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MANIPAL ACADEMY OF HIGHER EDUCATION
MELAKA MANIPAL MEDICAL COLLEGE (MANIPAL CAMPUS)
MBBS PHASE – I STAGE – II DEGREE EXAMINATION – MARCH 2018
SUBJECT: PHARMACOLOGY – PAPER I (ESSAY)

Monday, March 12, 2018

Time : 9.00 a.m.- 11.00 a.m.

Max. Marks : 60

- ✓ **Answer all the questions**
- ✓ **Write the question number clearly in the margin**
- ✓ **Draw diagrams wherever appropriate**

1. Explain the pharmacological basis for the following:

- 1A. Ezetimibe is used in hypercholesterolemia
- 1B. Sulfasalazine is used in ulcerative colitis
- 1C. Morphine is contraindicated in head injury

(3×2 = 6 marks)

2. Answer the following:

2A. In which drug poisoning are the following antidotes administered?

- i) protamine sulfate
- ii) N-acetylcysteine
- iii) ethanol
- iv) flumazenil

2B. List four therapeutic uses of SSRIs.

2C. Mention four contraindications of beta blockers.

2D. List four routes of administration of nitroglycerine.

2E. Mention two uses of albendazole along with the causative organisms.

2F. Enumerate two antimuscarinic drugs each used in Parkinson's disease and iridocyclitis.

(6×2 = 12 marks)

3. Explain the following terminologies with an example

- 3A. Second gas effect
- 3B. Terminal prophylaxis
- 3C. First pass metabolism
- 3D. Boosted PI regimen
- 3E. Physiological antagonism
- 3F. Pharmacogenetics

(6×2 = 12 marks)

4. List four drugs useful in the following clinical conditions
- 4A. Mania
 - 4B. Hodgkin's lymphoma
 - 4C. Thyroid storm
 - 4D. Candidiasis
 - 4E. Type 2 diabetes mellitus with COPD
 - 4F. Bronchial asthma

(6×2 = 12 marks)

5. Mention two examples for the following
- 5A. Anabolic steroids
 - 5B. Progestins
 - 5C. Oxytocics
 - 5D. Third generation cephalosporins

(4×1 = 4 marks)

6. Explain the mechanism of action of
- 6A. Succinylcholine
 - 6B. Isoniazid
 - 6C. Acyclovir

(3×2 = 6 marks)

7. Following his second episode of painful arthritis of the right big toe, a 50-year-old man consults a rheumatologist. Each earlier acute episodes were successfully treated by a general practitioner. The patient now wants to avoid similar episodes in future. He is not on regular medications and has a normal physical examination. Blood report reveals an elevated serum uric acid level and otherwise normal renal function and electrolytes. A 24-hour urine collection reveals that he is under-excreting uric acid, for which the rheumatologist prescribes a drug X.

- 7A. Identify drug X.
- 7B. List two drugs that could be used to treat acute episodes of this condition.
- 7C. Mention a drug useful in overproducers of uric acid and explain its mechanism of action.

($\frac{1}{2}+1+2\frac{1}{2} = 4$ marks)

8. A 72-year-old man presents to the clinic for routine follow-up. He is under treatment for hypertension and congestive heart failure with a single drug X. His blood pressure is controlled and he has no symptoms of heart failure at present. However, he does complain that he has been coughing frequently in the past few months. The cough is not associated with expectoration. The physician stops drug X and starts a new drug Y, which is useful for both the above cardiovascular disorders and is not known to cause cough.

- 8A. Identify drug X and drug Y.
- 8B. Explain how drug X causes cough?
- 8C. Explain how drug Y is useful in congestive cardiac failure?

(1+1+2 = 4 marks)



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MBBS PHASE – I STAGE – II DEGREE EXAMINATION – MARCH 2018
SUBJECT: PHARMACOLOGY – PAPER II (MTF)

Monday, March 12, 2018

Time : 11.30 a.m. - 12.30 p.m.

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.

Regarding pharmacokinetics,

101. Weakly acidic drugs remain unionized in acidic pH
102. Faster gastric emptying increases the bioavailability of most of the drugs
103. Highly plasma protein bound drugs have high volume of distribution
104. Enterohepatic cycling decreases the duration of action of a drug
105. Microsomal enzyme inhibition can be clinically beneficial in neonatal jaundice

Superinfection

106. Is often difficult to treat
107. Refers to the reappearance of old infection because of drug therapy
108. Is common in immunocompromised conditions

In concentration dependent killing

109. Infections are best treated by continuous infusion of antimicrobial agents
110. Bolus infusion achieves high peak levels, favouring rapid killing

Regarding NSAIDs

111. Aspirin is safe in children with viral fever
112. The efficacy of ketorolac equals morphine in post-operative pain
113. Mefenamic acid is contraindicated in dysmenorrhea
114. Coxibs are devoid of anti-inflammatory action
115. Coxibs are safe in patients with peptic ulcer

The therapeutic uses of anticoagulants are as follows:

116. Stable angina
117. Acute myocardial infarction

118. Cerebral haemorrhage
119. Pulmonary embolism

Regarding hematinics

120. Folic acid monotherapy is contraindicated in pernicious anemia
121. Iron sorbitol citric acid complex is an oral iron preparation
122. Staining caused by parenteral iron can be prevented by Z tract technique
123. Desferoxamine can be used to treat chronic iron toxicity

Cell cycle specific anticancer drugs include

124. L-asparaginase
125. Bleomycin
126. Cisplatin
127. Vincristine

Drugs used in moderate pain as per the WHO analgesic ladder include

128. Morphine
129. Tramadol
130. Fentanyl

Following cholinomimetics are correctly matched with their therapeutic uses

131. Pilocarpine: xerostomia
132. Physostigmine: myasthenia gravis
133. Rivastigmine: Alzheimer's disease
134. Edrophonium: open angle glaucoma

