

1. What is true of affinity tags ?
- (1) Affinity tags are long peptide sequences.
 - (2) Affinity tags have 4 consecutive tyrosine residues.
 - (3) Affinity tags have 6 consecutive histidine residues.
 - (4) Affinity tags have 8 different amino acid residues.
-
2. Which anticoagulants are permitted to be used for storing whole Human Blood as per IP ?
- (a) Anticoagulant Citrate Dextrose solution (ACD)
 - (b) Anticoagulant Citrate Phosphate Dextrose solution (ACPD)
 - (c) Low Molecular Weight Heparins (LMWHs)
 - (d) Sodium Warfarin
- (1) (a) and (b) (2) (a) and (c) (3) (c) and (d) (4) (b) and (c)
-
3. Place the steps involved in hemostasis in the correct order of their occurrence :
- (a) Conversion of fibrinogen to fibrin
 - (b) Conversion of prothrombin to thrombin
 - (c) Activation of intrinsic or extrinsic pathway
 - (d) Formation of prothrombinase.
- (1) (a), (b), (c) and (d) (2) (a), (c), (d) and (b)
(3) (c), (d), (b) and (a) (4) (c), (b), (d) and (a)
-
4. What is the correct combination of temperature and duration of storage respectively for preservation of Cryoprecipitate ?
- (1) -20°C for 6 months (2) -20°C for 9 months
(3) -30°C for 9 months (4) -30°C for 12 months
-
5. What is the maximum volume of blood advised to be donated within consecutive period of 12 months ?
- (1) 1.0 L (2) 1.2 L (3) 1.5 L (4) 1.8 L
-
6. Which chemical is released by platelets when they adhere to the damaged wall ?
- (1) Histamine (2) 5 - Hydroxytryptamine
(3) Acetylcholine (4) Adrenalin
-

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7. How many types of antigens have been detected on the surface of Red Blood Cells ?
- (1) Five (2) Ten
(3) Fifty (4) More than one hundred
-
8. In which disease, Type - IV Hypersensitivity reaction causes chronic intestinal inflammation and obstruction ?
- (1) Contact dermatitis (2) Rheumatoid arthritis
(3) Crohn disease (4) Multiple sclerosis
-
9. What is not true of the Haemolytic disease of newborns ?
- (a) It can affect malnourished newborns.
(b) Causes jaundice.
(c) Occurs because of incompatible blood transfusion in newborns.
(d) Can be prevented by injecting the mother with anti - D agglutinins just after delivery.
- (1) (a), (b) and (c) (2) (a) and (d)
(3) (b), (c) and (d) (4) (a), (b), (c) and (d)
-
10. When is HBIG administered to an infant born to HBs Ag positive mother ?
- (1) Within 7 days after birth (2) Within 1 day after birth
(3) Within 8 hours after birth (4) Within 12 hours after birth
-
11. What is not true of the composition of blood ?
- (a) Plasma forms 91.5% of blood.
(b) WBCs are largely responsible for the viscosity of blood.
(c) Albumins form the major group of plasma proteins.
(d) Macrophages are a type of circulating RBCs.
- (1) (a), (b), (c) and (d) (2) (a), (b) and (c)
(3) (a), (b) and (d) (4) (a), (c) and (d)
-
12. Which hemopoietic growth factor regulates conversion of myloid stem cells to myloblasts ?
- (1) Colony Forming Unit - Erythrocyte
(2) Colony Forming Unit - Leukocyte
(3) Colony Forming Unit - Granulocyte Macrophage
(4) Colony Forming Unit - Erythropoietin
-

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13. What is not true of the cord stem cells ?

- (a) They are easily collected.
 - (b) They are more in stem cells than in red bone marrow.
 - (c) The match between donar and recipient has to be exact in a transplant.
 - (d) Less likely to transmit infections.
- (1) (b) (2) (a) and (d) (3) (d) (4) (c)
-

14. What is not true of the intrinsic pathway of coagulation ?

- (1) It is fast and simple.
 - (2) Its activators are in direct contact with blood.
 - (3) Outside tissue damage is not needed.
 - (4) Contact with collagen fibres activates factor XII.
-

15. The following is true about anaphylactic reactions :

- (a) Occurs within a few minutes after exposure to allergen in a previously sensitised person.
 - (b) IgE antibodies and mast cells play an important role
 - (c) Rheumatoid Arthritis is an example.
 - (d) Penicillin can cause it in a few people.
- (1) (a), (b), (c) and (d) (2) (a), (b) and (c)
(3) (a), (b) and (d) (4) (b), (c) and (d)
-

16. Which organism is known to cause Lymphogranuloma Venereum in both the sexes ?

- (1) Neisseria gonorrhoeae (2) Trichomonas vaginalis
 - (3) Treponema pallidum (4) Chlamydia trachomatis
-

17. What is true of the Genital Herpes ?

- (a) It is not curable
 - (b) It is recurrent
 - (c) Caused by HSV - 2
 - (d) Chancres are produced in advanced stages.
- (1) (a), (b), (c) and (d) (2) (a), (b) and (c)
(3) (b), (c) and (d) (4) (a), (b) and (d)
-

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18. How much minimum percent Haemoglobin content (W/V) should whole Human Blood contain ?

- (1) 11.1 (2) 10.2 (3) 9.7 (4) 8.5

19. Which type of antibody causes anaphylaxis leading to vascular dilation and edema leading to inflammation ?

- (1) IgE (2) IgA (3) IgD (4) IgM

20. What is the chemical nature of antigens present on the surface of RBCs ?

- (1) Phospholipid (2) Glycolipid (3) Lipopoly saccharide (4) Glycoprotein

21. Which organ or its part is affected by ureaplasma urealyticum ?

- (1) Ureter (2) Urethra (3) Nephron (4) Glomerulus

22. Match the blood group with the colour scheme of the labels :

Column A

(Blood group)

(a) O

(b) A

(c) B

(d) AB

(a) (b) (c) (d)

(1) (iii) (i) (iv) (ii)

(2) (iii) (i) (ii) (iv)

(3) (iv) (iii) (i) (ii)

(4) (i) (iii) (iv) (ii)

Column B

(Label colour)

(i) Yellow

(ii) White

(iii) Blue

(iv) Pink

23. HIV mainly damages following types of cells.

- (1) Halper T cells (2) Natural Killer Cells
(3) Red blood cells (4) Eosinophils

