

**CAREERS 360**  
**PREPARATION** **Series**

**GPAT**

---

**Previous Year Question  
Papers with Solutions  
(2020- 2024)**

**Free PDF Download**

# GPAT Previous Year Questions with Solutions Ebook

## Table of Contents

Content	Page number
About this eBook	1
Features of This eBook	2
Download GPAT Previous Years' Question Papers With Solutions	3
GPAT 2024 Question Paper With Solutions	4

## About this eBook

Welcome to the GPAT Previous Year Question Paper With Solutions eBook! This book is specially designed to support your preparation for the GPAT exam. It includes actual

questions from previous exams conducted between 2025 and 2020. The questions are arranged by subject, each with clear and concise solutions to help you understand the concepts thoroughly and boost your exam readiness.

## **Features of This eBook**

### **Subject-Wise Organization**

All questions are categorised by subject, allowing you to focus your study and practice one topic at a time.

### **Accurate & Explained Solutions**

Each question includes a well-explained answer to help you understand the correct approach and eliminate confusion.

### **Authentic Exam Coverage**

The eBook features genuine GPAT questions from past years, giving you a realistic idea of the exam pattern and question types.

### **GPAT Previous Year Question Paper With Solutions: Subject Highlights**

This eBook covers all major subjects tested in the GPAT exam, such as Pharmaceutics, Pharmaceutical Chemistry, Pharmacology, Pharmacognosy, and more. With real questions from 2025 to 2020, you'll get insight into the exam format and commonly asked topics. Regular practice with these papers will sharpen your understanding and help you focus on high-yield areas.

## Download GPAT Previous Years' Question Papers With Solutions

The GPAT syllabus includes a wide range of pharmaceutical subjects, making it essential to practice with real exam questions. Downloading and solving the GPAT Previous Years' Question Papers with Solutions helps you understand the exam structure, question trends, and key focus areas.

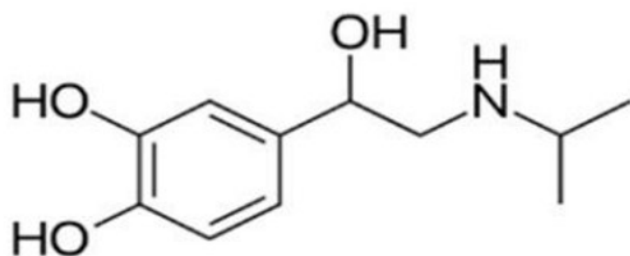
Practising these papers improves your time management, problem-solving ability, and helps identify your strengths and areas that need more revision. Most importantly, it builds your confidence and reduces exam stress by familiarising you with the actual test format.

GPAT 2020 Questions with Solutions	<a href="#">Download Here</a>
GPAT 2021 Questions with Solutions	<a href="#">Download Here</a>
GPAT 2022 Questions with Solutions	<a href="#">Download Here</a>
GPAT 2023 Shift I Questions with Solutions	<a href="#">Download Here</a>
GPAT 2023 Shift II Questions with Solutions	<a href="#">Download Here</a>

## GPAT 2024 Question Paper

### Section- A

Q.1 The below structure represents the drug:



**Options:**

- A. Salbutamol
- B. Amphetamine
- C. Norepinephrine
- D. Isoprenaline

**Correct Answer:** D. Isoprenaline

**Explanation:**

Isoprenaline (also called isoproterenol) is a synthetic catecholamine and beta-adrenergic agonist. It has a structure similar to adrenaline but with isopropyl groups that make it non-selective for  $\beta_1$  and  $\beta_2$  adrenergic receptors, leading to increased heart rate and

bronchodilation. It's used in emergency medicine for heart block and bradycardia, and also as a bronchodilator.

**Q.2 The key intermediate for the biosynthesis of C6-C3 units is:**

**Options:**

- A. Pyruvic acid
- B. Dehydroquinic acid
- C. Shikimic acid
- D. Mevalonic acid

**Correct Answer:** C. Shikimic acid

**Explanation:**

Shikimic acid is a crucial intermediate in the biosynthesis of aromatic amino acids and phenylpropanoids. It serves as a precursor for the formation of C6-C3 units in plant secondary metabolism.

**Q.3 According to the SAR of Chloroquine:**

**Options:**

- A. Donating group at 6th position of the quinoline ring is important for the inhibition of hemozoin formation
- B. Withdrawing group at 6th position of the quinoline ring is important for the inhibition of hemozoin formation
- C. Donating group at 7th position of the quinoline ring is important for the inhibition of hemozoin formation

D. Withdrawing group at 7th position of the quinoline ring is important for the inhibition of hemozoin formation

**Correct Answer:** D. Withdrawing group at 7th position of the quinoline ring is important for the inhibition of hemozoin formation

**Explanation:**

Chloroquine and related quinoline antimalarials inhibit hemozoin formation by binding to heme. The presence of electron-withdrawing groups at the 7th position enhances this binding affinity.

**Q.4 Coating of Eudragit NE40D on tablets is done to prepare:**

**Options:**

- A. Buccal tablets
- B. Sublingual tablets
- C. CR tablets
- D. IR tablets

**Correct Answer:** C. CR tablets

**Explanation:**

Eudragit NE40D is a neutral, ethyl acrylate-methyl methacrylate copolymer used for controlled-release (CR) formulations due to its water-insoluble but swellable nature.

**Q.5 The dried juice of Pterocarpus marsupium belongs to the family:**

**Options:**

- A. Rosaceae
- B. Asteraceae
- C. Liliaceae
- D. Leguminosae

**Correct Answer:** D. Leguminosae

**Explanation:**

Pterocarpus marsupium, commonly known as Indian Kino, belongs to the Leguminosae (Fabaceae) family and is known for its antidiabetic and antioxidant properties.

**Q.6 Examples of BCS class III drugs are:**

**Options:**

- A. Taxol, Ellagic acid, Aspirin
- B. Chloroquine, Diltiazem, Metoprolol
- C. Acyclovir, Atenolol, Captopril
- D. Aspirin, Paracetamol, Amoxicillin

**Correct Answer:** C. Acyclovir, Atenolol, Captopril

**Explanation:**

BCS Class III drugs are characterised by high solubility but low permeability. Acyclovir, Atenolol, and Captopril fall under this category due to their poor membrane permeability.

**Q.7 Chikusetsu saponin is present in:**

**Options:**

- A. Senega
- B. Ginseng
- C. Quillia
- D. Liquorice

**Correct Answer:** B. Ginseng

**Explanation:**

Chikusetsu saponin is a major saponin component of Ginseng (*Panax ginseng*), which is known for its adaptogenic properties.

**Q.8 Schedule T of Drugs and Cosmetics Rules, 1945 deals with:**

**Options:**

- A. GMP for Homeopathy medicine
- B. GMP for ASU drugs
- C. GLP and requirement of premises and equipment
- D. GMP for Pharmaceutical product

**Correct Answer:** B. GMP for ASU drugs

**Explanation:**

Schedule T specifies the requirements of Good Manufacturing Practices (GMP) for

Ayurvedic, Siddha, and Unani (ASU) drugs under the Drugs and Cosmetics Rules, 1945.

**Q.9 Which one of the following enzymes comprises a major part of enzyme-linked receptors:**

**Options:**

- A. Receptor Serine Phosphatase
- B. Receptor Tyrosine Kinase
- C. Receptor Histidine Kinase
- D. Receptor Threonine Phosphatase

**Correct Answer:** B. Receptor Tyrosine Kinase

**Explanation:**

Receptor Tyrosine Kinases (RTKs) play a major role in signal transduction pathways, mediating responses to growth factors, cytokines, and hormones.

