptors of lungs</p>
14	<p>Which one of the following is the most common side effect of antihyperlipidemic drug therapy?</p> <p>A. Elevated blood pressure.  B. Gastrointestinal disturbance.  C. Neurologic problems.  D. Heart palpitations.</p>
15	<p>Fibrates increases the level of HDL cholesterol by increasing the expression of</p> <p>A. apo AI and apo AII  B. apo AIII and apo AIV  C. apo AV and apo AVI</p>
16	<p>Which drug will attenuate the anticoagulant action of Warfarin:</p> <p>A. Chloramphenicol  B. Barbiturates  C. Metronidazole  D. Phenybutazone</p>

17	<p>What will happen to the serum drug concentration of Phenytoin if its administered with Cimetidine:</p> <p>A. Increase B. Decrease C. Unchanged</p>
18	<p>A chronic asthmatic patient aged 37 years was trained how to use inhaler. He knew that different types of inhalers containing different drugs are available. This patient asked his doctor which inhaler is suitable for acute bronchial asthma. Doctor answered that contains</p> <p>A. Salmeterol B. Fluticasone C. Cromolyn sodium D. Salbutamol</p>
19	<p>Which drug will potentiate the anticoagulant action of Warfarin:</p> <p>A. Rifampin B. Barbiturates C. Glutethimide D. Chloramphenicol</p>
20	<p>A 64-year-old woman with a history of Type 2 diabetes is diagnosed with heart failure. Which of the following drugs would be a poor choice in controlling her diabetes?</p> <p>A. Sitagliptin. B. Exenatide. C. Glyburide. D. Pioglitazone.</p>
21	<p>A 34-year-old immigrant with HIV disease complains of a productive cough with hemoptysis and night sweats. A sputum smear is positive for acid-fast bacilli. He is placed in isolation and started on isoniazid, rifampin, pyrazinamide, and ethambutol. A few months later, he complains of a loss of his ability to discriminate certain colors. What is causing his vision impairment?</p> <p>A. Ethambutol B. Isoniazid C. Miliary TB D. Pyrazinamide</p>
22	<p>A 43-year-old woman with recurrent urinary tract infections who is usually sensitive to ciprofloxacin now has three consecutive UTIs in a 4-month period. Each time, the culture and sensitivity reveal resistance to ciprofloxacin. What is the most likely source of resistance?</p> <p>A. DNA gyrase B. DNA polymerase C. DNA topoisomerase I D. DNA topoisomerase II</p>
23	<p>A 25-year-old man with multiple sexual partners begins to have flulike symptoms. He visits his primary care physician who recommends an HIV screening test based on his history. He is found to have an HIV infection and begins a drug regimen. Which of the following works by blocking the cleavage of the HIV polyproteins?</p> <p>A. Darunavir B. Delavirdine C. Enfuvirtide D. Maraviroc</p>

24	<p>A 32-year-old woman in her third trimester presents to the ambulatory care clinic with dysuria and urgency. Urine is nitrite positive and leukocyte esterase positive. A drug commonly used to treat urinary tract infections is trimethoprim–sulfamethoxazole, but the physician is reluctant to use it. What risk is the physician worried about?</p> <p>A. Gray baby syndrome  B. Kernicterus  C. Limb defects  D. Premature labor</p>
25	<p>A 3-year-old girl presents to the emergency department with a history of recurrent UTIs with costovertebral angle tenderness, high fever, and dysuria. A urine culture grows gram-negative lactose-fermenting rods. The physician suspects <i>E. coli</i> pyelonephritis. Ciprofloxacin is highly effective against <i>E. coli</i> in vitro, but the physician chooses not to use it in this case. Why would she choose not to prescribe ciprofloxacin?</p> <p>A. Ciprofloxacin is bacteriostatic, not bactericidal  B. Ciprofloxacin is contraindicated in patients younger than 18 years old  C. Ciprofloxacin is effective against <i>E. coli</i> in vitro, but not efficacious in vivo  D. The physician should prescribe ciprofloxacin in this case</p>
26	<p>A 23-year-old woman presents to her primary care physician with dysuria and urgency. Urine is positive for leukocyte esterase and nitrites. Her physician prescribes co-trimoxazole for her UTI. How does co-trimoxazole inhibit bacterial growth?</p> <p>A. Inhibition of cell wall synthesis  B. Inhibition of DNA gyrase  C. Inhibition of nucleotide synthesis  D. Inhibition of ribosomes</p>
27	<p>A 48-year-old man who is obese and a chronic alcoholic is hospitalized for spontaneous peritonitis. He begins a course of gentamicin as part of an empiric antibiotic regimen. Which of the following medications should the physician avoid prescribing while this patient is taking gentamicin?</p> <p>A. Disulfiram  B. Fomepizole  C. Furosemide  D. Omeprazole</p>
28	<p>A 27-year-old man hospitalized following a kidney transplant develops a high fever, tachycardia, and hypotension. Blood cultures grow <i>Candida albicans</i>. He is started on amphotericin B and flucytosine. Which of the following describes part of flucytosine’s mechanism of action?</p> <p>A. Disruption of microtubules  B. Inhibition of ergosterol synthesis  C. Inhibition of protein synthesis  D. Inhibition of thymidylate kinase</p>
29	<p>A 71-year-old man with osteomyelitis is treated with aminoglycosides. Blood cultures are drawn and reveal resistance to this antibiotic class. What is the most likely reason for this to occur?</p> <p>A. Increased hepatic transaminase activity  B. Increased phosphodiesterase activity  C. Presence of plasmid-associated synthesis of acetyltransferase  D. Uptake of drug into oxygen-dependent transport system</p>
30	<p>The rationale behind the lack of use of the antibiotic tetracycline in modern day medicine relates to which of the following?</p> <p>A. Altered targets  B. Efflux  C. Enzymatic activation  D. Permeability</p>