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31. What are the anti - viral drugs recommended for treatment of H1N1 viral infections ?
(a) Oseltamivir (b) Zanamivir (c) Acyclovir (d) Lamivudin
(1) (a) and (b) (2) (b) and (c) (3) (c) and (d) (4) (a) and (d)
-
32. What drugs are used to terminate early pregnancy ?
(a) Finasteride (b) Tamoxifen (c) Clomiphene (d) Mifepristone
(1) (a) and (b) (2) (b) (3) (c) (4) (d)
-
33. What is not true of oxytocin ?
(a) It acts through a protein coupled receptors.
(b) Number of oxytocin receptors increase in late pregnancy.
(c) It is used in uterine inertia.
(d) Estrogens desensitize uterus to oxytocin.
(1) (a) and (b) (2) (b) and (d) (3) (c) (4) (d)
-
34. What is the threshold limit value for chloroform at a workplace ?
(1) 2 ppm (2) 3 ppm (3) 5 ppm (4) 10 ppm
-
35. What is the main site of action for steroid hormones ?
(1) Cytoplasm (2) Plasma membrane (3) Nucleus (4) Mitochondria
-
36. In which of the following organs Fluoride and Lead get concentrated ?
(1) Body fat (2) Intravascular space
(3) Extracellular space (4) Bones
-
37. Which of the following antiepileptic drugs acts as a GABA transaminase inhibitor ?
(1) Sodium valproate (2) Vigabatrin
(3) Tiagabine (4) Gabapentine
-
38. Which of the following drugs is given during hypertensive emergencies as a IV infusion ?
(1) Nifedipine (2) Nitroglycerine
(3) Sodium Nitroprusside (4) Propranolol
-

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39. What is not true of the mechanism of action of local anaesthetics ?

- (a) They block conduction of Na^+ ions.
- (b) A resting nerve is very sensitive to its action.
- (c) Small unmyelinated C fibers are blocked before the larger fibers.
- (d) The drug enters the cell in charged form.

(1) (a) (2) (b) (3) (c) and (d) (4) (d)

40. What is the duration of each cycle of non - rapid eye movement (NREM) sleep ?

- (1) 90 min (2) 10 min (3) 60 min (4) 30 min
-

41. What is not true of primaquine ?

- (a) It is not useful in treatment of symptomatic malaria.
- (b) It is used to eradicate the hypnozoites of *P. vivax* and *P. ovale*.
- (c) Used for prophylaxis in healthy travellers.
- (d) Contraindicated in G6PD deficiency.

(1) (a) and (b) (2) (b) and (c) (3) (c) (4) (d)

42. What do untoward reactions to sulfonamides include ?

- (a) Haemolytic anaemia
- (b) Discoloured teeth
- (c) Crystaluria
- (d) Kernicterus

(1) (a), (b), (c) and (d) (2) (a), (c) and (d)
(3) (a), (b) and (d) (4) (b), (c) and (d)

43. Which of the following *Chelators* is preferred in the treatment of Wilson's disease ?

- (1) Unithiol (2) D - Penicillamine
(3) EDTA (4) Deferoxamine
-

44. Which of the following antiviral drugs is topically used for HSV keratitis ?

- (1) Gancyclovir (2) Acyclovir (3) Idoxuridine (4) Amantadine
-

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52. Which of the following are the features of a cardioselective β (beta) blocker ?
- (a) Does not cause dyslipidaemia
(b) Less liable to impair exercise capacity
(c) Safer in diabetics (as compared to non - selective β blocker).
(d) Suppresses essential tremor.
- (1) (a), (b), (c) and (d) (2) (a), (b) and (c)
(3) (b), (c) and (d) (4) (a), (c) and (d)
-
53. In a patient suffering from liver cirrhosis, the following effects on drug action may occur.
- (a) Bioavailability of drugs undergoing high first pass metabolism.
(b) Protein binding of acidic drugs may decrease.
(c) Dose of drugs getting metabolised by hepatic microsomal enzymes has to be reduced.
(d) Dose of drugs excreted in an unchanged form has to be reduced.
- (1) (a), (b) and (c) (2) (b) and (c)
(3) (c) and (d) (4) (a) and (d)
-
54. Which of the following drugs is known to cause Raye's Syndrome ?
- (1) Phenacetin (2) Sulindac (3) Dicofenac (4) Aspirin
-
55. What does Edetate Calcium Disodium effectively treat ?
- (a) Lead poisoning (b) Mercury poisoning
(c) Arsenic poisoning (d) Artherosclerotic plaques
- (1) (a) (2) (a) and (d) (3) (b) and (c) (4) (d)
-
56. Which of the following insulin preparations of bovine origin is short acting ?
- (1) Insulin - Zinc suspension amorphous (semi - lente)
(2) Insulin - Zinc suspension (lente)
(3) Insulin - Zinc suspension crystalline (ultra-lente)
(4) Isophane
-

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57. Match the given antifungal drugs with their mechanism of action :

Column A (drugs)

- (a) Amphotericin B
 (b) Fluconazole
 (c) Flucytosine
 (d) Terbinafine

Column B (Mechanism)

- (i) Inhibits ergosterol synthesis
 (ii) Alters permeability of cell membrane
 (iii) Inhibits DNA and RNA synthesis
 (iv) Accumulation of sterol squalene

- (a) (b) (c) (d)
 (1) (i) (iii) (ii) (iv)
 (2) (ii) (i) (iii) (iv)
 (3) (ii) (i) (iv) (iii)
 (4) (iv) (ii) (i) (iii)

58. Which substance is antagonized by Naloxone ?

- (1) Propranolol (2) Labetalol (3) Opioid receptor (4) Salbutamol

59. What is not true of Aspirin ?

- (a) It is a very safe drug.
 (b) It is a selective COX₂ inhibitor.
 (c) It can induce platelet aggregation.
 (d) It can induce asthma.
 (1) (a), (b), (c) and (d) (2) (a), (b) and (d)
 (3) (a), (b) and (c) (4) (a) and (c)

60. What are the important features of amoxicillin ?

- (a) It is penicillinase resistant.
 (b) It is bactericidal for both gram positive and gram negative bacteria.
 (c) Incidence of diarrhoea is less.
 (d) Indicated in respiratory infections
 (1) (a), (b), (c) and (d) (2) (b), (c) and (d)
 (3) (a), (c) and (d) (4) (a), (b) and (d)

61. What is the commonest cause of malaria in the world ?

- (1) P. Vivax (2) P. Ovale (3) P. Falciparum (4) P. Malariae

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62. Complete the sentence :

Tyndal developed a method for control of microorganisms called as Tyndallization in which _____.