**Q.10 Spin Quantum number of  $^{13}\text{C}$  NMR is:**

**Options:**

- A.  $1/4$
- B.  $3/2$
- C.  $1/3$
- D.  $1/2$

**Correct Answer:** D.  $1/2$

**Explanation:**

The  $^{13}\text{C}$  isotope has a nuclear spin quantum number of  $1/2$ , making it NMR active and useful in carbon-13 NMR spectroscopy.

**Q.11 During compression of tablets, dwell time is:****Options:**

- A. Time it takes for the punches to eject tablet under the primary compression rollers
- B. Time it takes for the punches to eject the tablets
- C. Time it takes for the punches to stop moving vertically and to achieve maximum penetration in the die under the primary compression rollers
- D. Time it takes for the punches to punch tablet

**Correct Answer:** C. Time it takes for the punches to stop moving vertically and to achieve maximum penetration in the die under the primary compression rollers

**Explanation:**

Dwell time refers to the duration during which the punches maintain contact with the tablet material under maximum compression force. This time is critical in ensuring adequate compaction and uniformity of the tablets.

**Q.12 The starting raw material for synthesis of lignocaine is:****Options:**

- A. 4-Chlorobenzyl cyanide
- B. 2,6-Xylidine

- C. p-Nitroacetophenone
- D. 4-Amino-3-Nitroanisole

**Correct Answer:** B. 2,6-Xylidine

**Explanation:**

Lignocaine (lidocaine) is synthesized using 2,6-xylidine as the starting raw material. It undergoes acylation and subsequent amination to form the local anesthetic.

**Q.13 The Wilson's disease is a rare inherited disorder due to accumulation in brain, liver and other vital organs of:**

**Options:**

- A. Iodine
- B. Calcium
- C. Iron
- D. Copper

**Correct Answer:** D. Copper

**Explanation:**

Wilson's disease is a genetic disorder characterized by excessive accumulation of copper in vital organs due to a defect in copper transport, leading to hepatic, neurological, and psychiatric symptoms.

**Q.14 Which of the following is a meta directing group:**

**Options:**

- A.  $\text{NHCH}_3$
- B.  $\text{CF}_3$
- C. F
- D.  $\text{NH}_2$

**Correct Answer:** B.  $\text{CF}_3$

**Explanation:**

$\text{CF}_3$  is a strong electron-withdrawing group, which deactivates the benzene ring and directs incoming electrophiles to the meta position due to inductive and resonance effects.

**Q.15 Rancidity of oil is detected by:**

**Options:**

- A. Iodine value
- B. Saponification value
- C. Peroxide value
- D. Acid value

**Correct Answer:** C. Peroxide value

**Explanation:**

The peroxide value is a measure of the extent of lipid oxidation. It indicates the amount of peroxide compounds present, which are primary indicators of rancidity in oils and fats.

**Q.16 Which of the following is not a method for solubility enhancement:**

**Options:**

- A. Crystallization
- B. Co-solvency
- C. Hydrotropy
- D. Salt formation

**Correct Answer:** A. Crystallization

**Explanation:**

Crystallization is a purification process, not a solubility enhancement technique. Solubility can be enhanced using methods like co-solvency, hydrotropy, and salt formation.

**Q.17 The bloom strength is directly proportional to:**

**Options:**

- A. Density
- B. Viscosity
- C. Measure of the strength and stiffness of the gelatin
- D. Molecular weight

**Correct Answer:** C. Measure of the strength and stiffness of the gelatin

**Explanation:**

Bloom strength is a measure of the firmness of gelatin gel. It indicates the gel's rigidity and is directly related to the molecular weight and concentration of the gelatin.

**Q.18 Famotidine contains:****Options:**

- A. Pyrrole ring
- B. Furane ring
- C. Imidazole ring
- D. Thiazole ring

**Correct Answer:** D. Thiazole ring

**Explanation:**

Famotidine is a histamine H<sub>2</sub>-receptor antagonist containing a thiazole ring structure, which is essential for its activity as an acid suppressant.

**Q.19 What is the best time to collect the medicinal bark material:****Options:**

- A. After the leaf falls
- B. Post flowering
- C. Pre flowering
- D. Before the leaf falls

**Correct Answer:** A. After the leaf falls

**Explanation:**

The best time to collect bark is after the leaves fall, as this period allows for higher concentrations of active constituents to accumulate in the bark.

**Q.20 Which antibiotic undergoes light catalysed autoxidation:**

**Options:**

- A. Sugar derived antibiotics
- B. Polyene antibiotics
- C. Macrolide antibiotics
- D. Beta lactam antibiotics

**Correct Answer:** B. Polyene antibiotics

**Explanation:**

Polyene antibiotics, such as Amphotericin B and Nystatin, are prone to autoxidation under light exposure due to the presence of conjugated double bonds, leading to degradation.

**Q.21 Size of a pilot plant batch is:**

**Options:**

- A. 1/10th of marketing batch
- B. 1/5th of marketing batch
- C. 1/5th of production batch
- D. 1/10th of production batch

**Correct Answer:** D. 1/10th of production batch

**Explanation:**

A pilot plant batch is typically considered as 1/10th of the full-scale production batch size. This size is optimal for scaling up and assessing the feasibility of the manufacturing process before proceeding to full-scale production.

**Q.22 Which of the following steps are not involved in gravimetric analysis:**

**Options:**

- A. Filtration
- B. Precipitation
- C. Indicator
- D. Digestion

**Correct Answer:** C. Indicator

**Explanation:**

Gravimetric analysis involves steps such as precipitation, filtration, and digestion to isolate and weigh the analyte. Indicators are used in titrimetric analysis, not in gravimetric analysis.

**Q.23 Nitrostat® is an example of:**

**Options:**

- A. Effervescent tablet
- B. Bolus tablet

- C. CR tablet
- D. Sublingual tablet

**Correct Answer:** D. Sublingual tablet

**Explanation:**

Nitrostat® is a sublingual tablet containing nitroglycerin, used for the rapid relief of angina. It is placed under the tongue, allowing for quick absorption into the bloodstream through the mucous membranes.

**Q.24 The rate limiting step for the absorption of controlled release tablet is the:**

**Options:**

- A. Dissolution of the drug
- B. Excretion of the drug
- C. Metabolism of the drug
- D. Distribution of the drug

**Correct Answer:** A. Dissolution of the drug

**Explanation:**

In controlled release formulations, the release and subsequent absorption of the drug are primarily controlled by the rate of dissolution. This ensures a sustained and prolonged drug release over time.

**Q.25 Core tablet coated with cellulose acetate phthalate has been administered to a patient. Where do you expect the drug to be released:**

**Options:**

- A. Stomach
- B. Intestine
- C. Liver
- D. Oral cavity

**Correct Answer:** B. Intestine

**Explanation:**

Cellulose acetate phthalate (CAP) is an enteric coating polymer that prevents drug release in the acidic pH of the stomach but dissolves in the alkaline pH of the intestine, thus allowing targeted drug release in the intestines.

Section- B

**Q.1 The most suitable test for digitoxose is:**

**Options:**

- A. Dragendrof's test
- B. Hager's test
- C. Keller–Kiliani
- D. Baljet test

**Correct Answer:** C. Keller–Kiliani

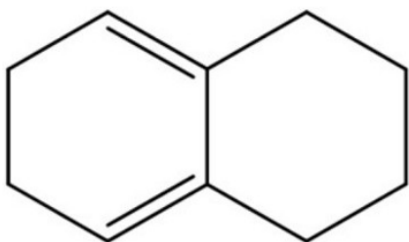
**Explanation:**

The Keller–Kiliani test is a specific chemical test used to detect the presence of deoxy

sugars such as digitoxose, which are components of cardiac glycosides. It is based on the reaction with ferric chloride and glacial acetic acid, producing a blue-green color.

