PHARMACOLOGY
Model Answer

Question (1) :

a. What is the significance of hepatic microsomal enzyme induction and inhibition with examples (1 example for induction & 1 for inhibition)?

- Affect metabolism and action of some drugs
  - **a.** Inducer: Androgen.
  - **b.** Inhibitor: Estrogen.
- Tolerence (+HME → ↓ some drugs actions)
- Toxicity (Acetaminophen with +HME → ↑NABQI "Hepatotoxic")
- Jaundice ttt in newborn (Barbiturate → +HME → ↑bilirubin metabolism)

b. What is the effect of changing urinary PH on drug execreation?

- Acidification of urine (By ASA) →↑ execreation of basic drugs.
- Alkalanization of urine (By NaHCO3) →↑ execreation of Acidic drugs.

Question (2) :

a. How to treat a patient with organo-phosphorus poisoning?

- Gastric lavage (+charcoal)
- Atropine 2mg every 5-10m till pupil dilates or tachycardia
- Skin wash
- Mechanical ventilation (severe cases)
- Cholinesterase reactivators: pralidoxime (in 1st 24 h)

b. Discuss the mechanism of action of beta blockers in treatment of hypertension?

- ↓CO (-ve ionotropic & chronotropic action)
- ↓ peripheral resistance (after 2 weeks)
- Some BB has additional α blocking effect
- ↓ renin release .
- ↓NA release by blocking of presynaptic β1.
- Reset baroreceptor sensitivity to the lower blood pressure

Question (3) :

c. What are the uses of ACEI (Angiotensin converting enzyme inhibitor)?

- Hypertension
- Heart failure
- Myocardial infarction
- Diabetic nephropathy

d. What are the side effects of Digitalis (clinical picture of Digitalis toxicity)?

- Early : Bradycardia / Vomiting.
- Late:

1. Bradyarrhythmia: Bradycardia &heart block
2. Tachyarrhythmia: Atrial tachycardia ,junctional arrhythmia ,ventricular (bigeminy &trigeminy & tachycardia & fibrillation).
3. Anorexia, nausea & vomiting .
4. Neurological: headache, parasthesia, disorientation, confusion,dellerium , hallucination .
5. Blurring of vision,abnormal colored vision

c. Question (4) :

a. What are the uses of cortisone?

- Adrenocortical insufficiency.
- Congenital adrenal hyperplesia.
- Cushing syndrome: during & after adrenalectomy.
- Adrenal suppression (diagnostic)
- Lung maturation in fetus (↑ pulmonary surfactant) .
- Hypercalcemia .
- Anti-inflammatory & immunosupression

b. Enumerate the side effects of Metformin?

- GIT irritation.
- Lactic acidosis.
- Megaloblastic anemia due to ↓absorption of vitamin B12 .

Question (5) :

c. What are the uses of morphine?

- Analgesia: (For all pain except billiary pain). e.g. ……
- Acute pulmonary edema:
- Pre-anesthetic medication.
- Anesthesia: IV, epidural, intrathecal

d. Enumerate the side effects of NSAID (Non-steroidal anti-inflammatory drugs)?

- Acute toxicity (hyperpyrexia and dehydration, nausea and vomiting, acid/base disturbance, Hemorrhagic phenomenon, convulsions).
- Salisalism (chronic toxicity)
- Hypoprothrombinemia → bleeding
- GIT → Nausea, vomiting, peptic ulcer
- Gout.
- Allergy → rash, bronchospasm (BA)
- Respiration → may precipitate BA
- Renal impairment (nephrotoxic → RF)
- Rey syndrome (hepatic failure in children)

d. Question (6) :

a. Classify antibiotic according to their mechanism of action? Give one example for each mechanism.

- Cell wall inhibitors: Penicillin, Cephalosporin.
- Cell membrane inhibitors: Polymyxins.
- DNA/RNA inhibitors: Quinolones, Rifampicin.
- Protein synthesis inhibitors:
  - 50S: Chloramphenicol, Erythromycin
  - 30S: Aminoglycoside, Tetracyclin
- Metabolic products: Suphonamide, Trimethoprim.

b. What are the side effects of Gentamycin (Aminoglycoside)?

- Ototoxicity
- Nephrotoxicity
- Neuromuscular blockade
- Hypersensitivity reactions

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Clinical Exam – Model Answer

For each statement mark (√) or (X):

1	**Isoprenaline produces rise in both systolic and diastolic blood pressure and slow heart rate**	X
2	**Methyl-xanthine can be used in bronchial asthma but not cardiac asthma**	X
3	**Insulin can be used in treatment of type 2 diabetes mellitus with renal failure**	√
4	**Steroids are contraindicated in TB**	√
5	**Digoxin can be given in heart failure**	√
6	**Beta blockers can be used in acute attack of bronchial asthma**	X
7	**Adrenaline is contraindicated in anaphylactic shock**	X
8	**Captopril acts by inhibition of angiotensin converting enzyme**	√
9	**Paracetamol is an analgesic and antipyretic drug**	√
10	**Sulphonylurea is not an effective treatment of type 1 diabetes mellitus**	√
11	**Quinolones antibiotics is contraindicated in pregnancy**	√
12	**Chronic steroid therapy should not stopped suddenly**	√
13	**The intravenous route of administration is suitable for drugs with extensive 1st pass effect**	√
14	**Morphine is contraindicated in cancer pain**	X
15	**Patients with history of allergy to penicillin can be given cephalosporin safely**	X
16	**Beta blockers can mask manifestation of hypoglycemia**	√
17	**Nifidipine is used in treatment of hypertension**	√
18	**α-methyl-dopa is an anti-hypertensive drug that can be given safely during pregnancy**	√
19	**Insulin therapy cause bradycardia as a side effect**	X

20	**Aspirin is not an anti-pyretic drug**	X