- (1) Intermittent sterilization is done (2) Boiling is done
(3) Autocleaving is done (4) Pasteurization is done
-

63. The Epsilometer test is employed to :

- (a) find severity of infection.
(b) determine the efficacy of antibiotic treatment.
(c) find the titre of the antibodies.
(d) determine the minimum inhibitory concentration of an antibiotic.

- (1) (a), (b) (2) (b), (c), (d) (3) (b), (d) (4) (a), (d)
-

64. Man is dead end for :

- (1) Typhoid (2) Diphtheria (3) Rabies (4) AIDS
-

65. Stormy clot reaction is typically seen in infection by :

- (1) Borrelia (2) Treponema
(3) Clostridium welchii (4) H. influenzae
-

66. Genetic mechanism of bacterial drug resistance includes :

- (a) Mutations occur at the rate 10^{-5} to 10^{-9} cells per generation.
(b) Recombination between two cells, each resistant to different drugs can produce a cell resistant to both.
(c) A plasmid carrying gene introduced into cell population usually infect every other cell.

- (1) (a) (2) (b) and (a) (3) (a) and (c) (4) (a), (b) and (c)
-

67. Development of the concept of aseptic technique was devised by :

- (1) Louis Pasteur (2) Joseph Lister (3) Robert Koch (4) Paul Ehrlich
-

68. Scintillation counter is used for which tests :

- (a) ELISA (b) RIA (c) CIE (d) H1N1

- (1) only (a) (2) only (b) (3) both (c), (d) (4) only (c)
-

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69. One of the following is not an enzyme used in ELISA :

- (1) β - galactosidase (2) glucose oxidase
(3) alkaline phosphatase (4) coagulase
-

70. In microorganism growth is an important metabolic process involving the following steps. Arrange them in their chronological order.

- (a) Cell division (b) Morphogenesis
(c) Differentiation (d) Expansion

Choose the correct option.

- (1) (a), (b), (c), (d) (2) (a), (c), (b), (d)
(3) (b), (c), (d), (a) (4) (a), (d), (c), (b)
-

71. Which cell is involved in the specific immune response ?

- (1) Monocytes (2) Lymphocytes (3) Endocytes (4) Nucleocytes
-

72. Aggressins are nothing but :

- (1) Group of chemical compounds resembling hormones.
(2) Substances that activate the host response system.
(3) Group of diffusible cellular components produced by certain pathogen.
(4) Substance that inactivates the host immunity.
-

73. What is the temperature - pressure combination for an autoclave ?

- (1) 100 degrees c and 4 psi (2) 121 degrees c and 15 psi
(3) 131 degrees c and 9 psi (4) 115 degrees c and 3 psi
-

74. The primary effect of ultra - violet radiations is on microbial :

- (1) carbohydrates (2) enzymes
(3) nucleic acids (4) cell walls
-

75. Urinary tract infection is most often caused by :

- (1) E. coli (2) Proteus (3) Klebsiella (4) Pseudomonas
-

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76. The penicillin family of antibiotics is used primarily against :

- (1) viruses (2) fungi
(3) gram negative bacteria (4) gram positive bacteria
-

77. Cocci arranged in packet of eight are :

- (1) Staphylococci (2) Streptococci (3) Pneumococci (4) Gaffkyi
-

78. *Streptococcus Pneumoniae* may cause :

- (1) gonorrhoea (2) otitis media
(3) endocarditis (4) wound infection
-

79. Cephalosporins are produced by :

- (1) Unicellular bacteria (2) Filamentous bacteria
(3) Molds (4) Algae
-

80. A fever inducing substance is known as :

- (1) exotoxin (2) endotoxin (3) pyrogens (4) enterotoxin
-

81. Temperature in Hot - air oven for sterilization may be :

- (a) 210°C for $\frac{1}{2}$ hr
(b) 180°C for 1 hr
(c) 160°C for $1\frac{1}{2}$ hr
(1) Only (a) is true (2) Only (b) is true
(3) Only (c) is true (4) (a), (b) and (c) are true
-

82. In India, viral hepatitis is most commonly caused by :

- (1) Hepatitis A (2) Hepatitis B
(3) Non A Non B Hepatitis (4) Delta Hepatitis
-

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83. Drug resistance can be transferred by :

- (a) R - plasmid from one bacteria to another
- (b) the process of transduction.

(1) both are true (2) only (b) is true (3) both are false (4) only (a) is true

84. Disinfection means :

- (1) When an article is freed of all microorganisms
 - (2) Destruction of all pathogenic microorganisms
 - (3) Prevention of infection
 - (4) Inhibiting growth of bacteria
-

85. Hydrophobia is caused by rabies virus, its incubation period seems to be related to :

- (1) Vaccination
 - (2) Distance between site of bite and CNS (Central Nervous System)
 - (3) Types of vector
 - (4) Infecting dose of virus
-

86. Widal test is carried out for the diagnosis of Typhoid, what is true of the widal reaction ?

- (1) Antibodies to 'H' Ag appear first and persist.
 - (2) Antibodies to 'O' Ag appear first and persist.
 - (3) Antibodies to 'H & O' Ag appear simultaneously.
 - (4) Antibodies to 'H & O' Ag persist.
-

87. Consider the following statements :

- (a) Gnotobiotic animals have only certain known strains of bacteria and other microorganisms.
- (b) Gnotobiotic animals do not have well developed immune systems, lower cardiac output and high susceptibility to infections.

