MCQ: Answer all the following MCQs
For each MCQ select only one answer

General Pharmacology
(1-30)

1. Pharmacokinetics is the study of the kinetics of the drug which includes the following EXCEPT:
   a. Absorption
   b. Excretion
   c. Uses
   d. Metabolism
   e. Distribution

2. Advantages of the oral route of drug administration include the following EXCEPT
   a. Most convenient
   b. Best route in emergency
   c. Easiest route
   d. Most economic
   e. Safest

3. The sublingual route of drug administration is suitable for the following drugs EXCEPT
   a. Resistant to intestinal enzymes
   b. Palatable
   c. Effective in small dose
   d. Non irritant
   e. Soluble in saliva

4. Advantages of the intravenous route of drug administration include the following EXCEPT
   a. Rapid onset
   b. Best in shock
   c. Best for highly irritant drugs
   d. Best for large volumes
   e. Least in toxic reactions

5. The following route is used in administration of oily drugs
   a. Intravenous
   b. Intramuscular
   c. Subcutaneous
   d. Sublingual
   e. Intrathecal
6. Enteric coated dosage forms are used in
   a. Drugs irritant to stomach  
   b. Drugs destroyed by intestinal enzymes
   c. Mixture of drugs  
   d. Very short acting drugs
   e. Insoluble drugs

7. Which of the following drugs is produced by recombinant DNA technology (genetic engineering)
   a. Atropine  
   b. Digoxin
   c. Aspirin  
   d. Human insulin
   e. Heparin

8. A highly irritant drug in the form of an aqueous solution can be administered by
   a. Subcutaneous injection  
   b. Intramuscular injection
   c. Intravenous injection  
   d. Intra-articular injection
   e. Intra-peritoneal injection

9. All of the following are possible consequences of phase I (non-synthetic) biotransformation EXCEPT
   a. Production of a pharmacologically inactive metabolite
   b. Conversion of one pharmacologically active to another active substance
   c. Conversion of a pharmacologically inactive to an active substance
   d. Combination of a drug with an endogenous substance
   e. Production of a toxic metabolite

10. Drug bound to a plasma protein is
    a. Pharmacologically active
    b. Diffusible through capillary walls
    c. Excreted by glomerular filtration
    d. Promptly metabolized by hepatic microsomal enzymes
    e. A reservoir from which free drug can be dissociated

11. Which of the following can inhibit the hepatic microsomal enzymes?
    a. Phenobarbitone  
    b. Rifampicin
    c. Tobacco smoking  
    d. Oestrogens
    e. Androgens
12. An exaggerated normal pharmacological response to the usual dose of the drug is termed
   a. Tolerance
   b. Intolerance
   c. Tachyphylaxis
   d. Idiosyncrasy
   e. Hypersensitivity

13. The ability of a drug to induce fetal malformation when given to a pregnant mother is termed
   a. Idiosyncrasy
   b. Tachyphylaxis
   c. Hypersensitivity
   d. Teratogenicity
   e. Mutagenicity

14. Allergic reactions to drugs can result in all of the following clinical manifestations EXCEPT
   a. Angioneurotic edema
   b. Asthma
   c. Fever
   d. Peptic ulcer
   e. Photosensitivity

15. Drugs taken orally (PO) have the following advantages EXCEPT
   a. Efficient for most drugs
   b. Economic
   c. Useful in emergency
   d. Safe
   e. Easy

16. First pass effect of a drug means:
   a. Transfer of the drug from administration site to blood
   b. Passage of the drug from blood to intracellular fluid
   c. Metabolism of the drug by phase 1 metabolism
   d. Excretion of the drug by the kidney
   e. Metabolism of the drug in gut wall or liver before reaching systemic circulation

17. The free form of a drug in the blood stream is characterized by all of the following EXCEPT
   a. Pharmacologically active
   b. Diffusible
   c. Be metabolized
   d. Can be excreted
   e. Bound to plasma proteins
18- An agonist has all of the following characters Except
   a- Affinity for the receptor
   b- Efficacy
   c- Rapid association
   d- Slow dissociation
   e- Full response

19- Abnormal response to the drug due to genetic variations is definition of:
   a- Tolerance
   b- Idiosyncrasy
   c- Side-effect
   d- Intolerance
   e- Teratogenesis

20- Regarding pharmacokinetics of drugs, the following statement is WRONG:
   a- Grapefruit juice increases absorption of some drugs.
   b- The bioavailability of most drugs after oral administration is 100%.
   c- Small molecular weight and highly ionized drugs such as quaternary ammonium compounds are distributed mainly extra-cellularly.
   d- Biotransformation may lead to activation of prodrugs.
   e- pH changes affect absorption and excretion of weak base and acid drugs.

