

GPAT Full Paper 2009

1. Different species of Ephedra can be identified by observing the nature of

- (A) Inner surface
- (B) Outer surface
- (C) Trichomes
- (D) Scaly leaves

2. Indian Rhubarb can be distinguished from Rhapontic Rhubarb by the fluorescense it emits under UV light. Indian Rhubarb gives

- (A) Deep yellow
- (B) Deep violet
- (C) Orange
- (D) Pale green

3. Genetically modified species of Papaver namely Papaver bracteatum and Papaver orientale contain the predominant alkaloid

- (A) Morphine
- (B) Codeine
- (C) Thebaine
- (D) Narcotine

4. Increased risk of atherosclerosis is associated with decreased serum levels of

- (A) LDL
- (B) HDL
- (C) Triglycerides
- (D) VLDL

5. A peptide hormone, which inhibits bone resorption and given as a nasal spray is

- (A) Cortisol
- (B) Alendronate

(C) Calcitonin

(D) Calcitriol

6. An inorganic ion, which is used prophylactically in bipolar depression, is

(A) Valproate

(B) Lithium

(C) Chromium

(D) Valium

7. A β -lactamase inhibitor which contains an 1-oxopenam structure is

(A) Tazobactam sodium

(B) Clavulanate potassium

(C) Sulbactam sodium

(D) Thienamycin

8. Antihypoprothrombinemic effect of one stereo chemical form is two to five times more than others

(A) (S)-(+)- Warfarin

(B) R-(+)- Warfarin

(C) (S)-(-)- Warfarin

(D) (RS)- Warfarin

9. Some of the organic reactions are catalysed by a product obtained from starch on treatment with amylase from *Bacillus macerans*. It is

(A) Amylopectin

(B) Amylose

(C) Cellulose

(D) Cyclodextrin

10. Florentine receiver is used to separate the liquids based on

(A) Molecular weight

(B) Sedimentation rate

(C) Density

(D) Freezing point

11. The official dissolution test apparatus contains cylindrical vessel and the lower edge of the blade is positioned from inside bottom of the vessel at
- (A) 18 to 22mm
 - (B) 23 to 27mm
 - (C) 20 to 24mm
 - (D) 25 to 29mm
12. A substance used for modification of silica gel for reversed-phase TLC is
- (A) Benzene
 - (B) Glycerine
 - (C) Silicone oil
 - (D) Ether
13. In IR spectrum, the functional group region is from
- (A) 4000cm^{-1} to 900cm^{-1}
 - (B) 4000cm^{-1} to 1400cm^{-1}
 - (C) 1400cm^{-1} to 900cm^{-1}
 - (D) 4000cm^{-1} to 660cm^{-1}
14. The equation $E = E_0 + \frac{RT}{nF} \ln aM_3^+$ is used to measure the
- (A) Conductance
 - (B) Potential difference
 - (C) Resistance
 - (D) Current
15. A naturally occurring amino acid, which does not have a chiral centre, is
- (A) Glycine
 - (B) Alanine
 - (C) Tryptophan
 - (D) Tyrosine
16. A given Gram-positive bacterium is differentiated from Gram-negative bacteria by Gram staining. This is because its cell wall contains
- (A) Lysozyme

(B) Teichoic acid

(C) Membrane proteins

(D) Lipid A

17. The drug, which increases the plasma concentration of digoxin by a pharmacokinetic mechanism, is

(A) Lidocaine

(B) Captopril

(C) Quinidine

(D) Hydrochlorthiazide

18. Microscopic characters of ginger rhizome are

(A) Spindle shaped lignified fibres and sclereids

(B) Cluster crystals of calcium oxalate and sclereids

(C) Non-lignified vessels and sac shaped starch grains

(D) Non-lignified fibres and sclereids

19. Klunge's test is for the identification of

(A) Barbaloin

(B) Isobarbaloin

(C) Aloinosides

(D) Aloesin

20. 3, 4 Benzpyrene present in cigarette smoke reduces the therapeutic activity of diazepam by

(A) Altering excretion

(B) Binding to plasma proteins

(C) Inhibiting metabolism

(D) Increasing the activity of liver microsomal enzymes

21. An NMDA antagonist introduced for treatment of Alzheimer's disease is

(A) Dopamine

(B) Nor-epinephrine

(C) Serotonin

(D) Memantine

22. In multistation punching machine, the upper as well as lower punches are connected by

(A) Cams

(B) Turrets

(C) Wire meshes

(D) Revolving belts

23. As per the Drugs and Cosmetics Act, the HEPA filters are required to filter the air in the pharmaceutical manufacturing unit. Grade A filter is used for