Now state whether :

- (1) (a) is true (2) (b) is true
 - (3) (a) and (b) are true (4) both are false
-

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88. The BOD of effluent is affected by :

- (a) The organic matter content.
 (b) The oxidizable inorganic matter content.
 (c) pH of the effluent.
 (d) Coloured substances.
- (1) (a), (b), (c), (d) (2) (a), (b)
 (3) (a), (b), (d) (4) (a), (b), (c)

89. Match the following :

- | List I | List II |
|--------------------|----------------------------------|
| (a) S. aureus | (i) UTI infection |
| (b) E. coli | (ii) Respiratory tract infection |
| (c) C. diphtheriae | (iii) Opportunistic infection |
| (d) P. Vulgaris | (iv) Wound infection |
- (a) (b) (c) (d)
 (1) (iii) (ii) (i) (iv)
 (2) (iv) (iii) (ii) (i)
 (3) (i) (iv) (iii) (ii)
 (4) (ii) (i) (iv) (iii)

90. What is laboratory diagnosis of enteric fever based on ?

- (a) Blood culture (b) Urine culture (c) Widal test (d) Stool culture
- (1) (a) and (b) (2) (b) and (c)
 (3) (c) and (d) (4) (a), (b), (c) and (d)

91. Match the following proteins with their specific functions in DNA replication.

- | | |
|---------------------|--|
| (i) Helicases | (a) Processive unwinding of DNA |
| (ii) DNA primases | (b) Seals the single strand |
| (iii) DNA Ligases | (c) Relieves torsional strain |
| (iv) Topoisomerases | (d) Initiates synthesis of RNA primers |

Answer options :

- (1) (i) - (a) (ii) - (c) (iii) - (b) (iv) - (d)
 (2) (i) - (a) (ii) - (d) (iii) - (b) (iv) - (c)
 (3) (i) - (d) (ii) - (b) (iii) - (a) (iv) - (c)
 (4) (i) - (a) (ii) - (b) (iii) - (c) (iv) - (d)

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92. Match the following :

**Unsuitable characteristics
for sustained release**

Drug

- | | |
|--|-----------------|
| (a) Long $t_{\frac{1}{2}}$ | (i) Furosemide |
| (b) Absorbed and excreted rapidly | (ii) Digitoxin |
| (c) No effective absorption in lower intestine | (iii) Diazepam |
| (d) Low therapeutic index | (iv) Riboflavin |
- (a) (b) (c) (d)
- (1) (i) (iii) (ii) (iv)
- (2) (iii) (i) (iv) (ii)
- (3) (i) (iv) (iii) (ii)
- (4) (iv) (i) (iii) (ii)

93. In the RNA molecule :

- (a) guanine content does not equal cytosine content.
 (b) guanine content equals cytosine content.
 (c) adenine content does not equal uracil content.
 (d) adenine content equals uracil content.

Answer options :

- (1) (b) and (c) only (2) (a) and (d) only
 (3) (a) and (c) only (4) (b) and (d) only

94. Enzyme immobilization makes use of the following material/s as matrix :

- (a) calcium alginate (b) kappa - carrageenan
 (c) furcellaran (d) none of the above

Options :

- (1) (a) and (b)
 (2) (c) only
 (3) (d) only
 (4) (a), (b) and (c)

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95. Consider the following :

- (a) Chlorhexidine and salts, phenol
- (b) Hexamethylene tetramine
- (c) Benzalkonium chloride
- (d) Phenyl mercuric acetate

Which of the above is/are used as broad spectrum preservatives in emulsion ?

- (1) Only (a)
- (2) Only (c)
- (3) (a), (c) and (d)
- (4) All of the above

96. Commercial levels of phenylalanine can be obtained from :

- (a) *A. niger*
- (b) *B. subtilis*
- (c) *E. coli*
- (d) *C. albicans*

Options :

- (1) (a) and (d)
- (2) (b) and (c)
- (3) (c) only
- (4) (d) only

97. The Michaelis - Neuton equation relates the velocity of a reaction catalysed by an enzyme with :

- (1) Concentration of product formed
- (2) Concentration of substrate required
- (3) Collision frequency
- (4) Energy of activation

98. When internal stresses in the film exceeds, the tensile strength of the film results in :

- (a) Blistering
 - (b) Cracking
 - (c) Bloom
 - (d) Bridging and Filling
- (1) Only (c)
 - (2) Only (b)
 - (3) (b) and (c)
 - (4) (a), (b), (c)

99. Gibberellin, a secondary metabolite of microbes, is :

- (a) an antibiotic
- (b) an anti-ulcer agent
- (c) a plant growth regulator
- (d) an immunosuppressant

Options :

- (1) (a) and (d)
- (2) (b) only
- (3) (c) only
- (4) (d) only

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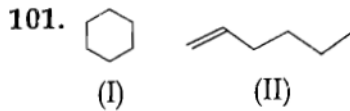
P.T.O.

100. Which of the following molecule/s is/are **not** steroidal in nature ?

- (a) dafachromic acid (b) aramchol
(c) sterchamol (d) brassinolide

Options :

- (1) (a) only (2) (b) and (c) (3) (c) only (4) (a) and (d)



Compounds (I) and (II) are :

- (1) positional isomers (2) chain isomers
(3) functional isomers (4) none of the above

102. Citric acid is the primary metabolite obtained from :

- (1) *Saccharomyces cerevisiae* (2) *Aspergillus niger*
(3) *Corynebacterium glutamicum* (4) *Xanthomonas* species

103. Consider the following :

(a) $t_{10\%} = \frac{-\ln 0.90}{K_1}$

(b) $t_{10\%} = \frac{0.105}{K_1}$

Which of the above is/are used to compute shelf life ?

- (1) Only (a) (2) Only (b)
(3) Both (a) and (b) (4) Neither (a) nor (b)

104. The 7 - methyl guanosine triphosphate caps at the 5' end of m - RNA molecules in mammals are necessary for :

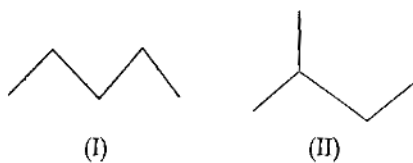
- (a) processing of primary transcript to m - RNA.
(b) translation of m - RNA.
(c) protection of m - RNA.
(d) synthesis of DNA.

Answer options :

- (1) (a), (b) and (c) only (2) (a) and (b) only
(3) (a) alone (4) (b) and (d) only

कच्चा कामासाठी जागा /SPACE FOR ROUGH WORK

105.



Compounds (I) and (II) are :

- | | |
|------------------------|-----------------------|
| (1) positional isomers | (2) chain isomers |
| (3) functional isomers | (4) geometric isomers |

106. A characteristic of vaccines made from live attenuated organisms is :

- (1) they usually require more than one dose to induce a full immune response.
- (2) they are prepared using recombinant DNA technology.
- (3) they trigger both antibody production and cell-mediated responses.
- (4) they trigger antibody production only.