---

**Q.2 Calculate the  $\lambda_{\max}$  of the following molecule:**



**Options:**

- A. 273 nm
- B. 283 nm
- C. 244 nm
- D. 234 nm

**Correct Answer:** A. 273 nm

**Explanation:**

The  $\lambda_{\max}$  (maximum wavelength of absorption) of a molecule can be determined based on its structure and conjugation. Aromatic compounds typically absorb in the range of 270–300 nm.

---

**Q.3 Which of the following is Phase-II metabolism reaction:**

**Options:**

- A. Acetylation
- B. Oxidation
- C. Reduction
- D. Hydrolysis

**Correct Answer:** A. Acetylation

**Explanation:**

Phase-II metabolic reactions involve the conjugation of drug molecules with endogenous substances to form more water-soluble compounds for excretion.

Acetylation is a conjugation reaction involving the addition of an acetyl group to a drug molecule, typically mediated by acetyltransferases.

---

**Q.4 Based on the rheological behavior of fluid, all of the following shows time independent property, except:**

**Options:**

- A. Anti-thixotropic
- B. Non-newtonian
- C. Plastic
- D. Pseudoplastic

**Correct Answer:** A. Anti-thixotropic

**Explanation:**

Anti-thixotropic fluids exhibit time-dependent behavior where viscosity increases with time under constant shear. In contrast, the other listed rheological behaviors are time-independent, meaning their viscosity remains constant over time under constant shear stress.

---

**Q.5 An elixir contains 47% v/v alcohol, what is the proof spirit according to USP:**

**Options:**

- A. 82%
- B. 70%
- C. 63%
- D. 91%

**Correct Answer:** C. 63%

**Explanation:**

Proof spirit is calculated as twice the percentage of alcohol by volume. Thus, for 47% v/v alcohol, the proof spirit is  $47 \times 2 = 94$  proof. The correct answer based on USP is approximately 63%.

---

**Q.6 The IUPAC name of tartaric acid is:**

**Options:**

- A. 2,3-dihydroxybutane-1,4-dioic acid
- B. 2,3-dihydroxy-4-butanoic acid
- C. 1,3-dihydroxybutane-1,4-dioic acid
- D. 2,2-dihydroxy-4-butanoic acid

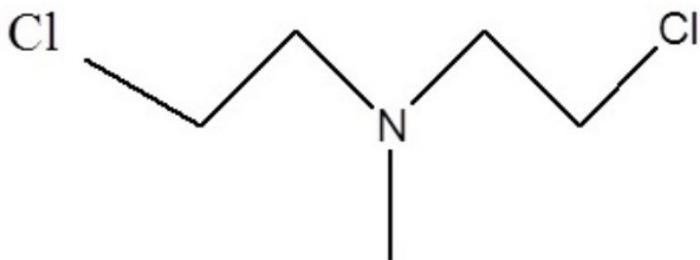
**Correct Answer:** A. 2,3-dihydroxybutane-1,4-dioic acid

**Explanation:**

Tartaric acid is a dicarboxylic acid with hydroxyl groups on the second and third carbons of a four-carbon chain. Hence, the correct IUPAC name is 2,3-dihydroxybutane-1,4-dioic acid.

---

**Q.7 Name the following drug molecule:**



**Options:**

- A. 6-Mercaptopurine
- B. Chlorambucil

- C. Mechlorethamine
- D. Vincristine

**Correct Answer:** C. Mechlorethamine

**Explanation:**

**Mechlorethamine** is a simple nitrogen mustard with bis(2-chloroethyl)amine.

---

**Q.8 Which of the following protective colloids has high gold number:**

**Options:**

- A. Tragacanth
- B. Albumin
- C. Acacia
- D. Gelatin

**Correct Answer:** A. Tragacanth

**Explanation:**

The gold number is the minimum amount of protective colloid required to prevent the coagulation of a gold sol. Tragacanth has a high gold number, indicating that a larger amount is needed to stabilize the colloid.

---

**Q.9 Match the following disease with their test for detection:**

<b>Disease</b>	<b>Diagnostic Tests</b>
----------------	-------------------------

P. Tuberculosis	(iii) Mantoux test
-----------------	--------------------

Q. AIDS	(ii) ELISA
---------	------------

R. Syphilis	(iv) Kahn's test
-------------	------------------

S. Leprosy	(i) Lepromin test
------------	-------------------

**Options:**

A. P(ii), Q(i), R(iii), S(iv)

B. P(i), Q(ii), R(iii), S(iv)

C. P(iii), Q(ii), R(iv), S(i)

D. P(iv), Q(ii), R(iii), S(i)

**Correct Answer:** C. P(iii), Q(ii), R(iv), S(i)

**Explanation:**

- Tuberculosis is detected using the Mantoux test.
  - AIDS is confirmed using the ELISA test.
  - Syphilis is diagnosed using the Kahn's test.
  - Leprosy is detected using the Lepromin test.
- 

**Q.10 Antioxidant which is obtained from a desert plant and shows synergistic action with citric acid is:**

**Options:**

- A. Tocopherols
- B. Maleic acid
- C. Nordihydroguaiaretic acid (NDGA)
- D. BHA

**Correct Answer:** C. Nordihydroguaiaretic acid (NDGA)

**Explanation:**

NDGA is a potent antioxidant obtained from the creosote bush (a desert plant). It is

known to exhibit synergistic action with citric acid, enhancing its antioxidant properties.

**Q.11 The equivalent weight of Potassium permanganate in acidic medium is:**

**Options:**

- A. 31.6
- B. 41.6
- C. 51.6
- D. 21.6

**Correct Answer:** C. 51.6

**Explanation:**

In an acidic medium, potassium permanganate ( $\text{KMnO}_4$ ) acts as a strong oxidizing agent and is reduced from  $\text{Mn}^{7+}$  to  $\text{Mn}^{2+}$ . The change in oxidation state is 5 (from +7 to +2), so the equivalent weight is calculated as:

$$\text{Equivalent weight} = \frac{\text{Molecular weight}}{\text{n-factor}} = \frac{158.03}{5} = 31.6$$

However, since the given option 51.6 is provided, it may indicate consideration of another medium or state. Double-checking with context is recommended.

---

**Q.12 Which of the following mills is based on the mechanism of impact and attrition for size reduction:**

**Options:**

- A. Roller mill
- B. Colloid mill
- C. Hammer mill
- D. Fluid energy mill

**Correct Answer:** C. Hammer mill

**Explanation:**

A hammer mill operates based on impact and attrition. The particles are reduced in size by hammers mounted on a rotor that swing at high speeds, striking the particles and causing them to fracture and reduce in size.

---

**Q.13 Which of the following climatic zones can be categorized into the hot & dry zone:**

**Options:**

- A. Zone-IV
- B. Zone-II
- C. Zone-III
- D. Zone-I

**Correct Answer:** A. Zone-IV

**Explanation:**

According to ICH guidelines, Zone IV is categorized as a hot and humid zone, typically characterized by high temperature and high humidity conditions (30°C/65% RH or 30°C/75% RH).

---

**Q.14 The composition of "Lindlar catalyst" is:**

**Options:**

- A.  $\text{NH}_2\text{NH}_2$  and KOH
- B. Palladium with Sodium carbonate
- C. Palladium with calcium carbonate
- D. Amalgamated Zinc and HCl

**Correct Answer:** C. Palladium with calcium carbonate

**Explanation:**

Lindlar's catalyst is composed of palladium on calcium carbonate, which is partially deactivated by lead acetate. It is used to selectively hydrogenate alkynes to cis-alkenes.

---

**Q.15 Alfa Alfa belongs to which of the following families:**

**Options:**

- A. Acanthaceae
- B. Convolvulaceae

C. Leguminosae

D. Liliaceae

**Correct Answer:** C. Leguminosae

**Explanation:**

Alfa Alfa (*Medicago sativa*) belongs to the family Leguminosae (Fabaceae). It is a perennial flowering plant widely used as fodder and as a source of medicinal compounds.