Regarding antipsychotics

135. Chlorpromazine can cause extrapyramidal symptoms
136. Clozapine can cause agranulocytosis
137. Olanzapine is used in Huntington's chorea
138. Haloperidol is an atypical antipsychotic

Benzodiazepines

139. Have a GABA facilitatory action
140. Are safe in pregnancy
141. Have a high therapeutic index

Lignocaine

- 142. Is an ester type local anaesthetic
- 143. Is highly cardiotoxic
- 144. Can be used as a surface anaesthetic

Regarding the drugs used to treat cough

- 145. Bromhexine can suppress the cough center in the medulla oblongata
- 146. Codeine is useful only in dry cough
- 147. Dextromethorphan has a high addiction liability

Regarding beta lactam antibiotics

- 148. Ampicillin has a role in *H. pylori* eradication
- 149. Tazobactam is combined with piperacillin to broaden the spectrum of action
- 150. Vancomycin is used in pseudomembranous enterocolitis
- 151. *H. influenza* is susceptible to amoxicillin and clavulanic acid

Regarding macrolides

- 152. They bind to 50S ribosomal subunits
- 153. They are bactericidal
- 154. Clarithromycin is an example

Following infections are correctly matched with the drugs used to treat them

- 155. Filariasis: DEC
- 156. Pneumocystosis: cotrimoxazole
- 157. H1N1 infection: oseltamivir

Regarding immunosuppressants

- 158. They are primarily indicated in organ transplantation
- 159. Cyclosporine is an example for mTOR inhibitor
- 160. Cyclophosphamide is a cytotoxic agent used to reduce lymphocyte proliferation

Regarding anterior pituitary hormones

- 201. GnRH agonists have no role in assisted reproduction
- 202. Continuous administration of leuprolide can suppress ovulation
- 203. Concurrent administration of flutamide with GnRH agonists is harmful

These insulin preparations are correctly classified based on their duration of action

- 204. Insulin lispro: ultra-short acting insulin
- 205. NPH insulin: short acting insulin
- 206. Insulin glargine: long acting insulin

Pharmacological actions of adrenocortical steroids include

- 207. Decreased excretion of nitrogen in urine
- 208. Redistribution of body fat from central to peripheral locations
- 209. Inhibition of proinflammatory transcription factors like NF- κ B
- 210. Increase production of pulmonary surfactants required for lung maturation
- 211. Increased calcium uptake from the gut

Following are the health benefits of hormonal contraceptives

- 212. Reduced incidence of carcinoma of the breast
- 213. Avoidance of unwanted pregnancy
- 214. Prevention of anemia by reducing the menstrual loss
- 215. Reduced incidence of endometriosis

Tetracyclines are first line drugs for

- 216. Typhus fever caused by *Rickettsia*
- 217. Amoebiasis along with metronidazole
- 218. Peptic ulcer caused by *H. pylori*

Following SERMs and their therapeutic uses are correctly matched

- 219. Tamoxifen: infertility
- 220. Raloxifen: post-menopausal osteoporosis
- 221. Clomifene: carcinoma breast

Drugs useful in acne vulgaris include

- 222. Calcipotriol
- 223. Benzoyl peroxide
- 224. Retinoic acid
- 225. Etanercept

Following infections and the drugs used to treat them are correctly matched

- 226. Urethritis caused by *C. trachomatis*: azithromycin
- 227. Lower UTI: metronidazole
- 228. Burn infection: silver sulfadiazine
- 229. Infection caused by MRSA: vancomycin

Regarding diuretics

- 230. Loop diuretics act in the early part of the distal convoluted tubule
- 231. Thiazide diuretics can decrease the plasma levels of lithium
- 232. K⁺ sparing diuretics can be used in combination with thiazides
- 233. Osmotic diuretics are used to increase urine volume in impending renal failure

Following antiarrhythmics are correctly classified as proposed by Vaughan Williams and Singh

- 234. Lignocaine: class IB
- 235. Propranolol: class IV
- 236. Amiodarone: class III

Drugs used in peripheral vascular disease include

- 237. Theophylline
- 238. Nifedipine

Regarding antiemetics

- 239. Ondansetron is a 5HT₃ receptor antagonist
- 240. Metoclopramide blocks D₂ receptors in CTZ
- 241. Domperidone is not suitable to prevent vomiting induced by levodopa

Proton pump inhibitors (PPIs)

- 242. Are prodrugs
- 243. Have a synergistic action with sucralfate
- 244. Promote eradication of *H. pylori* through direct antimicrobial properties

Rationale for combining antacids is

- 245. Magnesium salts are constipating, while aluminium salts are laxative
- 246. Dose of individual components is reduced; systemic toxicity is minimized
- 247. Magnesium salts are fast acting, while aluminium salts are slow acting

The common properties of aminoglycosides include

- 248. Low therapeutic index
- 249. Predominant activity against gram positive aerobic bacilli
- 250. Ototoxicity

Following organisms are sensitive to ciprofloxacin

- 251. *Shigella*
- 252. *Salmonella typhi*
- 253. *Bordetella pertussis*

Metronidazole

- 254. Can act in an aerobic environment
- 255. Is administered once daily
- 256. Does not cause disulfiram-like reaction with ethanol

Regarding calcium channel blockers

- 257. Verapamil can cause reflex tachycardia
- 258. They are useful in angina pectoris
- 259. They can cause rebound hypertension
- 260. They block L-type calcium channel in the cardiac muscle