(A) Aseptic preparation and filling

(B) Background room used for preliminary activities

(C) Filtering liquid preparations

(D) Handling of components after washing

24. The deflection of positive ions formed in a mass spectrometer by electric and magnetic fields depends upon its

(A) Mass

(B) Charge

(C) Velocity

(D) Mass, charge, and velocity

25. Quaternary structure in protein molecules refers to the

(A) Arrangement of multiple domains in a single polypeptide chain

(B) Specific arrangement of multiple subunits in multi-subunit proteins

(C) Formation of molten globules

(D) Protein folding in single subunit proteins

26. Interleukins are

(A) Polypeptide cytokines important in the inflammatory cascade

(B) Prostaglandins that account for gastrointestinal disorders

(C) Enkephalins, which are specific for asthma

(D) Dipeptides, which have antimicrobial properties

27. Phase I clinical studies of a drug under development is generally carried out on

- (A) At least 10,000 people from different ethnic communities and a wide range of age groups
- (B) A medium sized group of 500-1000 patients suffering from the disease for which the drug is being developed
- (C) A small group of 20-100 healthy male and female volunteers
- (D) Reliable in-vitro cell-lines derived from people suffering with the disease

28. A young patient complains that he gets severe shortness of breath whenever he takes aspirin for headache. Increased levels of a substance responsible for aspirin hypersensitivity is

- (A) Prednisone
- (B) Prostacycline
- (C) Ibuprofen
- (D) Leukotriene LTC₄

29. Group I Group II Drug Mechanism of action is by inhibition of

List I

P. Levofloxacin

Q. Caspofungin

R. Aztreonam

S. Rifabutin

List II

1. DNA dependent RNA polymerase
2. Topoisomerase II (DNA gyrase) the enzyme that produces a negative supercoil
3. The synthesis of b(1-2) glycan
4. Cell wall synthesis preferentially binding to a specific penicillin binding protein

- (A) P-2, Q-3, R-4, S-1
- (B) P-3, Q-4, R-1, S-2
- (C) P-4, Q-1, R-2, S-3
- (D) P-1, Q-2, R-3, S-4

30. Group I Group II Microorganism Typical characteristics

List I

P. *Corynebacterium diphtheriae*

Q. Streptococcus pyogenes

R. Staphylococcus aureus

S. Streptomyces viridochroma

List II

1. Cells divide in three planes in an irregular pattern, producing bunches
2. Cells are lined side by side like matchsticks and at angles to one another
3. Long, branched, multinuclear filaments called 'hyphae'
4. Cells divide in one plane and remain attached to form chain

(A) P-3,Q-4,R-2,S-1

(B) P-4,Q-1,R-2,S-3

(C) P-2,Q-4,R-1,S-3

(D) P-3,Q-2,R-1,S-4

31. Group I Group II Condition Description

List I

P. Agranulocytosis

Q. Anisocytosis

R. Aplastic anemia

S. Hemolytic anemia

List II

1. Reduced lifespan of erythrocytes
2. Lack of neutrophils
3. Abnormal variation in RBC size
4. Depression of synthesis of all cell types in bone marrow

(A) P-2, Q-3, R-4, S-1

(B) P-2, Q-4, R-3, S-1

(C) P-1, Q-2, R-4, S-3

(D) P-4, Q-2, R-1, S-3

32. The method involves

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- (A) Individual genes from one species inserted into another; the offspring will contain copies of new gene.
- (B) By crossing two species or varieties differing at least in one set of characters
- (C) -SH, group is introduced to enhance the binding capability of the drug with cobalt ion of ACE
- (D) -SH, group is introduced to enhance the binding to the zinc ion of ACE
- (E) -COOH and -SH groups to introduce hydrophilic pockets at the receptor site

33. Captopril IP is assayed by titration

- (A) Against 0.1N sodium hydroxide using phenolphthalein indicator
- (B) Of a solution in dimethylformamide with 0.1M of tetrabutyl ammonium hydroxide
- (C) Of a solution in anhydrous formic acid and acetic anhydride with 0.1N per chloric acid
- (D) Of a solution containing 1.8M sulphuric acid and potassium iodide with 0.025M potassium iodate using starch solution.

34. They can interact by different mechanisms

- (A) Biological fluid diffuses into the matrix and causes erosion of polymer
 - (B) Endocytosis by phagocytic cells of the reticuloendothelial system such as macrophages and Neutrophils
 - (C) Magnetic beads dispersed throughout the polymer matrix. On exposure the drug is released slowly by diffusion
 - (D) Receptor binding mediated by the peptide
- Linked Answer Questions: Q.57 to Q.60 Carry Two

35. The camptothecin present in the plant and useful in treating ovarian cancer is

- (A) Etoposide
- (B) Vincristine
- (C) Paclitaxel
- (D) Topotecan

36. The drug selected above acts by

- (A) Inhibiting topoisomerase I
- (B) Inhibiting topoisomerase II
- (C) Inhibiting thymidylate synthase

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(D) Forming hydrogen peroxide which generates free radicals Statement for Linked