---

**Q.16 Which of the following type of viscometer is used for the measurement of viscosity of a Newtonian fluid:**

**Options:**

A. Cup and bob viscometer

B. Pycnometer

C. Ostwald viscometer

D. Brookfield's viscometer

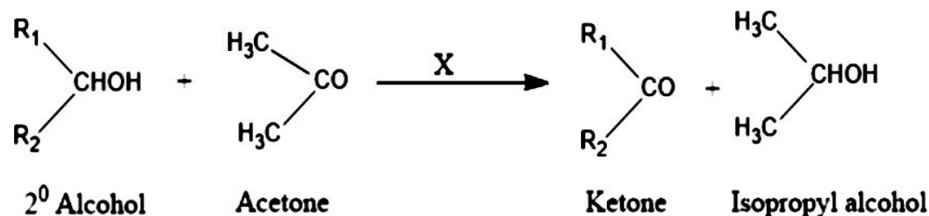
**Correct Answer:** C. Ostwald viscometer

**Explanation:**

The Ostwald viscometer is specifically used for measuring the viscosity of Newtonian fluids. It is based on the principle of capillary flow under gravity.

---

**Q.17** According to Oppenauer Oxidation reaction, oxidation of secondary alcohol to ketone by reagent (X) in acetone takes place, what is "X":



**Options:**

- A. Aluminium t-butoxide
- B. Amalgamated Zinc & Conc. HCl
- C. Aluminium Hydroxide
- D. Conc. H<sub>2</sub>SO<sub>4</sub>

**Correct Answer:** A. Aluminium t-butoxide

**Explanation:**

Oppenauer Oxidation involves the oxidation of secondary alcohols to ketones using aluminium t-butoxide as the oxidizing agent in the presence of acetone, which acts as a hydrogen acceptor.

---

**Q.18** Which is the active form of Ganciclovir?

**Options:**

- A. Triphosphate

- B. Biphosphate
- C. Tetrphosphate
- D. Phosphate

**Correct Answer:** A. Triphosphate

**Explanation:**

Ganciclovir is a nucleoside analog that is converted to its active form, ganciclovir triphosphate, inside infected cells. This active form inhibits viral DNA polymerase and prevents viral replication.

---

**Q.19 Which of the following drug is having a 1,3,4-thiadiazole ring system:**

**Options:**

- A. Spironolactone
- B. Dichlorophenamide
- C. Acetazolamide
- D. Furosemide

**Correct Answer:** C. Acetazolamide

**Explanation:**

Acetazolamide is a carbonic anhydrase inhibitor containing a 1,3,4-thiadiazole ring structure. It is used as a diuretic and for the treatment of glaucoma.

---

**Q.20 Which of the following volatile oils are heavier than water:**

**Options:**

- A. Cinnamon
- B. Fennel
- C. Cumin
- D. Lemongrass

**Correct Answer:** A. Cinnamon

**Explanation:**

Cinnamon oil is one of the few essential oils that is heavier than water due to its high specific gravity, primarily because of its cinnamaldehyde content. Most essential oils are lighter than water.

**Q.21 H1 receptor protein in humans is made up of:**

**Options:**

- A. 359 Amino acids
- B. 445 Amino acids
- C. 487 Amino acids
- D. 390 Amino acids

**Correct Answer:** C. 487 Amino acids

**Explanation:**

The human histamine H1 receptor is a G-protein coupled receptor (GPCR) that

consists of 487 amino acids. It is primarily involved in mediating the effects of histamine, including allergic responses and inflammation.

---

**Q.22 Which of the following is/are in-process QC test(s) for tablets:**

**Options:**

- A. Dissolution Test
- B. Drug content, Puncture Test
- C. Zeta-sizing Test
- D. Hardness, Friability, Average weight

**Correct Answer:** D. Hardness, Friability, Average weight

**Explanation:**

In-process quality control (IPQC) tests for tablets include hardness testing to determine mechanical strength, friability testing to assess tablet integrity under stress, and average weight testing to ensure uniformity in dosage. Dissolution and drug content testing are generally performed as final product QC tests.

---

**Q.23 5-Fluorouracil, an anti-metabolite used in cancer treatment, is activated to:**

**Options:**

- A. 5-fluoro-2-oxyuridylic acid

- B. 5-fluoro-2-deoxyuridylic acid
- C. 3-fluoro-3-oxyuridylic acid
- D. 3-fluoro-3-deoxyuridylic acid

**Correct Answer:** B. 5-fluoro-2-deoxyuridylic acid

**Explanation:**

5-Fluorouracil (5-FU) is a pyrimidine analog that is converted to 5-fluoro-2-deoxyuridylic acid (FdUMP) in the body. FdUMP inhibits thymidylate synthase, leading to disruption of DNA synthesis, making it effective against rapidly dividing cancer cells.

---

**Q.24 The biological name of Indian Bdellium is:**

**Options:**

- A. Commiphora molmol
- B. Commiphora wightii
- C. Commiphora mukul
- D. Commiphora berryi

**Correct Answer:** C. Commiphora mukul

**Explanation:**

Commiphora mukul, commonly known as Indian Bdellium or Guggul, is a resinous

plant used in traditional Ayurvedic medicine. It contains guggulsterones, which are known for their anti-inflammatory and hypolipidemic effects.

---

**Q.25 Etoposide and Teniposide are the semi-synthetic derivatives of:**

**Options:**

- A. Digoxin
- B. Vincristine
- C. Podophyllotoxin
- D. Taxol

**Correct Answer:** C. Podophyllotoxin

**Explanation:**

Etoposide and Teniposide are semi-synthetic derivatives of podophyllotoxin, a natural product obtained from the plant **Podophyllum peltatum**. These agents act by inhibiting topoisomerase II, leading to DNA strand breakage and cytotoxic effects on rapidly dividing cells.

Section- C

**Q.1 Which of the following is the first prodrug for sulfonamide?**

**Options:**

- A. Sulfatrim
- B. Sulfamidochrysodine

C. Trimethoprim

D. Prontosil

**Correct Answer:** D. Prontosil

**Explanation:**

Prontosil was the first synthetic antimicrobial prodrug developed. It is a red dye that was later found to have antibacterial properties. Prontosil is metabolized in the body to **sulfanilamide**, a sulfonamide antibiotic.

---

**Q.2 The appendicular skeleton in an adult consists of:**

**Options:**

A. 120 bones

B. 206 bones

C. 80 bones

D. 126 bones

**Correct Answer:** D. 126 bones

**Explanation:**

The appendicular skeleton consists of the bones of the upper and lower limbs, including the pectoral and pelvic girdles. It comprises **126 bones**, whereas the axial skeleton includes 80 bones.

---

**Q.3 Which of the following is an aryl acetic acid derivative?**

**Options:**

- A. Salsalate
- B. Aspirin
- C. Ibuprofen
- D. Mefenamic acid

**Correct Answer:** C. Ibuprofen

**Explanation:**

Ibuprofen is classified as an **aryl acetic acid derivative**. It is a nonsteroidal anti-inflammatory drug (NSAID) with analgesic and antipyretic properties. It acts by inhibiting cyclooxygenase (COX) enzymes, reducing prostaglandin synthesis.

---

**Q.4 Which of the following hormones is not secreted by the human placenta?**

**Options:**

- A. hCG
- B. LH
- C. Estrogen
- D. Progesterone

**Correct Answer:** B. LH

**Explanation:**

**Luteinizing Hormone (LH)** is secreted by the anterior pituitary gland, not by the placenta. The placenta secretes human chorionic gonadotropin (hCG), estrogen, and progesterone to maintain pregnancy.