107. The sugar moiety in DNA and RNA, respectively are :

- | | |
|------------------------------------|----------------------------|
| (1) ribulose and deoxyribulose | (2) deoxyribose and ribose |
| (3) deoxyribofuranose and furanose | (4) ribose and deoxyribose |

108. Match the following :

- | | |
|------------------------|--|
| (a) Polyalkoxyethers | (i) Lauryl alcohol |
| (b) Polyalkoxyesters | (ii) Polyoxyethylene sorbitan acid esters |
| (c) Ammonium phosphate | (iii) Polyoxyethylene polyoxypropylene block polymer |
| (d) Fatty alcohols | (iv) Lecithin |

- | | (a) | (b) | (c) | (d) |
|-----|-------|-------|-------|------|
| (1) | (iii) | (ii) | (iv) | (i) |
| (2) | (ii) | (iii) | (i) | (iv) |
| (3) | (iii) | (iv) | (ii) | (i) |
| (4) | (iv) | (i) | (iii) | (ii) |

109. FMC corporation has developed patented aqueous enteric coating called as :

- | | |
|---------------|------------------------------------|
| (1) Aquateric | (2) Aquateric and Eudragit |
| (3) HPMCP 50 | (4) Aquateric, Eudragit and HP-555 |

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110. A particular class of emulsifier is selected primarily on the basis of :

- | | |
|-------------------------|-----------------------------|
| (a) Required shelf life | (b) Route of administration |
| (c) Type of emulsion | (d) Emulsifier cost |

Options :

- | | |
|----------------------|-----------------------|
| (1) only (a) | (2) (a) and (b) |
| (3) (a), (c) and (d) | (4) none of the above |

111. Isomers formed by the inter-conversion, based only on the rotations about single bonds are called as :

- | | |
|----------------------------|----------------|
| (a) conformational isomers | (b) conformers |
| (c) rotamers | (d) stereomers |

Options :

- | |
|---------------------------|
| (1) (a) and (b) |
| (2) (b) and (c) |
| (3) (c) only |
| (4) (a), (b), (c) and (d) |

112. Excess glucose is stored in the body by the process of :

- | | |
|--------------------|---------------------|
| (1) glycogenolysis | (2) glycogenesis |
| (3) lipolysis | (4) gluconeogenesis |

113. Test required for treated soda lime glass i.e Type II is/are :

- | | |
|-----------------------------------|-------------------------------|
| (a) Light transmission | (b) Water attack at 121° test |
| (c) Multiple internal reflectance | (d) Water vapour permeation |

Which of the statements given above is/are correct ?

- | | |
|----------------------|---------------------------|
| (1) Only (b) | (2) Both (a) and (b) |
| (3) (a), (b) and (c) | (4) (a), (b), (c) and (d) |

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114. Match the following :

Emulsifier		HLB value	
(a) Sodium oleate	(i)	2.1	
(b) Sorbitan monolaurate	(ii)	7.1	
(c) Sucrose dioleate	(iii)	8.6	
(d) Sorbitan tristearate	(iv)	18.0	
(a) (b) (c) (d)			
(1) (i) (ii) (iii) (iv)			
(2) (iv) (ii) (iii) (i)			
(3) (iii) (iv) (i) (ii)			
(4) (iv) (iii) (ii) (i)			

115. The precursor for biosynthesis of steroids in the body is :

- | | |
|------------------|-----------------|
| (1) acetyl - CoA | (2) glycogen |
| (3) amino acids | (4) fatty acids |

116. A chemostat is nothing but :

- (1) a nutrient - limited self-balancing culture system
- (2) a statistical software for chemical systems
- (3) a chemical used as a hemostat
- (4) none of the above

117. Metabolism of amino acids involves all of the following except :

- | | |
|--------------------|-----------------------|
| (1) transamination | (2) deamination |
| (3) beta oxidation | (4) citric acid cycle |

118. A period of adaptation of microbes is also referred to as :

- (1) growth phase (2) lag phase (3) log phase (4) stationary phase

119. Agents that cut DNA at specific sequences in Recombinant DNA Technology are called :

- | | |
|------------------|-------------------------|
| (1) Exonucleases | (2) Phages |
| (3) Plasmids | (4) Restriction enzymes |

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120. Which of the following is/are example/s of enteric coated polymers ?

- (a) Sodium carboxymethyl cellulose
 - (b) Polyethylene glycols
 - (c) Cellulose acetate phthalate
 - (d) Acrylate polymers
- (1) Only (b) (2) Only (c) (3) Only (d) (4) All of the above
-

121. Reverse phase liquid-liquid chromatography means _____.

- (1) the stationary phase is polar compound and the mobile phase is a non-polar solvent
 - (2) the direction of flow of the mobile phase is reversed
 - (3) the stationary phase is a non-polar compound and the mobile phase is a polar solvent
 - (4) pre-derivatisation is done to less polar compound
-

122. Which of the following statements give the advantages of HPTLC over TLC ?

- (a) Sample volumes are in the lower nanolitre range
- (b) Solvent migration is faster
- (c) Efficient for dilute samples after extraction
- (d) HPTLC layers are of finer particle size

Answer options :

- (1) Only (a) and (b) are correct
 - (2) (a) and (c) are incorrect
 - (3) (b) and (c) are incorrect
 - (4) (d) is correct but (a) and (b) are incorrect
-

123. Scanning densitometer is a part of :

- (1) high pressure liquid chromatograph
 - (2) high pressure thin layer chromatograph
 - (3) gas liquid chromatograph
 - (4) gas solid chromatograph
-

124. Which of the following is most affected by the temperature changes in flame photometry ?

- (1) absorption spectrometry (2) atomic spectrometry
 - (3) emission spectrometry (4) molecular spectrometry
-

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125. "Figures of merit" used to evaluate the performance characteristics of an analytical technique include :

- (a) Linearity range
- (b) Coefficient of selectivity
- (c) Coefficient of variation
- (d) Systematic error

Answer options :

- (1) (a), (b) and (c) only
 - (2) (a), (c) and (d) only
 - (3) (b), (c) and (d) only
 - (4) (a), (b), (c) and (d)
-

126. Squalane, the stationary phase used in GLC, is chemically :

- (1) a high molecular weight saturated hydrocarbon
 - (2) a high molecular weight unsaturated hydrocarbon
 - (3) a low molecular weight complex
 - (4) a high molecular weight complex
-

127. If a drug is manufactured under a name which belongs to another drug then it is known as _____.

- (1) Spurious
 - (2) Misbranded
 - (3) Adulterated
 - (4) Genuine
-

128. A Mass Spectrometer is linked to a LC so that :

- (1) exact mass of the mixture can be determined by Mass Spectrometry before it is passed through LC.
 - (2) liquid used as mobile phase in LC is first purified by Mass Spectrometer.
 - (3) substances can be separated in LC and then passed through Mass Spectrometer.
 - (4) substances can be separated by Mass Spectrometer and then passed through LC.
-