31	<p>Prior to the administration of Rifampin all patient medication should be examined for potential interactions. At times interaction may result in therapeutic failure and dire consequences. This is because rifampin:</p> <ul style="list-style-type: none"> <li>A. increases basal metabolism</li> <li>B. increases the activity of CYP3A4, 2C9, 2C19, 3A4</li> <li>C. suicidal substrate for enzymes</li> <li>D. inhibitor CYP3A4, 2C19, 2C9, 1A2</li> </ul>
32	<p>Doctor advice the patient after prescribing this antibiotic not to worry if it produces flu like syndrome. This is an anti-leprotic, anti-tuberculosis antibiotic that acts by inhibiting DNA dependent RNA polymerase enzyme</p> <ul style="list-style-type: none"> <li>A. Rapamycin</li> <li>B. Rifapentine</li> <li>C. Ansamycin</li> <li>D. Rifampicin</li> </ul>
33	<p>An adult educated patient enquired her physician that why penicillin is safe except hypersensitivity. Doctor explained the mechanism of action of penicillin as mentioned below discarding one of the statements</p> <ul style="list-style-type: none"> <li>A. binds to penicillin binding proteins</li> <li>B. causes loss of inhibitors of autolysins</li> <li>C. inhibits bacterial protein synthesis</li> <li>D. inhibits transpeptidase and cross linking</li> </ul>
34	<p>Clinical efficacy of clofazimine in leprosy is attributable to the following dynamic mechanisms, leaving one</p> <ul style="list-style-type: none"> <li>A. inhibits-microbial K<sup>+</sup> transport</li> <li>B. generation of hydrogen peroxide</li> <li>C. preventing DNA replication</li> <li>D. membrane disruption</li> </ul>
35	<p>An astute diabetologist did not agree with this insulin dependent diabetic patient to combine rosiglitazone with insulin. He informed the patient that it may precipitate</p> <ul style="list-style-type: none"> <li>A. renal failure + convulsion</li> <li>B. peripheral edema</li> <li>C. myocarditis</li> <li>D. hypocholesterolemia</li> </ul>
36	<p>Pharmacokinetic features of drug often are responsible for observed side effects. An example for this is metallic taste on administration of metronidazole. This is due to</p> <ul style="list-style-type: none"> <li>A. salivary excretion</li> <li>B. nitro reduction</li> <li>C. high volume of distribution</li> <li>D. slow metabolism</li> </ul>
37	<p>An aminoglycoside antibiotic which is not absorbed from the gastrointestinal tract is given orally in one of these protozoal infections</p> <ul style="list-style-type: none"> <li>A. Malaria</li> <li>B. Visceral leishmaniasis</li> <li>C. Amoebiasis</li> <li>D. Trichomoniasis</li> </ul>
38	<p>Salmonella typhi infection is treated with different types of antibiotics. Mono drug therapy would suffice the need. The penicillin that is often recommended</p> <ul style="list-style-type: none"> <li>A. Amoxicillin</li> <li>B. Ticarcillin</li> <li>C. Sulbactam</li> <li>D. Benzyl penicillin</li> </ul>