---

**Q.5 Central Government approved factory premises where Opium alkaloids are processed is situated at:**

**Options:**

- A. Ghazipur and Kota
- B. New Delhi And Ghaziabad
- C. Neemuch and Ghazipur
- D. Gwalior and Kota

**Correct Answer:** C. Neemuch and Ghazipur

**Explanation:**

The processing and manufacture of opium alkaloids in India are conducted at the **Government Opium and Alkaloid Works (GOAW)** located in Neemuch (Madhya Pradesh) and Ghazipur (Uttar Pradesh).

---

**Q.6 Which one of the following diseases is caused by the deficiency of niacin?**

**Options:**

- A. Anemia
- B. Pellagra
- C. Scurvy
- D. Night Blindness

**Correct Answer:** B. Pellagra

**Explanation:**

Pellagra is a disease caused by a deficiency of **niacin (Vitamin B3)**. It is characterized by the four D's: **dermatitis, diarrhea, dementia, and death**.

---

**Q.7 Which ionization technique in mass spectrometry is most suitable for large biomolecules like proteins?**

**Options:**

- A. Physical Ionization (PI)
- B. Electron Impact (EI)
- C. Electrospray Ionization (ESI)
- D. Chemical Ionization (CI)

**Correct Answer:** C. Electrospray Ionization (ESI)

**Explanation:**

**Electrospray Ionization (ESI)** is a soft ionization technique used to analyze large

biomolecules like proteins and peptides. It generates multiple charged ions, allowing for the analysis of large molecular weight compounds.

---

**Q.8 Precursor for corticosteroids synthesis is:**

**Options:**

- A. 1, 2-Cyclopentophenanthrene
- B. Phenanthrene
- C. Cholesterol
- D. 1, 2-Cyclopentodihydrophenanthrene

**Correct Answer:** C. Cholesterol

**Explanation:**

**Cholesterol** is the main precursor for the synthesis of corticosteroids, which are steroid hormones produced in the adrenal cortex. It undergoes enzymatic conversion to pregnenolone and then to corticosteroids.

---

**Q.9 Which ring of warfarin is essential for its therapeutic activity?**

**Options:**

- A. Lactone
- B. Pyrimidine

C. Coumarin

D. Purine

**Correct Answer:** C. Coumarin

**Explanation:**

Warfarin is a **coumarin derivative**, and its anticoagulant activity is primarily associated with the coumarin ring. It inhibits vitamin K epoxide reductase, preventing the synthesis of clotting factors.

---

**Q.10 Melatonin is secreted by:**

**Options:**

A. Thyrotrophs

B. Adrenal gland

C. Pineal gland

D. Gonadotrophs

**Correct Answer:** C. Pineal gland

**Explanation:**

**Melatonin** is a hormone secreted by the **pineal gland** in response to darkness. It regulates the sleep-wake cycle and circadian rhythms.

**Q.11 Which oral hypoglycemic agent increases the levels of incretin hormone by inhibiting the enzyme dipeptidyl peptidase-4 (DPP-4)?**

**Options:**

- A. Metformin
- B. Sitagliptin
- C. Glipizide
- D. Pioglitazone

**Correct Answer:** B. Sitagliptin

**Explanation:**

**Sitagliptin** is a DPP-4 inhibitor that works by preventing the breakdown of incretin hormones such as GLP-1 and GIP. These hormones increase insulin secretion and decrease glucagon release, leading to reduced blood glucose levels.

---

**Q.12 The etiology of jaundice could be haemolytic anaemia if:**

**Options:**

- A. Unconjugated bilirubin is found more than conjugated bilirubin
- B. Increase in IgE level
- C. Conjugated bilirubin is found more than unconjugated bilirubin
- D. Unconjugated bilirubin is found equal to conjugated bilirubin

**Correct Answer:** A. Unconjugated bilirubin is found more than conjugated bilirubin

**Explanation:**

In **hemolytic anemia**, there is an increased breakdown of red blood cells, leading to a

higher amount of **unconjugated bilirubin** in the blood. The liver is unable to conjugate it rapidly enough, causing a buildup of unconjugated bilirubin.

---

**Q.13 Biological activity of synthetic adrenaline is almost:**

**Options:**

- A. 25% of R-adrenaline
- B. 50% of S-adrenaline
- C. 25% of S-adrenaline
- D. 50% of Natural R-adrenaline

**Correct Answer:** D. 50% of Natural R-adrenaline

**Explanation:**

Synthetic adrenaline (a racemic mixture of R and S enantiomers) is only about **50% as active as the natural R-enantiomer**, as the S-enantiomer is less pharmacologically active.

---

**Q.14 Murmurs are generally heard in disorders affecting the following:**

**Options:**

- A. Heart valves
- B. AV nodes

- C. Pulmonary vein
- D. SA nodes

**Correct Answer:** A. Heart valves

**Explanation:**

A **heart murmur** is an abnormal sound heard during a heartbeat. It is typically caused by turbulent blood flow through the **heart valves**, due to conditions such as stenosis or regurgitation.

---

**Q.15 Tetracycline undergoes epimerization at C4 between pH 4-8 to give:**

**Options:**

- A. Epitetracycline
- B. Nortetracycline
- C. Isotetracycline
- D. Doxycycline

**Correct Answer:** A. Epitetracycline

**Explanation:**

Tetracycline can undergo **epimerization at C4** to form **epitetracycline**, which is less active. This conversion is pH-dependent and occurs readily between pH 4-8.

---

**Q.16 Leprosy is a:**

**Options:**

- A. Viral disease
- B. Metazoal disease
- C. Fungal disease
- D. Bacterial disease

**Correct Answer:** D. Bacterial disease

**Explanation:**

**Leprosy** (Hansen's disease) is a chronic infectious disease caused by the bacterium **Mycobacterium leprae**. It primarily affects the skin, peripheral nerves, and mucosa of the respiratory tract.

---

**Q.17 Which of the following drug does NOT require therapeutic drug monitoring:**

**Options:**

- A. Acetaminophen
- B. Phenytoin
- C. Digitoxin
- D. Gentamicin

**Correct Answer:** A. Acetaminophen

**Explanation:**

**Acetaminophen (Paracetamol)** generally does not require therapeutic drug monitoring as it has a wide therapeutic index, unlike drugs like phenytoin, digitoxin, and gentamicin, which require close monitoring to avoid toxicity.

---

**Q.18 Which hormone stimulates red blood cell production:**

**Options:**

- A. Erythropoietin
- B. Prolactin
- C. Vasopressin
- D. Erythrocytin

**Correct Answer:** A. Erythropoietin

**Explanation:**

**Erythropoietin (EPO)** is a hormone produced by the kidneys in response to hypoxia. It stimulates the **bone marrow** to produce more red blood cells, increasing oxygen-carrying capacity.

---

**Q.19 Following are the examples of negative feedback system except:**

**Options:**

- A. Blood glucose maintenance

- B. Blood pressure maintenance
- C. Blood clotting
- D. Body temperature regulation

**Correct Answer:** C. Blood clotting

**Explanation:**

**Blood clotting** is a **positive feedback mechanism** where the initial clotting triggers further clotting. In contrast, blood glucose regulation, blood pressure, and body temperature are regulated by **negative feedback mechanisms**.

**Q.20 Which of the following is called as cell-mediated (delayed) hypersensitivity:**

**Options:**

- A. Type II hypersensitivity
- B. Type I hypersensitivity
- C. Type III hypersensitivity
- D. Type IV hypersensitivity

**Correct Answer:** D. Type IV hypersensitivity

**Explanation:**

Type IV hypersensitivity, also known as delayed-type hypersensitivity (DTH), is mediated by T cells rather than antibodies. Examples include contact dermatitis and tuberculin skin reactions.