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129. Processes occurring during atomization in Atomic Absorption Spectrometry are in the order :

- | | |
|------------------|--------------------|
| (a) Desolvation | (b) Ionization |
| (c) Nebulization | (d) Volatilization |
| (e) Dissociation | |

Answer options :

- | | |
|-----------------------------|-----------------------------|
| (1) (c), (a), (d), (e), (b) | (2) (a), (c), (d), (b), (e) |
| (3) (d), (a), (e), (c), (b) | (4) (c), (d), (b), (a), (e) |
-

130. Anastomosis are typically performed on :

- | | |
|-------------------|-----------------------------|
| (a) blood vessels | (b) gastro-intestinal tract |
| (c) urinary tract | (d) none of the above |

Options :

- | | | | |
|--------------|-----------------|----------------------|--------------|
| (1) (a) only | (2) (a) and (c) | (3) (a), (b) and (c) | (4) (d) only |
|--------------|-----------------|----------------------|--------------|
-

131. The advantages of Fourier Transform IR over Dispersive IR include the following, except :

- (1) Sample is exposed to the entire IR beam at a time
 - (2) Only radiation of a narrow frequency falls on the detector at a time
 - (3) Use of laser provides high frequency accuracy
 - (4) Emission of IR radiation by the sample is not detected
-

132. Which of the following detector/s used in Gas chromatography are mass flow sensitive ?

- | | |
|--------------------------|----------------------|
| (1) Thermal conductivity | (2) Flame ionization |
| (3) Photo ionization | (4) Electron capture |
-

133. Drug shall be deemed to be misbranded, if it is :

- (a) not labelled in prescribed manner
- (b) colored, coated or polished, damage is concealed
- (c) made to appear better or greater therapeutic value than it really is

Which of the statement/s given above is/are correct ?

- | | |
|----------------------|----------------------|
| (1) (a) only | (2) (a) and (b) only |
| (3) (b) and (c) only | (4) (a), (b) and (c) |
-

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134. High risk of infection and scarring are mainly disadvantages of :

- (1) Sutures (2) Staples (3) Stenstrips (4) Tissue-glues
-

135. Which of the following committees advises the DTAB and various governments ?

- (a) D.C.C (b) D.E.C (c) C.C.U.M (d) P.C.I
(1) only (a) (2) only (c) (3) (a) and (b) (4) only (d)
-

136. Laryngoscope is used to examine :

- (1) lungs (2) vocal cords (3) glottis (4) kidneys
-

137. As per the limit test for heavy metals I.P., method D involves the use of _____.

- (1) ignition at 500 to 600° (2) thioacetamide reagent
(3) hydrogen sulphide (4) sodium sulphide
-

138. Duties of government analyst are :

- (a) To analyse or test the samples of drugs and cosmetics
(b) To investigate any complaint in writing made to him

Which of the above statement/s is true ?

- (1) Only (a) is true (2) Only (b) is true
(3) Both (a) and (b) are true (4) Neither (a) nor (b) is true
-

139. The efficiency of a column in chromatography is defined in terms of _____.

- (1) shape of the peaks obtained (2) retention factor
(3) variance per unit length (4) selectivity factor
-

140. The schedule in D and C act that deals with particulars to be shown in manufacturing and analytical records of drugs is _____.

Options :

- (1) Schedule V (2) Schedule X
(3) Schedule U (4) Schedule W
-

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145. A drug sample taken by drug inspector for analysis is sent to :

- (a) Drug Controller (b) State Drug Laboratory
 (c) Excise Commissioner (d) Government Analyst
 (1) (a) and (b) (2) only (b) (3) only (d) (4) (a), (b) and (d)

146. Dithione, used in the limit test of lead, is chemically :

- (1) diphenylthiocarbazone (2) diphenylthioazone
 (3) dimethylthiocarbazone (4) dimethylthioazone

147. A jet separator in LC-MS, works on the principle of _____.

- (1) Venturi action
 (2) Solubility of a separated fraction in an elastomer
 (3) Solubility of the mobile phase in an elastomer
 (4) Permeability of a separated fraction through an elastomer

148. Consider the following :

- (a) The Drug Controller of India
 (b) The Director, Central Drug Laboratory
 (c) The President, Pharmacy Council of India
 (d) The Director General of Health Services

Which one of the above is the chairman of the Drugs Technical Advisory Board ?

- (1) (a) only (2) (c) only (3) (d) only (4) None of the above

149. Match the following :

Schedule	Factory Premises for
(a) M	(i) manufacture of cosmetics
(b) M II	(ii) manufacture of drugs
(c) M III	(iii) manufacture of homeopathic drugs
(d) M I	(iv) manufacture of medical devices
(a) (b) (c) (d)	
(1) (i) (ii) (iv) (iii)	
(2) (ii) (i) (iv) (iii)	
(3) (ii) (i) (iii) (iv)	
(4) (i) (ii) (iii) (iv)	

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155. Which of the following sections of population are beneficiaries of the ICDS programme ?

- (a) Women above 60 years
 - (b) Children below 6 years
 - (c) Pregnant and lactating women
 - (d) Women in the age group 15-44 years
- (1) (a), (c) and (d)
(2) (b), (c) and (d)
(3) (a), (b), (c) and (d)
(4) (a), (b) and (d)

156. New drugs recommended by NDAC for marketing without clinical trial :

- (a) Cabazitaxel (b) Crizotinib (c) Degarelix (d) Clopidoprel
- (1) (a) and (b) (2) (a) and (c) (3) (a), (b), (c) (4) (a) and (d)

157. "Cannabis (hemp)", according to Narcotics and Psychotropic Substances Act, 1985 includes :

- (a) ecgonine and all its derivatives from which ecgonine can be recovered.
 - (b) ganja, that is, flowering or fruiting tops of the cannabis plant.
 - (c) phenanthrene alkaloids, such as morphine and codeine.
 - (d) charas, that is resin obtained from cannabis plant.
- (1) (a), (c) and (d) (2) (a) and (d) only
(3) (b), (c) and (d) (4) (b) and (d) only

158. The Clinical Trials Registry India has been set up with which of the following objectives ?

- (a) Improve transparency and accountability of clinical trials.
 - (b) Conformation of clinical trials to accepted ethical standards.
 - (c) Reporting of all relevant results of registered clinical trials.
 - (d) Advise regarding recruitment of subjects for clinical trials.
- (1) (a) and (b) only (2) (c) and (d) only
(3) (a), (b) and (c) (4) (b) and (c) only

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159. The Central Drugs Authority has following functional divisions :

- (a) Regulatory and Enforcement
 - (b) New Drugs and Clinical Trials
 - (c) Issue of licences for retail sale of drugs
 - (d) Imports of Drugs and Cosmetics
- (1) (a), (b) and (d) (2) (b), (c) and (d)
(3) (a), (b), (c) and (d) (4) (a) and (c) only
-

160. The NPPA has issued clarification in July 2012, in the press that price of one of the following drugs has not been raised - which drug is it ?