21- In relation to pharmacodynamics, the following statement is WRONG:
   a- Agonists have affinity, high efficacy and stimulate the receptors.
   b- Antagonists have neither affinity, nor efficacy and block the receptors.
   c- Partial agonists have affinity, weak efficacy and produce initial stimulation followed by block of receptors.
   d- Competitive blockers produce parallel shift of the dose response curve of agonist to the right with the same maximal response.
   e- Non-competitive antagonists produce non-parallel shift of the dose response curve to the right with depressed maximal response.
22- The following adverse effect of drugs belongs to type-B (bizarre or unpredictable):
   a- Side effects.
   b- Secondary effect.
   c- Allergy.
   d- Iatrogenic disease.
   e- Teratogenicity.

23- Comparing the relative safety of drugs used in treatment of the same disease, we use the following indicator:
   a- Therapeutic dose.
   b- Minimal effective dose.
   c- Maximal tolerated dose.
   d- Therapeutic index.
   e- Body mass index.

24- Aspirin induced hemolytic anemia in G-6-PD deficiency is termed:
   a. Teratogenicity     b. Drug dependence     c. Idiosyncrasy
   d. Hypersensitivity   e. Intolerance

25- If drug A has a greater efficacy than drug B, then drug A:
   a. Is more toxic than drug B
   b. Has a greater affinity for the receptor than drug B
   c. Has a greater margin of safety than drug B
   d. Is capable of producing a greater maximum effect than drug B
   e. None of the above

26- Concerning renal excretion of drugs, which of the following is correct:
   a. Protein-bound drugs are easily filtered through glomeruli
   b. Drugs with large volume of distribution (Vd) have rapid clearance
   c. Acidification of urine increase excretion of alkaline drugs
   d. Alkalization of urine decrease excretion of aspirin
   e. All of the above
27- All the following are phase II biotransformation reactions except
   a. Hydrolysis          b. Acetylation
   e. Methylation        d. Glucuronidation.
   e. Sulfate conjugation

28- The rectal route of administration may be preferred over the oral route for some systemically —acting drugs because:
   a. The drug does not have to be absorbed
   b. Absorption is predictable and complete
   c. Absorbed drug avoid passage through the liver
   d. Excipients cannot interfere with absorption
   e. The dissolution process is avoided

29- The term “prodrug” refers to:
   a. Drug that has only pure antagonist activity
   b. Compound that liberates an active drug in the body
   c. Drug that had only prophylactic activity in the body
   d. Compound that may be therapeutically active but still under trial
   e. Drug that is classified as being “probably effective”

30- The area under the plasma concentration curve AUC represents:
   a. Biologic half-life of the drug
   b. Amount of drug that is cleared by the kidney
   c. Amount of drug in the original dosage form
   d. Amount of the drug absorbed
   e. Amount of the drug excreted
1- Aspirin in used in treatment of
   a- Toothache                   b- Peptic ulcer
   c- Bronchial asthma           d- Bleeding tendency
   e- Viral infections in children

2- Acetaminophen (paracetamol) produces the following action
   a- Anti-inflammatory
   b- Antipyretic analgesic
   c- Uricosuric
   d- Decreases platelet aggregation
   e- Increases gastric acidity

3- Aspirin is contraindicated in:
   a- Toothache.
   b- Common cold in adults.
   c- Bronchial asthma.
   d- Angina pectoris.
   e- Thrombo-embolic diseases.

4- The following is a selective COX-2 inhibitor:
   a- Aspirin.         b- Acetaminophen.
   c- Diclofenac.      d- Indomethacin.
   e-Celecoxib.