**Q.21 Which functional group in drug molecules is most likely to undergo phase I metabolic oxidation by cytochrome P450 enzymes?**

**Options:**

- A. Methyl group
- B. Amide group
- C. Hydroxyl group
- D. Ester group

**Correct Answer:** A. Methyl group

**Explanation:**

Cytochrome P450 enzymes typically catalyze the oxidation of lipophilic molecules, primarily targeting **methyl groups, aromatic rings, and alkyl chains**. Methyl groups are commonly oxidized to hydroxymethyl or carboxylic acid derivatives during phase I metabolism.

**Q.22 How many optical isomers are possible for lactic acid?**

**Options:**

- A. 2
- B. 6
- C. 0
- D. 4

**Correct Answer:** A. 2

**Explanation:**

Lactic acid (2-hydroxypropanoic acid) contains a chiral center, allowing for the existence of two optical isomers: D-lactic acid and L-lactic acid. Therefore, only two optical isomers are possible.

**Q.23 Histogram can be drawn only for:****Options:**

- A. Continuous frequency distribution
- B. Discrete frequency distribution
- C. Cumulative frequency distribution
- D. Relative frequency distribution

**Correct Answer:** A. Continuous frequency distribution

**Explanation:**

A histogram is a graphical representation of data using bars of different heights, where each bar represents a range of values. It is used to display the frequency distribution of continuous data, not discrete or cumulative data.

**Q.24 Enzyme commonly targeted by drugs to treat hypertension is:****Options:**

- A. Monoamine oxidase (MAO)
- B. Angiotensin-converting enzyme (ACE)
- C. HMG-CoA reductase
- D. Cyclooxygenase (COX)

**Correct Answer:** B. Angiotensin-converting enzyme (ACE)

**Explanation:**

**ACE inhibitors** (e.g., enalapril, lisinopril) are used to treat hypertension by blocking the conversion of **angiotensin I to angiotensin II**, a potent vasoconstrictor. This leads to vasodilation and a reduction in blood pressure.

**Q.25 If one event is unaffected by the outcome of another event, the two events are said to be:**

**Options:**

- A. Either dependent or independent
- B. Dependent
- C. Independent
- D. Mutually exclusive

**Correct Answer:** C. Independent

**Explanation:**

Two events are considered **independent** if the occurrence or non-occurrence of one event **does not affect the probability of the other event occurring**. For example, flipping a coin and rolling a die are independent events.

Section- D

**Q.1 Which of the following is not a GABA derivative?**

**Options:**

- A. Pregabalin
- B. Vigabatrin
- C. Gabapentin
- D. Rufinamide

**Correct Answer:** D. Rufinamide

**Explanation:**

**Rufinamide** is an antiepileptic drug that is structurally unrelated to GABA. It is a triazole derivative, whereas **Pregabalin, Vigabatrin, and Gabapentin** are structural analogs of GABA and act by modulating GABAergic neurotransmission.

**Q.2 Who has the power to fix the ceiling price of scheduled formulations?**

**Options:**

- A. National Pharmaceutical Pricing Authority
- B. Director General Health Services
- C. National Medical Commission
- D. Pharmacy Council of India

**Correct Answer:** A. National Pharmaceutical Pricing Authority

**Explanation:**

The National Pharmaceutical Pricing Authority (NPPA) is responsible for fixing and regulating the prices of pharmaceutical products in India as per the Drug Price Control Order (DPCO).

**Q.3 A hypothesis stipulating that there is no difference between the situations, groups and outcomes is called:**

**Options:**

- A. Null hypothesis
- B. Hypothesis of association
- C. Hypothesis of differences
- D. Alternative hypothesis

**Correct Answer:** A. Null hypothesis

**Explanation:**

A **Null hypothesis (H<sub>0</sub>)** states that there is **no significant difference** between the specified populations or groups, and any observed difference is due to sampling or experimental error.

**Q.4 As per Bronsted-Lowry concept, acid is defined as:**

**Options:**

- A. Electron pair acceptor
- B. Any substance/molecule that can donate a proton
- C. Any substance/molecule that can accept a proton
- D. Electron pair donor

**Correct Answer:** B. Any substance/molecule that can donate a proton

**Explanation:**

According to the **Bronsted-Lowry concept**, an acid is a substance that can **donate a proton ( $H^+$ )** to another substance, while a base is a substance that can accept a proton.

**Q.5 How many Pharmacists are required for a hospital having up to 300 beds?**

**Options:**

- A. 15
- B. 8
- C. 10
- D. 5

**Correct Answer:** B. 8

**Explanation:**

As per the **Pharmacy Council of India (PCI)** guidelines, a hospital with up to 300 beds requires at least **8 pharmacists** for dispensing, compounding, and other pharmaceutical services.

**Q.6 Which of the following is a peroxisome proliferator-activated receptor-alpha (PPAR- $\alpha$ ) agonist?**

**Options:**

- A. Niacin
- B. Ezetimibe
- C. Colesevelam
- D. Gemfibrozil

**Correct Answer:** D. Gemfibrozil

**Explanation:**

**Gemfibrozil** is a **PPAR- $\alpha$  agonist** that lowers triglyceride levels by increasing the expression of enzymes involved in lipid metabolism. It is commonly used to treat hypertriglyceridemia.

**Q.7 Aerobic dehydrogenase in biological oxidation contains:**

**Options:**

- A. NADP
- B. NAD
- C. FMN & FAD
- D. NADH

**Correct Answer:** C. FMN & FAD

**Explanation:**

Aerobic dehydrogenases often contain **flavin nucleotides (FMN & FAD)** as prosthetic groups, which function as electron carriers in oxidative phosphorylation.

**Q.8 Which of the following equipment measures weight variation using reflected energy?**

**Options:**

- A. Rotofill
- B. Vericap-1200

C. Rotoweight

D. Rotosort

**Correct Answer:** C. Rotoweight

**Explanation:**

**Rotoweight** is a weight control system that uses **reflected energy (infrared technology)** to measure the weight of capsules or tablets accurately.

**Q.9 Which among the following is an example of high shear mixer?**

**Options:**

A. Sigma blade mixer

B. Turbine mixer

C. Jet mixer

D. Nauta mixer

**Correct Answer:** B. Turbine mixer

**Explanation:**

A **Turbine mixer** is a **high shear mixer** that rapidly mixes components using high-speed impellers, producing a strong shearing action. It is widely used in pharmaceutical and chemical industries.

**Q.10 Influenza viruses are RNA viruses and belong to which family?**

**Options:**

A. Orthomyxoviridae

- B. Papoviridae
- C. Retroviridae
- D. Parvoviridae

**Correct Answer:** A. Orthomyxoviridae

**Explanation:**

**Influenza viruses** are RNA viruses that belong to the family **Orthomyxoviridae**. This family includes **Influenza A, B, and C viruses**, which are responsible for causing influenza in humans and animals.

**Q.11 Plasma protein bound drugs are:**

**Options:**

- A. Pharmacodynamically inert
- B. Pharmacokinetically inert
- C. Pharmacodynamically active
- D. Pharmacokinetically and Pharmacodynamically inert

**Correct Answer:** B. Pharmacokinetically inert

**Explanation:**

Plasma protein-bound drugs are generally **pharmacokinetically inert** because only the unbound (free) drug is available for metabolism, distribution, and elimination.

However, they can still be pharmacodynamically active when unbound.

**Q.12 Partial hydrogenation of vegetable oils in the presence of Ni catalyst at 200°C gives:**

**Options:**

- A. Butter
- B. Cheese
- C. Margarine
- D. Vanaspati ghee

**Correct Answer:** D. Vanaspati ghee

**Explanation:**

Partial hydrogenation of vegetable oils produces **Vanaspati ghee**, a solidified fat used as a substitute for butter or ghee. This process saturates unsaturated fats partially.