- (1) Norfloxacin (2) Cefotaxime
 - (3) Insulin (4) Vitamin C
-

161. The Systemic Antidote for Acetaminophen is _____.

- (1) Atropine (2) Activated charcoal
 - (3) N-acetyl cysteine (4) EDTA
-

162. Which of the two modules have been recently added in good pharmacovigilance practices ?

- (a) Module III pharmacovigilance monitoring
 - (b) Module X Additional monitoring
 - (c) Module V Risk management system
 - (d) Module II pharmacovigilance system master file
- (1) (a) and (b) (2) (b) and (c) (3) (a) and (d) (4) (c) and (d)
-

163. Consider the following statements :

- (a) Chronic toxicity may not be of importance in antidote use.
- (b) An antidote which is non-toxic may be used even if its efficacy is uncertain.
- (c) A toxic antidote may be used even if the diagnosis of the cause is uncertain.
- (d) An antidote may mobilize the toxic substance from tissue stores.

Which of the above statements are true ?

- (1) (a) and (b) only (2) (a) and (c) only
 - (3) (a), (b) and (c) (4) (a), (b) and (d)
-

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164. Compulsory licence has been granted for Anti cancer drug by Indian Patent Office to :

- (1) Khandelwal Lab (2) Natco Vs Bayer
(3) Panacea biotech (4) Sandoz Vs GSk
-

165. The requirement and guidelines for contract research comes under which schedule ?

- (1) Sch M (2) Sch y-1 (3) Sch C (4) Sch X
-

166. Which of the following drugs may be used for prophylaxis of malaria ?

- (a) Chloroquine (b) Doxycycline
(c) Ciprofloxacin (d) Metronidazole
(1) (a) and (c) only
(2) (a) and (d) only
(3) (a) and (b) only
(4) (a), (c) and (d)
-

167. Novel chemical entity GRC 17536, that has recently completed phase I trials in Netherlands is the research initiated by which of the following pharmaceutical companies ?

- (a) Sanofi pharma (b) Hikal Ltd.
(c) Glenmark pharmaceuticals (d) Jubilant pharma

Options :

- (1) (a) and (b) (2) (a) and (c) (3) (a), (b) and (c) (4) Only (c)
-

168. According to DPCO, 1995, "Scheduled formulation" includes :

- (a) Formulation containing bulk drug individually specified in first schedule.
(b) Formulation containing bulk drug specified in first schedule in combination with another not specified in the schedule.
(c) Any single drug formulation based on drug specified in first schedule sold under generic name.
(d) Formulation containing drugs not specified in first schedule.
(1) (c) only (2) (a), (b), (c) and (d)
(3) (b), (c) and (d) (4) (a) and (b) only
-

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169. Inaugural address at "Two day Polio Summit, 2012" organised by Government of India and Rotary International at Delhi was given by one of the following personalities.

- (1) Dr. Manmohan Singh Prime Minister of India
 - (2) Mr. Kalyan Banerjee President of Rotary International
 - (3) Mr. Amitabh Bacchan
 - (4) Ghulam Nabi Azad, Union Health Minister
-

170. Recently USFDA has approved a new drug for diabetic Macular edema named :

- | | |
|---------------------|------------------|
| (1) Ranibizumab inj | (2) Thiabendazol |
| (3) LAMA/LABA | (4) Prasugrel |
-

171. ISO 14000 is primarily concerned with one or more than one of events mentioned below :

- | | |
|------------------------|--------------------------|
| (1) Chemical safety | (2) Automotive belts |
| (3) Quality management | (4) Environmental safety |
-

172. According to a report published in the 'Lancet' and reported in news print media, what is/are Africa's new health problem/s ?

- | | |
|----------------------|------------------------|
| (a) War and poverty | (b) Famine and disease |
| (c) Obesity | (d) HIV-AIDS |
| (1) (a) and (b) both | (2) (a), (b) and (d) |
| (3) (c) only | (4) (d) only |
-

173. India's First Indigenously developed new medicine by Ranbaxy is _____.

- (1) Combination of Arterolane maleate + Piperaquine PO₄
 - (2) Chloroquine + Sulfadoxine Pyrimethamine
 - (3) Amodiquine + Sulfadoxine Pyrimethamine
 - (4) Artemethur
-

174. Recently, which of the following anti-epileptic drugs has been reported to reverse memory loss due to Alzheimer's disease in mouse model ?

- | | |
|-------------------|--------------------|
| (1) Levetiracetam | (2) Phenobarbitone |
| (3) Ethosuximide | (4) Carbamazepine |
-

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175. Which Antidiabetic drug has been recently banned in India for human use ?

- (1) Rosiglitazone (2) Chlorhexidine
(3) Nateglinide (4) Acetohexamine

176. What will be the next term in the given sequence ? Find it from given alternatives.

ADE, CFG, EHI, GJK, ?

- (1) IML (2) ILM (3) MIL (4) LMI

177. If 'P' means ' \div ', 'Q' means ' \times ' 'R' means '+' and 'T' means '-'. Then what will, be the value of $18 Q 12 P 4 R 5 T 6$?

- (1) 53 (2) 56 (3) 59 (4) 65

178. As 'RT' is related to 'VX' and 'BD' is related to 'FH', 'KM' will be related to _____.

- (1) NP (2) OR (3) OQ (4) PR

179. First word bears some definite relationship with the second. From the given alternatives, select the suitable word for serial number four, which bears the same relation with the third word, that the second has with the first.

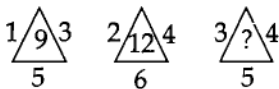
Book : Author :: Statue : ?

- (1) Painter (2) Binder (3) Sculptor (4) Calligraphist

180. In a code language '256' means 'Red Colour Chalk', '589' means 'Green Colour Flower' and '245' means 'White Colour Chalk'. What is the code for white ?