5- Side effects shared by NSAIDs include all the following EXCEPT:
   a. Addiction          b. Gastrointestinal ulceration
   c. Hypersensitivity  d. Nephropathy
   c. Hepatotoxicity

6- Pharmacologic actions of acetylsalicylic acid include all of the following EXCEPT:
   a. Analgesic          b. Antipyretic
   c. Anti-inflammatory  d. Promotion of platelet aggregation
   e. Inhibition of synthesis of prostaglandins
7- Aspirin is used in treatment of:
   a. Vertigo b. Peptic ulcer
c. Acute left ventricular failure d. Acute bronchial asthma
e. Acute rheumatic fever

8- Manifestations of acute salicylate intoxication include all the following EXCEPT:
   a. Hyperpyrexia b. Hyperpnea
c. Pinpoint pupils d. Convulsions
e. Metabolic acidosis in children

9- Aspirin could be used prophylactically for which one of the following conditions:
   a. Bronchial asthma b. Thrombo-embolism
c. Paroxysmal atrial tachycardia d. Peptic ulcer
e. Hypertension

10- Salicylic acid is used primarily as a (an):
    a- Analgesic b- Antipyretic
c- Cough suppressant d- Uricosuric agent
e- Keratolytic agent

11- Which of the following drugs has been associated with Reye’s syndrome in children?
    a- Aspirin b- Acetaminophen
c- Ibuprofen d- Naproxen
e- Phenobarbital

12- The common mechanism of action of NSAIDs is inhibition of the following enzyme:
    a- Cholinesterase b- Cyclo-oxygenase
c- Lipo-oxygenase d- Phosphodiesterase
e- Phospholipase

13- The following is a selective COX-2 enzyme inhibitor:
    a- Aspirin b- Indomethacin
c- Diclofenac d- Celecoxib e- Paracetamol
14 - Aspirin is useful in treatment of:
   a- Bronchial asthma b- Bleeding tendency
c- Simple headache d- Peptic ulcer
e- Viral infection in children

15 - All of the following are therapeutic indications for aspirin except:
   a- Rheumatoid arthritis b- Fevers
c- Viral infection in children d- Unstable angina
e- Headache

16 - All of the following can be produced by acetaminophen except:
   a- Anti-inflammatory effect b- Analgesic effect
c- Anti-pyretic effect d. Inhibition of COX-3 enzyme
e- Liver damage on overdose

17 - Celecoxib produces:
   a- Inhibition of COX-1 enzyme b- Inhibition of COX-2 enzyme
c- Inhibition of lipoxygenase enzyme d- Antiarrhythmic action
e- Diuretic action

18 - Aspirin has all the following effects except:
   a- Antipyretic b- Anti-inflammatory
c- Analgesic d- Antispasmodic
e- Antiplatelet

19 - The anti-inflammatory action of aspirin is due to:
   a- Analgesic effect b-Inhibit leukotriens synthesis
c- Inhibit prostaglandin synthesis d- Effect on hypothamus
e- All of the above

20 - Acetylsalicylic acid (aspirin) produces all of the following actions EXCEPT:
   a- Analgesic antipyretic b- Anti-inflammatory anti-rheumatic
c- Uricosuric in small dose d- Anti-platelet in small dose
e- Hydrochloretic
21- A young lady tries to suicide by an overdose of acetaminophen In the hospital, prompt administration of acetylcystine and gastric lavage was done for her. The most likely cause of death associated with an overdose of acetaminophen is:

a- Arrhythmia  b- Hemorrhagic shock
c- Liver failure   d- Non-cardiogenic pulmonary edema
e- Ventilatory failure.

22- Diazepam is useful in management of the following condition; EXCEPT:

a- Anxiety.  b- Insomnia
c- Status epilepticus.   d- Skeletal muscle spasticity.
e- Gout.

23- Benzodiazepines have the following actions EXCEPT:

a- They reduce anxiety by inhibiting the neuronal limbic system  
b- They produce sedation and hypnosis  
c- They have antipsychotic action  
d- Several benzodiazepines act as anticonvulsants  
e- They cause muscle relaxation

24- Drug treatment of anxiety states includes the following:

a- Diazepam  b- Buspirone
c- Alprazolam  d- Propranolol  
e- All of the above

25 –Drugs useful to initiate sleep include which of the following:

a- Flurazepan  b- Triazolam  
c- Chlorazepate  d- Phenobarbitone  
e- All of the above

26 -Side effects of benzodiazepines include the following except:

a- Tolerance and dependence  b- Convulsions  
c- Amnesia  d- Day-time sedation  
e- Allergy
27- **Buspirone is:**
   a- Sedative drug b- Useful in insomnia
c- Has rapid onset of action d- Anxiolytic drug
e- Liable to addiction.