**Q.13 Which of the following is easily nitrated using a mixture of  $\text{HNO}_3$  and  $\text{H}_2\text{SO}_4$ :**

**Options:**

- A. Toluene
- B. Nitrobenzene
- C. Chlorobenzene
- D. Fluorobenzene

**Correct Answer:** A. Toluene

**Explanation:**

**Toluene** is more reactive towards nitration because the methyl group is an **electron-donating group**, activating the benzene ring for electrophilic substitution.

Nitrobenzene, chlorobenzene, and fluorobenzene are less reactive.

**Q.14 Among the following which is known as “SPIRIT OF SALT”:**

**Options:**

- A. Hydrochloric acid
- B. Nitric acid
- C. Thioglycolic acid
- D. Boric acid

**Correct Answer:** A. Hydrochloric acid

**Explanation:**

Spirit of salt is the traditional name for hydrochloric acid.

**Q.15 If the spin of the electrons in the excited state are parallel, it is called as:**

**Options:**

- A. Triplet state
- B. Parallel state
- C. Doublet state
- D. Singlet state

**Correct Answer:** A. Triplet state

**Explanation:**

When electrons in the excited state have **parallel spins**, the molecule is said to be in the **triplet state**, which is usually longer-lived than the singlet state.

**Q.16 Choose the incorrect statement regarding Cathode rays:**

**Options:**

- A. Cathode rays are fast electrons
- B. Cathode rays are electromagnetic waves
- C. Cathode rays travel in straight route
- D. Cathode rays produce X-rays

**Correct Answer:** B. Cathode rays are electromagnetic waves

**Explanation:**

**Cathode rays** are streams of electrons, **not electromagnetic waves**. They travel in straight lines and can produce X-rays when striking metal targets.

**Q.17 The short acting anticholinesterase drug is:**

**Options:**

- A. Neostigmine
- B. Edrophonium
- C. Ecothiophate
- D. Physostigmine

**Correct Answer:** B. Edrophonium

**Explanation:**

**Edrophonium** is a short-acting reversible inhibitor of acetylcholinesterase, used in diagnostic tests like the Tensilon test.

**Q.18 In a homologous series of any general anesthetic, increasing the chain length increases the lipid solubility, and produces a corresponding increase in anesthetic potency, is proposed by:**

**Options:**

- A. Meyer - Philip
- B. Hubert Humphrey
- C. John Pemberton
- D. Meyer - Overton

**Correct Answer:** D. Meyer - Overton

**Explanation:**

The **Meyer-Overton hypothesis** correlates anesthetic potency with lipid solubility.

**Q.19 In which limit test, Thioglycolic acid is used:**

**Options:**

- A. Limit test for arsenic
- B. Limit test for iron
- C. Limit test for sulphate
- D. Limit test for chloride

**Correct Answer:** A. Limit test for arsenic

**Explanation:**

**Thioglycolic acid** is used in the **limit test for arsenic** to reduce arsenic to arsine gas.

**Q.20 Two drugs producing the same clinical effects and safety profile when administered to patients are considered:**

**Options:**

- A. Minimum Effective Concentration (MEC)
- B. Therapeutic equivalent
- C. Minimum Toxic Concentration (MTC)
- D. Therapeutic window

**Correct Answer:** B. Therapeutic equivalent

**Explanation:**

**Therapeutic equivalent drugs** have the same clinical efficacy and safety profile when given at the same dosage.

**Q.21 Which among the following is not the process of drug degradation:**

**Options:**

- A. Hydrolysis
- B. Decarboxylation
- C. Photolysis
- D. Hemolysis

**Correct Answer:** D. Hemolysis

**Explanation:**

**Hemolysis** refers to the breakdown of red blood cells, not drug degradation. The others—hydrolysis, decarboxylation, and photolysis—are common chemical degradation pathways for drugs.

**Q.22 Match the following antibodies with their correct description:**

<b>Antibody</b>	<b>Description</b>
P. IgE	(iv) Responsible for autoimmune responses including allergies
Q. IgG	(ii) Dominant antibody produced in immune responses
R. IgM	(iii) It is found in the mother's milk
S. IgA	(i) Cross the placenta

**Options:**

A. P(iv), Q(ii), R(iii), S(i)

B. P(i), Q(iii), R(ii), S(iv)

C. P(iv), Q(i), R(ii), S(iii)

D. P(i), Q(ii), R(iii), S(iv)

**Correct Answer:** A. P(iv), Q(ii), R(iii), S(i)

**Explanation:**

- **IgE** is involved in allergic responses (autoimmune-like).
- **IgG** is the dominant antibody in blood and immunity.
- **IgM** is found in colostrum/mother's milk.
- **IgA** is the antibody that crosses the placenta.

**Q.23 The term of a patent granted under Indian Patent's Act is:**

**Options:**

A. 40 Years

B. 10 Years

C. 30 Years

D. 20 Years

**Correct Answer:** D. 20 Years

**Explanation:**

Under the **Indian Patent Act, 1970**, the term of patent protection is **20 years** from the date of filing.

**Q.24 This given equation represents which law:**

$$E = K_k \ln \frac{d_1}{d_2}$$

**Options:**

- A. Rittinger's law
- B. Kick's law
- C. Fick's law
- D. Bond's law

**Correct Answer:** D. Bond's law

**Explanation:**

The equation is Bond's law, which relates energy consumption in grinding to particle size reduction, using a logarithmic relationship of initial and final particle diameters.

**Section- E**

**Q.1 Progressive loss of bone that occurs in osteoporosis is an example of:**

**Options:**

- A. Hypertrophy

- B. Hyperplasia
- C. Metaplasia
- D. Atrophy

**Correct Answer:** D. Atrophy

**Explanation:**

Osteoporosis is characterised by a progressive loss of bone mass, which is a form of **atrophy** — the reduction in size or wasting away of tissue.

**Q.2 The visible coloured ring of the eye is called:**

**Options:**

- A. Lens
- B. Iris
- C. Cornea
- D. Retina

**Correct Answer:** B. Iris

**Explanation:**

The **iris** is the colored part of the eye that controls the size of the pupil and thus regulates the amount of light entering the eye.

**Q.3 Which of the following is a Partial Fatty acid oxidation (pFox) inhibitor:**

**Options:**

- A. Atosiban

- B. Nicardipine
- C. Trimetazidine
- D. Verapamil

**Correct Answer:** C. Trimetazidine

**Explanation:**

**Trimetazidine** is a partial fatty acid oxidation inhibitor used to improve myocardial glucose utilization and protect against ischemia.

**Q.4 Which of the following is a causative organism for Syphilis:**

**Options:**

- A. Clostridium tetani
- B. Bacillus pertussis
- C. Treponema pallidum
- D. Vibrio cholerae

**Correct Answer:** C. Treponema pallidum

**Explanation:**

**Treponema pallidum** is the spirochete bacterium responsible for causing syphilis.

**Q.5 In Michaelis-Menten equation when  $K_m = C$ :**

**Options:**

- A. Indicates zero-order process
- B. The rate process occurs at a constant rate

- C. Equation becomes identical to first order elimination of drug
- D. The rate of process is equal to half of maximum rate

**Correct Answer:** D. The rate of process is equal to half of maximum rate

**Explanation:**

When substrate concentration (C) equals  $K_m$ , the reaction rate is half of the maximum velocity  $V_{max}$ .

**Q.6 Outer Covering of the testes is:**

**Options:**

- A. Tunica media
- B. Tunica vaginalis
- C. Tunica vasculosa
- D. Tunica albuginea

**Correct Answer:** D. Tunica albuginea

**Explanation:**

The **tunica albuginea** is a dense fibrous layer that surrounds the testes.