- (1) 2 (2) 4 (3) 5 (4) 6

181. There are three numbers outside and one number inside of two triangles. They are according to some formula. Find the formula and the number at (?) in the third triangle, from given alternatives.



- (1) 8 (2) 12 (3) 9 (4) 7

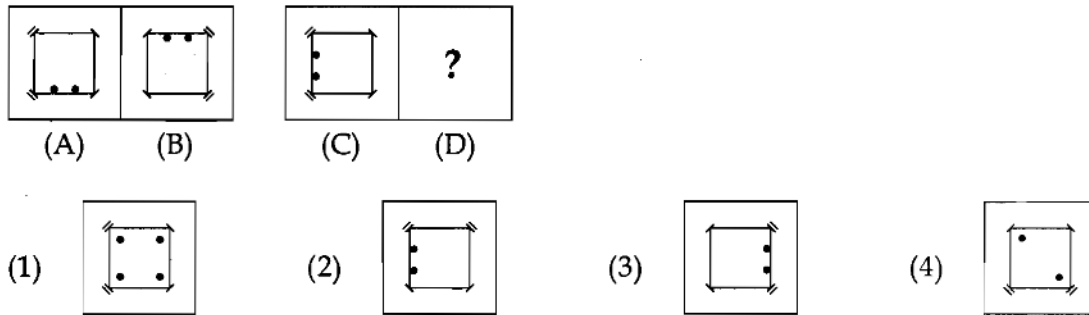
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188. Which of the following figures will represent the relationship between ball, football and sphere ?



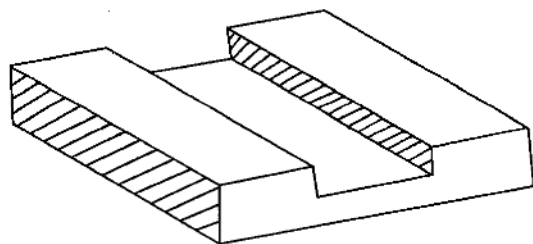
189. There is a definite relationship between figures A and B. Establish the similar relationship between figures C and D, by choosing a suitable figure from given alternatives.



190. Some boys are standing in a row, facing towards North. Ajay is 12th from left. If he moves four places to right, he appears at the place, 18th from right'. What is the total number of boys in the row ?

- (1) 32
- (2) 33
- (3) 34
- (4) Information is not sufficient

191. A wooden block is shown in the figure. How many different surfaces does the block have ?



- (1) 8
- (2) 9
- (3) 10
- (4) 7

192. Find the missing terms in the given series :

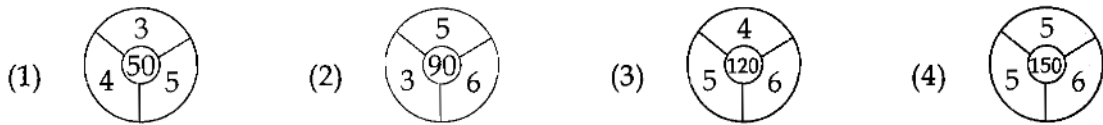
5, 10, 17, 26, 37, _____, _____

- (1) 50, 65
- (2) 45, 65
- (3) 50, 60
- (4) 50, 75

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193. The numbers in three figures follow some rule, which is not followed by the numbers in one figure. Find the figure, which is different from others.



194. Out of the four groups of letters, three are similar in some way. Find the odd one.

- (A) H K (B) B D (C) F I (D) M P
 (1) (A) (2) (C) (3) (D) (4) (B)

195. Out of the four given figures, three are similar in some way. Choose the figure which is different from the rest.

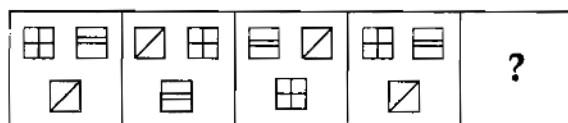


196. Select the numbers from given alternatives, which will complete the given sequence.

109, _____, 95, _____, 81, 74

- (1) 102, 87 (2) 102, 88 (3) 103, 88 (4) 101, 89

197. A figure series is given with a blank space shown by (?). Select the suitable figure from given alternatives, which will continue the same series.



- (1) (2) (3) (4)

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198. The given figures follow definite sequence. Fill in the blank space with the suitable figure from given alternatives which should come next.



199. In column I groups of letters and in column II, the codes for them are given, not necessarily in the sequence. Each number stands for a letter. What is the code for 'C' ?

Column I

Column II

(Groups of Letters)

(Codes)

A N P

5 2 4

N M C

1 2 3

P M A

3 4 1

(1) 5

(2) 4

(3) 3

(4) 2

200. The relation between the two terms to the left of ':' and that between the two terms to the right of ':' is same. Find the term at (?) from given alternatives.

A Y : C W :: ? : G S

(1) E V

(2) U E

(3) V E

(4) E U

- o o o -

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P.T.O.

सूचना — (पृष्ठ 1 वरून पुढे....)

- (9) सदर प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपल्यानंतर उमेदवाराला ही प्रश्नपुस्तिका स्वतःबरोबर परीक्षाकक्षाबाहेर घेऊन जाण्यास परवानगी आहे. मात्र परीक्षा कक्षाबाहेर जाण्यापूर्वी उमेदवाराने आपल्या उत्तरपत्रिकेचा भाग-1 समवेक्षकाकडे न विसरता परत करणे आवश्यक आहे.

नमुना प्रश्न

प्र. क्र. 201. The Catch varies inversely with the size of the :

- | | |
|-----------------|-------------|
| (1) nozzle | (2) droplet |
| (3) obstruction | (4) sprayer |

ह्या प्रश्नाचे योग्य उत्तर “(3) obstruction” असे आहे. त्यामुळे या प्रश्नाचे उत्तर “(3)” होईल. आता खालीलप्रमाणे प्रश्न क्र. 201 समोरील उत्तर-क्रमांक “③” चा कंस खालीलप्रमाणे पूर्णपणे छायंकित करून दाखविणे आवश्यक आहे.

प्र. क्र. 201. ① ② ● ④

अशा पद्धतीने प्रस्तुत प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाचा तुमचा उत्तरक्रमांक हा तुम्हाला स्वतंत्ररीत्या पुरविलेल्या उत्तरपत्रिकेवरील त्या त्या प्रश्नक्रमांकासमोरील संबंधित वर्तुळ पूर्णपणे छायंकित करून दाखवावा. ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.

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