28- **The following drug is used in treatment of benzodiazepine toxicity:**
   a- Naloxone b- Flumazenil
c- Diazepam d- Chlordiazepoxide
e- Triazolam

29- **Which of the following action(s) is produced by diazepam:**
   a- Sedation b- Anticonvulsant action
c- Reduction of anxiety d- All of the above
e- None of the above

30- **Benzodiazepines produce their actions on CNS by:**
   a. Blocking Cr channel associated with GABA$_A$ receptor
   b. Potentiation of the effect of GABA on GABA$_A$ receptors
c. Reducing the effect of GABA on GABA$_A$ receptors
d. Acting as agonists at GMB$_A$ receptors
e. Acting as antagonists at GMB$_B$ receptors

31- **Which of the following drugs acts as a competitive benzodiazepine receptor antagonist:**
   a. Naloxone b. Flumazenil
c. Flurazepam d. Nitrazepam
e. Disulfiram

32- **Buspirone produces the following except:**
   a- Partial agonist at 5-HT receptors b- Anti-anxiety effect
c- Anti-convulsant effect d- Slow onset of action
e- None of the above
33- The following anxiolytic acts as a partial agonist on 5-HT\textsubscript{1A} receptors:
   a- Buspirone  
   b- Flurazepam  
   c- Diazepam  
   d Chloralhydrate  
   e- Phenobarbitone

34- The following drugs are useful in management of gout EXCEPT
   a- Thiazide diuretics  
   b- Colchicine  
   c- Allopurinol  
   d- Febuxostat  
   e- Benz bromarone

35- A 47-year-old man presents with acute pain in his big toe. Lab tests reveal a serum uric acid level of 10 mg/dl. After treatment of the acute attack he was shifted to a drug that decreases both serum and urine level of uric acid. This drug is:
   a- Allopurinol  
   b- Colchicine  
   c- Indomethacin  
   d- Probenecid  
   e- Sulfinpyrazone

36- The following statements about carbidopa is correct:
   a- It is dopa decarboxylase inhibitor 
   b- It crosses the blood brain barrier 
   c- The dose of L-dopa is to be increased when combined to carbidopa 
   d- Side effects of L-dopa are increased due to carbidopa 
   e- Carbidopa increases the metabolism of L-dopa in the peripheral tissues

37- L-Dopa can be used to treat which of the following:
   a- Parkinsonism  
   b- Angina  
   c- Hypertension  
   d- Cardiogenic shock  
   c- All of the above

38- All the following agents can be used concurrently with levodopa except:
   a- Benztrpine  
   b- Amantadine  
   c- Carbidopa  
   d- Vitamin B 6  
   e- Entacapone
39- Treatment of Parkinsonism include:
   a- Dopamine agonists  
   b- Muscarinic antagonists  
   c- MAO-B inhibitors  
   d- L-Dopa  
   e- All of the above

40- L-dopa produces which of the following
   a- Stimulation of histamine receptors  
   b- increase dopamine levels  
   c- Block 5-HT receptors  
   d- Block dopamine reuptake  
   e- All of the above

41- Which of the following is not useful in treatment of parkinsonism:
   a- Amantadine  
   b- Benztropine  
   c- Selegiline  
   d- Pramipexol  
   e- meclopramide

42- Local anesthetic action is related to which of the following?
   a- Blockade of voltage-dependent sodium channels  
   b- Blockade of voltage-dependent calcium channels  
   c- Frequency of nerve firing  
   d- Resting membrane potential of the nerves  
   e- All of the above

43- All local anesthetics produce vasodilatation EXCEPT
   a- Lidocaine  
   b- Tetracaine  
   c- Cocaine  
   d- Prilocaine  
   e- bubivacaine

44- All soluble and injectable, local anesthetics can be used as surface anesthetic EXCEPT
   a- Procaine  
   b- Dibuxecaine  
   c- Lidocaine  
   d- Tetracaine  
   e- Benzocaine
45- Side effects of local anesthetics include:
   a- Hypotension
   b- CNS stimulation followed by depression
   c- Allergic reaction especially with ester types
   d- All of the above
   e- None of the above