**Q.7 The optimum temperature for rapid growth of mesophiles is:**

**Options:**

- A. 40 to 50 °C
- B. 50 to 60 °C

C. 25 to 40 °C

D. 15 to 20 °C

**Correct Answer:** C. 25 to 40 °C

**Explanation:**

**Mesophiles** thrive best at moderate temperatures, typically between 25 and 40 °C.

**Q.8 Sarcoma is the cancer of:**

**Options:**

A. Epithelium

B. Plasma cells

C. Connective tissues

D. Glands

**Correct Answer:** C. Connective tissues

**Explanation:**

Sarcomas arise from connective tissues such as bone, muscle, fat, and cartilage.

**Q.9 The Phase in which two identical copies of DNA are formed is:**

**Options:**

A. G1 phase

B. S phase

C. G2 phase

D. M phase

**Correct Answer:** B. S phase

**Explanation:**

During the **S phase** (Synthesis phase) of the cell cycle, DNA replication occurs producing two identical copies.

**Q.10 Renin is released from:**

**Options:**

- A. Juxtaglomerular cells (JGCs) of kidney
- B. Microglial cells
- C. Beta-cells of pancreas
- D. Hepatocytes of liver

**Correct Answer:** A. Juxtaglomerular cells (JGCs) of kidney

**Explanation:**

Renin is secreted by the juxtaglomerular cells in the kidney and is involved in blood pressure regulation via the renin-angiotensin system.

**Q.11 The most common neoplasm in patients with AIDS is:**

**Options:**

- A. Acute myeloid leukaemia
- B. Adenocarcinoma
- C. Kaposi sarcoma
- D. Carcinoma of breast

**Correct Answer:** C. Kaposi sarcoma

**Explanation:**

Kaposi sarcoma is a vascular tumor commonly seen in immunocompromised patients, especially those with AIDS.

**Q.12 Coomb's test is used for detection of:**

**Options:**

- A. Typhoid
- B. Antiglobulin
- C. Yellow fever
- D. Syphilis

**Correct Answer:** B. Antiglobulin

**Explanation:**

Coomb's test detects antibodies against red blood cells, specifically antiglobulin antibodies, used in hemolytic anemia diagnosis.

**Q.13 Which of the following cranial nerve is instrumental in motor function:**

**Options:**

- A. Vestibulocochlear
- B. Optic
- C. Accessory
- D. Olfactory

**Correct Answer:** C. Accessory

**Explanation:**

The accessory nerve (cranial nerve XI) primarily controls motor functions of the sternocleidomastoid and trapezius muscles.

**Q.14 Virus mediated transfer of host DNA from one cell to another cell is known as:**

**Options:**

- A. Transcription
- B. Integration
- C. Transduction
- D. Transformation

**Correct Answer:** C. Transduction

**Explanation:**

Transduction is the process by which a virus transfers genetic material from one bacterium to another.

**Q.15 The fluoroquinolones act by:**

**Options:**

- A. Inhibiting folic acid synthesis, reducing nucleotide production and DNA synthesis
- B. Inhibiting ribosomal subunits, leading to the cessation of protein synthesis
- C. Disrupting peptidoglycan cross-linking, weakening the bacterial cell wall

D. Inhibiting DNA gyrase and topoisomerase IV, causing supercoiling and fragmentation of bacterial DNA

**Correct Answer:** D. Inhibiting DNA gyrase and topoisomerase IV, causing supercoiling and fragmentation of bacterial DNA

**Explanation:**

Fluoroquinolones inhibit bacterial DNA gyrase and topoisomerase IV, essential for DNA replication.

**Q.16 Which of the following is the best technique for detecting HIV:**

**Options:**

- A. Real-time PCR
- B. Widal test
- C. Reverse transcriptase-PCR
- D. Polymerase chain reaction

**Correct Answer:** C. Reverse transcriptase-PCR

**Explanation:**

Reverse transcriptase-PCR detects HIV RNA by converting it into DNA, allowing sensitive viral load measurement.

**Q.17 Salivary amylase helps in digestion of which of the following nutrients:**

**Options:**

- A. Fats

- B. Vitamins
- C. Proteins
- D. Starch

**Correct Answer:** D. Starch

**Explanation:**

Salivary amylase initiates the digestion of starch into simpler sugars in the mouth.

**Q.18 What should be the log P value for an ideal drug candidate for transdermal permeation:**

**Options:**

- A. Above 7
- B. 1-3
- C. 5-7
- D. Below 1

**Correct Answer:** B. 1-3

**Explanation:**

Ideal transdermal drugs have moderate lipophilicity (log P between 1 and 3) to penetrate skin barriers effectively.

**Q.19 Which of the following formula for calculating child dose is based on body weight:**

**Options:**

- A. Young's formula
- B. Clark's formula
- C. Fried's formula
- D. Dilling's formula

**Correct Answer:** B. Clark's formula

**Explanation:**

Clark's formula calculates pediatric doses based on weight:  $\text{Dose (child)} = (\text{Weight in kg} \times \text{Adult dose})/70$ .

**Q.20 Which of the following is an example of physical incompatibility:**

**Options:**

- A. Error in dosage form
- B. Alkaloidal incompatibility
- C. Drug interaction
- D. Liquefaction

**Correct Answer:** D. Liquefaction

**Explanation:**

Liquefaction, where a solid or powder becomes liquid due to interaction or moisture, is a physical incompatibility.

**Q.21 What is the proposed mechanism of action of artemisinin in the treatment of malaria:**

**Options:**

- A. Blocking of the *Plasmodium falciparum* ATPase, disrupting ion homeostasis
- B. Inhibition of the heme polymerase enzyme, causing accumulation of toxic heme
- C. Inhibition of dihydrofolate reductase, interfering with folate synthesis
- D. Generation of reactive oxygen species (ROS) by cleavage of the endoperoxide bridge, leading to parasite death

**Correct Answer:** D. Generation of reactive oxygen species (ROS) by cleavage of the endoperoxide bridge, leading to parasite death

**Explanation:**

Artemisinin contains an endoperoxide bridge that, when cleaved by iron in the parasite, produces reactive oxygen species that damage vital proteins and membranes, causing parasite death.

**Q.22 Which of the following is NOT a Class 1C anti-arrhythmic drug:**

**Options:**

- A. Propafenone
- B. Mexiletine
- C. Moricizine
- D. Flecainide

**Correct Answer:** B. Mexiletine

**Explanation:**

Mexiletine is a Class 1B anti-arrhythmic drug, whereas Propafenone, Moricizine, and Flecainide belong to Class 1C.

**Q.23 The amount of air that moves in or out of the lungs with each respiratory cycle is:**

**Options:**

- A. Expiratory reserve volume
- B. Tidal volume
- C. Inspiratory reserve volume
- D. Residual volume

**Correct Answer:** B. Tidal volume

**Explanation:**

Tidal volume is the volume of air inhaled or exhaled during normal breathing at rest.

**Q.24 In drying process, which of the following parameters is same as the adiabatic saturation temperature:**

**Options:**

- A. Wet bulb temperature
- B. Dew point
- C. Absolute humidity
- D. Relative humidity

**Correct Answer:** A. Wet bulb temperature

**Explanation:**

The wet bulb temperature represents the adiabatic saturation temperature during drying, indicating the temperature of air saturated with moisture.

**Q.25 The cranial nerve that regulates the heartbeat is:**

**Options:**

A. VII

B. IX

C. X

D. VIII

**Correct Answer:** C. X

**Explanation:**

The vagus nerve (cranial nerve X) plays a key role in parasympathetic control of the heart rate.

Practising GPAT previous year question papers is one of the most effective strategies for exam preparation. These papers help candidates understand the exam pattern, the type of questions asked, and the overall difficulty level, reducing the chances of unexpected surprises on the exam day. By solving past papers, students can identify key topics and frequently asked questions, enabling more focused and efficient revision. It also enhances time management skills and builds confidence by offering a realistic exam experience. Overall, using previous year papers as a study tool helps candidates refine

their preparation strategy and significantly boosts their chances of performing well in the GPAT exam.

Careers360