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**MANIPAL UNIVERSITY**  
**MELAKA MANIPAL MEDICAL COLLEGE (MANIPAL CAMPUS)**  
**MBBS PHASE – I STAGE – II DEGREE EXAMINATION – SEPTEMBER 2016**  
**SUBJECT : PHARMACOLOGY – PAPER I (ESSAY)**

Monday, September 12, 2016

Time : 2.00 - 4.00 Hrs.

Max. Marks : 60

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1. Describe the following terms with an example:
    - 1A. Generic name of drug
    - 1B. Dissociative anaesthesia
    - 1C. Chemoprophylaxis

(2x3 = 6 marks)
  
  2. A 35-year-old man, weighing 70 kg is being administered drug 'A' by intravenous route. Drug 'A' follows first order elimination kinetics and is excreted via the kidneys. The half-life of the drug is calculated to be 3 hours. It has an aVd of 0.25 L/kg.
    - 2A. Mention the formula and calculate the loading dose that is required to give a plasma concentration of 10 mg/L.
    - 2B. List two advantages and two disadvantages of intravenous route of drug administration.

(2+ 2 = 4 marks)
  
  3. Explain the pharmacological basis for the following:
    - 3A. Thiopentone sodium is an ultra-short acting anaesthetic
    - 3B. Furosemide is used in acute pulmonary edema
    - 3C. Morphine is contraindicated in head injury patients
    - 3D. Prednisolone should not be stopped abruptly after prolonged use

(2x4 = 8 marks)
  
  - 4A. Explain the term 'therapeutic drug monitoring'. Give example of one drug that requires therapeutic drug monitoring.
  - 4B. Explain how the pH of urine affects the renal excretion of a drug.
  - 4C. Mention two cell-cycle specific and two cell-cycle nonspecific anticancer drugs.
  - 4D. Enumerate two low molecular weight heparins and mention their two advantages over unfractionated heparin.
  - 4E. Mention one antihistaminic useful in motion sickness and explain how it is useful in this condition.
  - 4F. Mention a drug used for chronic gout and describe its mechanism of action.
- (2+2+2+2+2+2 = 12 marks)

5. After successful treatment of an acute attack of asthma in the hospital, 16-year old Greg was discharged from the hospital with an inhaled steroid and a drug 'X' to be taken on "as needed" basis.

5A. Identify drug 'X' and describe its anti-asthmatic action.

5B. Name an inhaled steroid and explain the rationale for using it in the above patient.

(2+2 = 4 marks)

6A. Enumerate two angiotensin converting enzyme inhibitors and list their two adverse effects.

6B. Explain the mechanism of action of omeprazole.

6C. List two therapeutic uses and two adverse effects of mannitol.

6D. List two prokinetic agents and explain the mechanism of action of any one.

6E. Explain why propranolol is contraindicated in variant angina.

(2+2+2+3+2 = 11 marks)

7A. Explain the mechanism of action of metronidazole and mention its one therapeutic use with causative organism.

7B. Enumerate two aminoglycosides and mention their four common properties.

7C. List two bisphosphonates and explain their mechanism of action.

7D. List two each long acting and short acting insulin preparations.

(3+3+3+2 = 11 marks)

8. List two drugs belonging to different groups used in the following conditions:

8A. *Pseudomonas aeruginosa* infection

8B. Benign prostatic hyperplasia

8C. Candidiasis

8D. Psoriasis

(1x4 = 4 marks)



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## MANIPAL UNIVERSITY

MELAKA MANIPAL MEDICAL COLLEGE (MANIPAL CAMPUS)

MBBS PHASE – I STAGE – II DEGREE EXAMINATION – SEPTEMBER 2016

SUBJECT : PHARMACOLOGY – PAPER II (MTF)

Monday, September 12, 2016

Time : 4.30 - 5.30 Hrs.

Max. Marks : 120

### INSTRUCTIONS

1. For each statement, select T (True) or F (False) as your choice.
2. Indicate your choice by darkening the appropriate circle in the answer sheet provided.
3. Use only HB or 2B pencils to darken the circle.
4. Leave blank for Don't Know response.
5. Scoring systems is as follows :
  - For every **Correct** response                      1 mark is awarded
  - For every **Wrong** response                      0.5 mark is deducted
  - For every **Don't Know** response              No mark is deducted
6. Indicate your Roll Number (Registration Number) clearly and correctly.
7. Do not write anything in the question paper.
8. The true/false statements are numbered 101 to 160 and 201 to 260 (Total 120 statements).
9. This question paper contains **04 pages**. Please make sure that the question paper provided to you has all the pages.

**Phase I biotransformation reactions include**

101. Oxidation
102. Hydrolysis
103. Acetylation
104. Glucuronide conjugation

**Factors increasing bioavailability include**

105. Greater blood flow at the site of absorption
106. First pass metabolism
107. Ionized drugs
108. Smaller particle size of the drug

**Regarding plasma protein binding of drugs**

109. Basic drugs bind with plasma albumin
110. Highly plasma protein bound drugs remain restricted to the vascular compartment
111. The protein bound form is the active form of drug
112. Highly protein bound drugs are easily removed by dialysis

**Following drugs and their antidotes for poisoning are correctly matched**

113. Atropine: Physostigmine
114. Warfarin: Protamine
115. Morphine: Methadone
116. Paracetamol: N-acetyl cysteine

**Drugs used for the prophylaxis of migraine include**

117. Ergotamine
118. Amitriptyline
119. Sumatriptan
120. Propranolol

**Regarding phases of clinical trials**

121. Phase III trials are performed on 100-300 volunteers
122. Phase I trials detect unsuspected drug interactions
123. Phase II trials determine the efficacy of a drug
124. New drug application can be filed only after phase IV clinical trial