46- Addition of vasoconstrictors to local anesthetics produce:
   a- Shortening of duration of action
   b- Prolongation of duration of action
   c- Decrease depth of local anesthetics
   d- Increase systemic absorption of local anesthetics
   e- Increase systemic adverse effects
HORMONES

1- the following are complications of large doses of glucocorticoids, EXCEPT
   a- Hypertension.       b- Peptic ulcer.
   c- Hypersensitivity reactions. d- Spread of infection
   e- Osteoporosis

2- Possible treatment of hypoglycemia should NOT include:
   a- Insulin                b- Candy
   c- Glucose               d- Fruit juice
   e- Glucagon

3- Prednisone is converted to which of the following by the liver?
   a- Cortisone        b- Hydrocortisone
   b- Prednisolone     d- Methylprednisolone
   e- Dexamethasone

4- Which of the following glucocorticoids is a prodrug:
   a- Cortisone         b- Hydrocortisone
   e- Prednisolone     d- Dexamethasone
   e- Fludrocortisone

5- Therapeutic indications of glucocorticoids include all of the following EXCEPT:
   a- Organ transplantation b- Acute lymphatic leukemia
   e- Cerebral oedema     d- Osteoporosis
   e- Sarcoidosis

6- Which of the following steroids has a powerful sodium retaining effect:
   a- Cortisone        b- Cortisol
   e- Prednisolone    d- Fludrocortisone
   e- Dexamethasone
7- Sudden withdrawal of glucocorticoids after prolonged therapy results in:
   a- Hypertensive crisis       b- Acute adrenocortical insufficiency
   c- Cardiac arrhythmias       d- Angina pectoris
   e- Convulsions

8- Prolonged therapy with glucocorticoids can lead to all of the following EXCEPT:
   a- Peptic ulceration         b- Hypoglycemia
   c- Increased susceptibility to infection d- Myopathy
   e- Suppression of pituitary-adrenal function

9- Cocticostcroids are used in treatment of the following conditions EXCEPT:
   a- Anaphylactic shock        b- Organ transplantation
   c- Osteoarthritis           d- Hypertension
   e- Allergy

10- For patients who have been on long-term therapy with a glucocorticoid and who now wish to discontinue the drug, gradual tapering of the glucocorticoid is needed to allow recovery of:
    a- The hypothalamic-pituitary-adrenal system
    b- Hematopoiesis in the bone marrow
    c- The control by vasopressin of water excretion
    d- Normal osteoblast function
    e- Depressed release of insulin from pancreatic B cells

11- Glucocorticoids, such as hydrocortisone, produces the following actions EXCEPT
    a- Catabolic effect on skeletal muscle and bone
    b- Increase gastric acidity and decreases mucin
    c- Antiallergic
    d- Anti-inflammatory
    e- Immuno-stimulant
12- Glucocorticoids, such as hydrocortisone, produce the following actions **EXCEPT**:
   a- Anabolic effect on skeletal muscles and bone.
   b- Increase gastric acidity and decrease mucin.
   c- Anti-allergic.
   d- Anti-inflammatory.
   e- Immuno-suppressive.

13- Intermittent administration of PTH produces which of the following:

   a- Impaired Ca2+ absorption in the gut
   b- Inhibition of 1-hydroxylase
   c- Net increase in bone formation
   d- Net increase in bone resorption
   e- Inhibition of renal calcium reabsorption

14- Which of the following conditions is an indication for the use of raloxifene?

   a- Chronic renal failure
   b- Hypoparathyroidism
   c- Intestinal Osteodystrophy
   d- Postmenopausal Osteoporosis
   e- Rickets

16- A 58 year-old postmenopausal woman has low bone mineral density, Chronic use of which of the following medications is most likely to have contributed to this woman’s osteoporosis?

   a- Lovastatin
   b- Metfortmin
   c- Prednisone
   d- Propranolol
   e- Thiazide diuretic

17- Treatment of osteoporosis includes all of the following **EXCEPT**

   a- Vitamin D
   b- Bisphosphonates such as etodronate
   c- Estrogen in postmenopausal osteoporosis
   d- Anabolic agents such as teriparatide
   e- Glucocorticoids such as dexamethasone
18- The following drugs are used in treatment of diabetes mellitus **EXCEPT**

a- Insulin

b- Insulin secretagogues such as glibenclamide

c- Insulin sensitizers such as metformin

d- Insulin antagonists such as glucocorticoids

e- Inhibitors of glucose absorption such as acarabose
Clinical cases

Case No 1:
An obese female aged 42 years complained of polyuria and polydipsia. After clinical examination and laboratory investigations, her 2 hour post prandial blood glucose was found 300 mg/dl and was diagnosed as type 2 diabetes mellitus (NIDDM). Hyperglycemia persisted despite control of diet and exercise for several weeks. How to manage this case?