39	<p>A patient aged about 40 years was admitted to the hospital for osteomyelitis caused by Staphylococcus aureus with insidious onset of vague pain, local tenderness and fever. It is proved to be methicillin sensitive. In charge doctor administered this parenteral antibiotic at the dose of 9-12gm/day in 6 divided doses</p> <p>A. Nafcillin B. Vancomycin C. Rifampin D. Linezolid</p>
40	<p>A physician usually prescribes metronidazole to combat pseudomembranous colitis. In this condition metronidazole acts against</p> <p>A. penicillin resistant S. pneumoniae B. Listeria monocytogenes C. Haemophilus influenza D. Clostridium difficile</p>
41	<p>A pharmacologist while explaining the pharmacodynamics of anti-tuberculosis drugs emphasized that these drugs act by several mechanisms. Evidently the drug that acts mainly by inhibiting mycolic acid synthesis is</p> <p>A. Pyrazinamide B. Ethambutol C. Rifampicin D. Isoniazid</p>
42	<p>Anti-microbial drug therapy may induce fresh clinical problems. Following are few syndromes precipitated by commonly used chemotherapeutic agents. Likewise, dapsone can cause</p> <p>A. Red man's syndrome B. Erythema nodosum leprosum C. Flu like syndrome D. Fanconi syndrome</p>
43	<p>A female patient aged 45 years had the following clinical features fever, malaise, headache, sore throat, lymphadenopathy and atypical lymphocytosis. Doctor diagnosed this condition as toxoplasmosis. He prescribed this combination of drug with folinic acid (leucovorin)</p> <p>A. Cotrimoxazole B. dapsone + doxycycline C. rifampin + gentamycin D. pyrimethamine + sulphadiazine</p>
44	<p>A microbiologist was explaining the mechanism of development of bacterial resistance to tetracycline by discarding one of the mechanisms listed below</p> <p>A. increased efflux &amp; decreased influx B. mutation C. ribosomal protection D. enhanced rate of hepatic metabolism</p>
45	<p>A neurologist who is treating an elderly schizophrenic patient with haloperidol cautioned the patient not to use metoclopramide as antiemetic. The reason being metoclopramide precipitates</p> <p>A. Cholestatic jaundice B. Multiple sclerosis C. Cardiac arrhythmias D. Parkinsonism</p>

46	<p>A 37-year-old woman with hyperlipidemia is taking a drug to lower her triglyceride and blood cholesterol levels. She is considering stopping her therapy, however, because of a red, itchy rash on her face and neck that occurs following some doses. Which drug is she taking?</p> <p>A. Atorvastatin  B. Fenofibrate  C. Gemfibrozil  D. Nicotinic acid</p>
47	<p>A 45-year-old man with insulin-dependent diabetes mellitus on insulin injection decides that he wants to “drink” the insulin instead of taking the injection form. He is tired of the pain he gets during the injections. Which of the following is the most likely sequelae of this action?</p> <p>A. Diarrhea  B. Nausea  C. Persistent hyperglycemia  D. Transient ischemic attack</p>
48	<p>A 39-year-old man with insulin-dependent diabetes mellitus is brought to the emergency department after collapsing in a shopping mall. His blood sugar is 589 mg/dL. Which of the following preparations would have the least minimal effect on his blood sugar levels?</p> <p>A. Insulin aspart  B. Insulin glargine  C. Insulin lispro  D. Regular insulin</p>
49	<p>A 56-year-old man with Type-2 diabetes mellitus managed with acarbose presents to his primary care physician for a follow-up evaluation. His most recent laboratory studies indicate normal serum glucose levels and low serum amylase. What is the most likely explanation for this finding?</p> <p>A. Drug toxicity  B. Inhibition of pancreatic amylase  C. Pancreatitis  D. Pancreatic carcinoma</p>
50	<p>A 33-year-old woman presents to her primary care physician with tachycardia, heat intolerance, tremor, and unintentional weight loss. A thyroid scan shows multiple regions of thyroid taking up excess iodine. She is prescribed with a drug that will decrease synthesis of thyroid hormones and decrease the peripheral conversion of T4 to T3. Which drug is this?</p> <p>A. Lanreotide  B. Levothyroxine  C. Octreotide  D. Propylthiouracil</p>

**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI**  
**Pharmacology-II (PHA F341), End Semester Examination (Closed Book) - PART B**  
**Answer Key    Date: 19/05/2022    Total Weightage: 35%    Marks: 30M**

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**Q1. Write the name of the enzyme inhibited by the following drug.    [1 Each mark = 20M]**

#	Name of the Drug	Enzyme
1	Fluvastatin	
2	Aspirin	
3	Warfarin	
4	Zileuton	
5	Prostaglandin E2	
6	Lansoprazole	
7	Nitazoxanide	
8	Ciprofloxacin	
9	Sulfanilamide	
10	Trimethoprim	
11	Isoniazid	
12	Ethambutol	
13	Ketoconazole	
14	Terbinafine	
15	Penicillins	
16	Chloramphenicol	
17	Oseltamivir	
18	Stavudine	
19	Ritonavir	
20	Miglitol	



**Q2. Write True or False. Each correct answer carries 1M and wrong answer carries -0.5M [10M]**

#	Statement	True OR False
1	Emetine and dehydroemetine are usually administered orally rather than parenteral route	
2	Iodoquinol is effective against trophozoites in the intestinal wall or extra intestinal tissues but not against organisms in the bowel lumen	
3	Artemisinin is available for the treatment of severe, multidrug-resistant P.falciparum malaria.	
4	Alkalinization of the urine decreases Quinine excretion.	
5	Bacteria that can utilize preformed folate are not sensitive to sulfonamide	
6	Sulfasalazine is mainly used in the treatment of ulcerative colitis and regional enteritis	
7	Gentamicin is an aminoglycoside isolated from Microomnospora purpurea.	
8	Zidovudine terminates viral DNA chain elongation by competing with guanine triphosphate for incorporation into DNA	
9	Acyclovir inhibits viral DNA Polymerase	
10	H2 Receptor antagonists inhibiting acid production are irreversible inhibitors of H2 receptors	