**Following terms are correctly matched with their descriptions**

125. Pharmacogenetics: study of inherited differences in drug response in humans
126. Potency: Maximum response produced by a drug
127. Antagonist: drug with negative intrinsic activity
128. Therapeutic index: ratio of median lethal dose and median effective dose

**Drugs used in glaucoma include**

129. Dorzolamide
130. Latanoprost
131. Atropine
132. Timolol

**Paracetamol**

133. Has high anti-inflammatory activity
134. Is used to treat fever
135. Is contraindicated in patients with peptic ulcer
136. Is used for acute visceral pain

**Antiplatelet drugs include**

137. Abciximab
138. Alteplase
139. Dipyridamole
140. Ticlopidine

**Following drugs are correctly matched with their adverse effects**

- 141. Cyclophosphamide – Haemorrhagic cystitis
- 142. Rifampicin – Optic neuritis
- 143. Sulfadoxine – Steven-Johnson syndrome
- 144. Alendronate - Esophagitis

**Ciprofloxacin**

- 145. Inhibits DNA gyrase
- 146. Is safe during pregnancy
- 147. Is effective in typhoid fever
- 148. Can cause tendinitis

**Regarding combined oral contraceptive pill**

- 149. Estrogen inhibits ovulation
- 150. Estrogen ensures prompt bleeding at the end of a menstrual cycle
- 151. It has to be taken continuously throughout the cycle
- 152. If a woman misses to take one pill, the course should always be discontinued

**Sodium valproate**

- 153. Blocks use-dependent  $\text{Na}^+$  channels
- 154. Activates GABA transaminase
- 155. Is safe in children below 3 years of age
- 156. Is used in bipolar disorder

**Lithium**

- 157. Promotes the synthesis of  $\text{IP}_3$
- 158. Can cause diabetes insipidus
- 159. Can be safely given along with thiazides
- 160. Is used for manic-depressive psychosis

**Adrenaline**

- 201. Is a vasoconstrictor
- 202. Inhibits glycogenolysis in liver
- 203. Causes bronchoconstriction
- 204. Can be used in cardiac arrest

**Propylthiouracil**

- 205. Inhibits peripheral conversion of  $\text{T}_4$  to  $\text{T}_3$
- 206. Is used in myxoedema coma
- 207. Is contraindicated during pregnancy
- 208. Causes agranulocytosis

**Following drugs are teratogenic**

- 209. Heparin
- 210. Thalidomide
- 211. Tetracycline
- 212. Phenytoin

**Following drugs are correctly matched with their mechanism of action**

- 213. Ranitidine: inhibits  $\text{H}^+ - \text{K}^+ - \text{ATPase}$  on gastric parietal cells
- 214. Bisacodyl: stimulates colonic electrolyte and fluid secretion
- 215. Amlodipine: blocks L-type calcium channels
- 216. Frusemide: inhibits  $\text{Na}^+/\text{Cl}^-$  transporter in distal convoluted tubule

**Diazepam**

- 217. Prolongs the duration of  $\text{Cl}^-$  channel opening
- 218. Induces microsomal enzymes
- 219. Can be used as preanaesthetic medication
- 220. Is effective in status epilepticus

**Succinylcholine**

- 221. Is metabolized by pseudocholinesterase
- 222. Is a non-depolarizing neuromuscular blocker
- 223. Releases histamine from mast cells
- 224. Is used during electroconvulsive therapy

### **Regarding local anaesthetics (LAs)**

- 225. They act by blocking voltage gated  $Ca^{2+}$  channels
- 226. Hypersensitivity reactions are more common with amide type LAs
- 227. Lignocaine can anaesthetize intact skin when used alone
- 228. Bupivacaine is cardiotoxic

### **Following drugs are correctly matched with their therapeutic uses**

- 229. Buspirone - Anxiety
- 230. Zopiclone – Insomnia
- 231. Fluoxetine – Schizophrenia
- 232. Carbamazepine – Trigeminal neuralgia

### **Regarding corticosteroids**

- 233. Dexamethasone is a short acting corticosteroid
- 234. They are used to prevent skin graft rejection
- 235. They can cause hyperglycemia
- 236. They can be used for the treatment of osteoporosis

### **Sodium nitroprusside**

- 237. Acts by releasing nitric oxide
- 238. Dilates only the arterial blood vessels
- 239. Is used for mild to moderate hypertension
- 240. Can cause methemoglobinemia

### **Chloroquine**

- 241. Is a tissue schizonticide
- 242. Acts by inhibiting haem polymerase of malarial parasite
- 243. Can cause retinopathy
- 244. Is effective in extraintestinal amoebiasis

### **Following antihypertensives are safe during pregnancy**

- 245. Hydralazine
- 246. Enalapril
- 247. Methyldopa
- 248. Hydrochlorothiazide

### **Antimicrobial drug combinations**

- 249. Broaden the antimicrobial spectrum
- 250. Prevent the emergence of resistance
- 251. Reduce the chance of superinfection
- 252. Reduce the incidence of adverse effects

### **Following drugs are correctly matched with their therapeutic uses**

- 253. Octreotide – Acromegaly
- 254. Calcitonin - Paget's disease
- 255. Oxytocin – Premature labour
- 256. Sildenafil – Testicular failure

### **Antitussives include**

- 257. Bromhexine
- 258. Codeine
- 259. Acetyl cysteine
- 260. Noscapine