1- The most suitable drug treatment of diabetes mellitus in this female is to be started with:
   a- insulin     b- glibenclamide    c- metformin
   d- carbimazole e- thyroxine

2- The drug selected in Q1 is:
   a- a sulphonylurea    b- a biguanide   c- a meglitinide
   d- a glitazone       e- an α-glucosidase enzyme inhibitor

3- The drug selected in Q1 may act by the following mechanisms:
   a- Decrease glucose absorption from the intestine
   b- Release insulin from the pancreatic β-cells
   c- Decrease sensitivity of target tissues to insulin
   d- Decrease glucose uptake by skeletal muscles

4- Hyperglycemia persisted despite the proper use of the drug selected in Q1. What drug do you like to add?
   (a-    b-    c-    d-    e-)
   (Letters refer to drugs in Q1)

5- The drug selected in Q4 is given by the following route of administration:
   a- Subcutaneous    b- Intramuscular    c- Intravenous
   d- Oral            e- Rectal
6- the mechanism of action of the drug selected in Q4:

(a- b- c- d- e-)

(Letters refer to drugs in Q3)

7- The following is an adverse effect of the drug selected in Q4:

a- Hyperglycemia  b- Lactic acidosis  c- Hypoglycemia
d- Inhibition of vitamin B-12 absorption  e- Hypotension

8- If the female get pregnant. Which of the following is most appropriate?

a. She can continue any sulphonylurea drugs she is taking
b. She must convert onto insulin therapy
c. She can use a combination of two oral anti-diabetic drugs
d. She will stop all treatment
e. She will convert to diet only

Case No 2:
A 57-year-old obese man presented with a three-week history of polyuria and polydipsia. Clinical features and laboratory findings confirmed a diagnosis of type 2 diabetes mellitus. Hyperglycemia and obesity persisted despite diet control and exercise for several weeks.

How would you manage this patient?

1- Which of the following drugs would like to start with?
   a- carbimazole           b- glucagon           c- hydrocortisone
   d- metformin             e- hydrochlorothiazide

2- Regarding the selected drug in Q1, the following THREE statements are CORRECT:
   a- It is a biguanide     b- It is a sulphonulurea
   c- It is considered as an oral euglycemic drug
   d- It is considered as an oral hypoglycemic drug
   e- It inhibits intestinal α-glucosidase enzyme
   f- It stimulates insulin secretion from pancreatic β-cells
   g- It can cause lactic acidosis especially in patients with renal impairment

3- After 4 weeks of treatment with the drug selected in Q1, hyperglycemia was not adequately controlled. Which of the following drugs would you like to add:
   a- furosemide           b- glibenclamide       c- methimazole
   d- bromocriptine        e- ephedrine

4- Regarding the selected drug in Q3, the following THREE statements are CORRECT:
   (a-     b-     c-     d-     e-     f-     g-)
   (Letters refer to drugs in Q2)

5- One day the patient took his medication but he missed his meal and played a football game. He felt very hungry, drowsy, his face was pale and sweaty and there
was tachycardia. The urine was free of glucose. The most appropriate management of this situation is to give the patient:

a- oral sweets
b- intravenous glucose
c- subcutaneous isophane insulin
d- intravenous soluble insulin
e- oral acarbose

6- Hyperglycemia was adequately controlled for several months. The patient is going to undergo a surgical operation. How would you like to modify the anti-diabetic medication:

a- Decrease the dose of the oral anti-diabetic drugs
b- Increase the dose of the oral anti-diabetic drugs
c- Stop oral anti-diabetic drugs and give insulin
d- Stop oral anti-diabetic drugs and give dexamethasone
e- Continue oral anti-diabetic drugs but add atropine

Case No 3:
A young lady aged 21 years with a body weight of 49 kg complained of excessive eating, polydipsia and polyuria. Clinical examination and laboratory investigations confirmed the diagnosis of type 1 diabetes mellitus [insulin dependent diabetes mellitus (IDDM)] as she was hyperglycemic and her blood sugar was 348 mg/dl. Besides diet regulation and exercise, how do you proceed to manage this case?

1- The following anti-diabetic drug is given to control her hyperglycemia in this young lady
a- Glimepiride
b- Metformin
c- Insulin
d- Pioglitazone
e- Repaglinide

2- The drug selected in Q1 is administered by the following route
a- Oral
b- Intravenous
c- Rectal
d- Subcutaneous
e- Sublingual

3- The drug selected in Q1 is
a- A sulphonylurea
b- A biguanide
c- A polypeptide made of 2 chains linked by disulphide ridge
d- A Glitazone
e- A meglitinide

4- The drug selected in Q1 may produce the following adverse effect
a- Lactic acidosis
b- Hypoglycemia
c- Hyperkalemia
d- Hepatotoxicity
e- Nephrotoxicity

5- After 2 months, the patient was found comatose and laboratory investigations confirmed the diagnosis of hypoglycemic coma. The following drug is given I.V.
a- Insulin
b- 50% Glucose
c- Saline (0.9 sodium chloride)
d- Aminophylline
e- Sodium bicarbonate

6- If the drug selected in Q5 is not available, the following drug can be an alternative
a- Noradrenaline
b- Glucagon
c- Thyroxine
d- Exenatide
e- Sitagliptin
Case No 4:
A 30 year old female patient presents with breathlessness, chest wheeze, and exertional cough, more by night. She has history of childhood atopy and allergic rhinitis. The frequency of attacks and the need to use medication is 3 – 4 time / week, and the night awakenings 2 – 3 times / month. She is now in an acute attack of bronchial asthma. How would you proceed to manage this patient?

1- The following drug is prescribed to relieve the acute attack of bronchial asthma in this patient:
   a- Beclomethazone  
   b- Disodium cromoglycate  
   c- Tiotropium.  
   d- Propranolol  
   e- Salbutamol

2- The preferred route of administration of drug selected in Q-1 is:
   a- I.V.  
   b- Oral  
   c- Sublingual.  
   d- Inhalation  
   e- Rectally.

3- The drug selected in Q-1 has all of the following EXCEPT:
   a- Selective β-2 adrenoceptor agonist.  
   b- Improves mucociliary clearance of mucus.  
   c- Stimulates adenylate cyclase and increases cAMP.  
   d- Mast cell stabilization.  
   e- Dryness of bronchial secretions.

4- The patient took the drug selected in Q-1, but still not improved. What other drug would like to give:
   a- morphine  
   b- neostigmine  
   c- aspirin  
   d- aminophylline  
   e- cromolyn sodium

5- The drug chosen in Q-4 is best given in this situation by:
   a- slow I.V. injection  
   b- inhalation  
   c- suppository  
   d- skin patch  
   e- oral sustained release capsule
6- The drug chosen in Q-4 improves the acute attack of asthma by all of the following actions **EXCEPT**:  
   a- block of muscarinic receptors  
   b- inhibition of phsophodiesterase enzyme  
   c- producing bronchodilatation  
   d- improves mucociliary clearance  
   e- improves diaphragmatic contractions

7- The drug chosen in Q-4 has the following advantage:  
   a- wide safety margin  
   b- can be injected by rapid IV injection in emergencies  
   c- when used properly, it would has a minimal effect on heart rate and blood pressure  
   d- has long t1/2  
   e- safe in patients with peptic ulcer and epilepsy

8- The dose of the drug selected in Q-4 is expected to be decreased if the patient:  
   a- is heavy smoker  
   b- taking phenytoin  
   c- taking rifampicin  
   d- taking erythromycin  
   e- taking phenobarbitone

9- The most suitable drug for long term prophylaxis of this patient is:  
   a- Inhalation of low dose of beclomethasone  
   b- Adrenaline S.C.  
   c- Oral large dose of prednisolone  
   d- Omalizumab S.C.  
   e- Oral atropine.

10- The drug selected in Q-9 produces all of the following actions **EXCEPT**:  
   a- inhibition of production of inflammatory cytokines.  
   b- inhibition of phospholipase A-2 enzyme.  
   c- inhibition of antibody formation  
   d- potentiation of the effects of β-2 agonists.  
   e- produces direct smooth muscle relaxation.
11- The drug selected in Q-9 may produce the following adverse effect:
   a- oropharyngeal candidiasis
   b- tremors
   c- hypertensive crisis
   d- mydriasis
   e- retention of urine

12- To avoid the adverse effect selected in Q-9, the patient is advised to:
   a- Use of spacer and gargle water after administration.
   b- Use of skeletal muscle relaxant.
   c- Use of a ganglion blocker.
   d- Use of a miotic eye drops.
   e- Use of neostigmine.

13- The patient suffers of frequent attacks of simple headache, the following would be an appropriate analgesic for this patient:
   a- Acetaminophen  b- Aspirin  c- Heroin
   d- Morphine  e- Diclofenac potassium
Mark the following statements as True (A) or False (B) :

General

1- Prolonged use of antagonists may lead to up-regulation of the affected receptors.

2- Supersensitivity is an abnormal response due to antigen antibody reaction.

3- Partial agonists lack both affinity & efficacy.

4- Non-competitive blockers cause a decrease the potency but maintain the efficacy of the agonist.

5- The doses that produce the same response are used in comparing potency of agonists.

6- The effect of irreversible blockers end by re-synthesis of new receptors.

7- Side effect is an abnormal response due to antigen antibody reaction.

8- Chelation is a physical mechanism for drug action.

9- To compare efficacy of agonists, we compare $E_{\text{max}}$.

10- Antagonists have neither affinity nor efficacy.

11- Competitive blockers cause parallel shift of the dose response curve to the left.

12- Allergic reaction is an abnormal response due to antigen antibody reaction.

13- Partial agonists have both affinity & efficacy.

14- Non-competitive blockers cause a decrease in both potency and efficacy of the agonist.

15- Prolonged use of agonists may lead to down-regulation of the affected receptors.
**CNS**

1. Patients are advised to take aspirin before meals on an empty stomach.
2. The anti-inflammatory effect of aspirin is due to inhibition of lipo-oxygenase enzyme.
3. Aspirin may precipitate bronchial asthma in susceptible patients.
4. Aspirin in a dose of 75-150 mg inhibits platelet aggregation.
5. Aspirin is the analgesic of choice in peptic ulcer patients.
6. Acetaminophen has a potent uncosuric effect
7. Toxic doses of aspirin causes hyperthermia
8. Aspirin in a dose of 75-150 mg inhibits platelet aggregation.
9. Aspirin is the antipyretic of choice in undiagnosed feverish children.
10. Most of NSAID act through inhibition lipo-oxygenase enzyme.
11. Aspirin relieves pain by both central action and a peripheral anti-inflammatory effects.
12. Acetaminophen has a potent anti-inflammatory effect.
13. Meloxicam is a relatively selective COX-2 inhibitor.
14. Acetylcysteine is the specific antidote of aspirin.
15. Misoprostol is a logic choice to treat aspirin-induced peptic ulcer.
16. Indomethacin is characterized by being a very potent COX inhibitor.
17. Inhibition of COX-1 enzyme is the target for NSAIDs.
18- Diclofenac is concentrated in synovial fluid four times more than the plasma
19- L-DOPA has a high oral bioavailability> 90%.
20- Carbidopa increases the central actions of L-DOPA.
21- The efficacy of L-DOPA therapy increases with prolonged use.
22- L-DOPA is useful in treatment of Iatrogenic Parkinson induced by large dose of Haloperidol.

**HORMONES**

1- Insulin injection may cause hypokalemia.
2- Thiazide diuretics augments the hypoglycemic effect of sulphonylurea drugs.
3- Metformin increases the release of insulin.
4- 1-α-hydroxy-vitamin D, one alpha, is effective in treatment of secondary hyperparathyroidism due to renal failure.
5- Glipizide, a sulphonylurea, acts by blocking ATP-sensitive K+ channels in β-cells of pancreas.
6- Metformin may induce lactic acidosis in patients with renal failure.
7- 25-hydroxyvitamin D is used to treat secondary hyperparathyroidism due to renal failure.