PHYSICS

1. A clock hung on a wall has marks instead of numbers on its dial. On the opposite wall there is a mirror, and the image of the clock in the mirror if read, indicates the time as 8 : 20. What is the time in the clock-
(A) 3 : 40 (B) 4 : 40
(C) 5 : 20 (D) 4 : 20

2. A plane mirror is approaching you at a speed of 10cm/sec. You can see your image in it. At what speed will your image approach you
(A) 10 cm/sec (B) 5cm/sec
(C) 20cm/sec (D) 15cm/sec

3. Which of the following can form erect, virtual, diminished image?
(A) plane mirror (B) concave mirror
(C) convex mirror (D) none of these

4. A ray of light is incident normally on one of the faces of a prism apex angle 30º and refractive index $\sqrt{2}$. The angle of deviation of the ray is:
(A) 15° (B) 22.5° (C) 0° (D) 12.5°

5. A biconvex lens with equal radii of curvature has refractive index 1.6 and focal length 10 cm. Its radius of curvature will be:
(A) 20 cm (B) 16 cm (C) 10 cm (D) 12 cm

6. A simple microscope has a focal length of 5 cm. The magnification at the least distance of distinct vision is-
(A) 1 (B) 5 (C) 4 (D) 6

7. A person with a defective sight is using a lens having a power of +2D. The lens he is using is
(A) concave lens with f = 0.5 m
(B) convex lens with f = 2.0 m
(C) concave lens with f = 0.2 m
(D) convex lens with f = 0.5 m

8. In a compound microscope, the intermediate image is -
(A) virtual, erect and magnified
(B) real, erect and magnified
(C) real, inverted and magnified
(D) virtual, erect and reduced

9. A camera objective has an aperture diameter d. If the aperture is reduced to diameter d/2, the exposure time under identical conditions of light should be made –
(A) $\sqrt{2}$ fold (B) 2 fold
(C) $2\sqrt{2}$ fold d(D) 4 fold

10. A telescope has focal length of objective and eye-piece as 200 cm and 5 cm. What is the magnification of telescope ?
(A) 40 (B) 80 (C) 50 (D) 101

11. Monochromatic light is that light in which
(A) Single wavelength is present
(B) Various wavelengths are present
(C) Red and violet light is present
(D) Yellow and red light is present

12. If the two slit in young's experiment have width ratio 1:4. Deduce the ratio of intensity at maxima and minima in the interference pattern.
(A) 9 : 1 (B) 3 : 1 (C) 9 : 2 (D) 10 : 3

13. The critical angle for total internal reflection for a substance is 45°. The polarizing angle for this substance is $\left(\tan 54°44' = \sqrt{2}\right)$
(A) $46°16'$ (B) $54°44'$
(C) $46°44'$ (C) $54°16'$

14. Two coherent monochromatic light beams of intensities I and 4I are superposed; the maximum and minimum possible intensities in the resulting beam are :
(A) 5I and I (B) 5I and 3I
(C) 9I and I (D) 9I and 3I

15. In Young's double slit experiment, the phase difference between the light waves reaching third bright fringe from the central fringe will be

[$\lambda = 6000\ A^0$]:-

(A) Zero (B) 2π (C) 4π (D) 6π

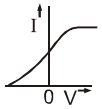
16. In a Young's double slit experiment the intensity at a point I where the corresponding path difference is one sixth of the wavelength of light used. If I_0 denotes the maximum intensity, the ratio $\frac{I}{I_0}$ is equal to

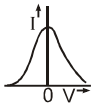
(A) $\frac{1}{4}$ (B) $\frac{1}{2}$ (C) $\frac{\sqrt{3}}{2}$ (D) $\frac{3}{4}$

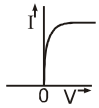
17. The work functions of tungsten and sodium are 5.06 eV and 2.53 eV respectively. If the threshold wavelength for sodium is 5896 Å, then the threshold wavelength for the tungsten will be

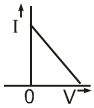
(A) 11792 Å (B) 5896 Å
(C) 4312 Å (D) 2948 Å

18. Which one of the following graphs in figure shows the variation of photoelectric current (I) with voltage (V) between the electrodes in a photoelectric cell?

(A) 

(B) 

(C) 

(D) 

19. The ratio of deBroglie wavelengths of a proton and an alpha particle of same energy is

(A) 1 (B) 2 (C) 4 (D) 0.25

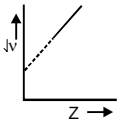
20. Which one of the series of hydrogen spectrum is in the visible region ?

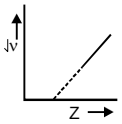
(A) Lyman series (B) Balmer series
(C) paschen series (D) Bracket series

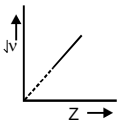
21. The radius of first Bohr orbit is 0.5Å, then radius of fourth Bohr orbit will be :

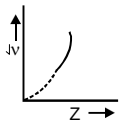
(A) 0.03 Å (B) 0.12 Å
(C) 2.0 Å (D) 8.0 Å

22. The graph between the square root of the frequency of a specific line of characteristic spectrum of X-rays and the atomic number of the target will be

(A) 

(B) 

(C) 

(D) 

23. A particle having a de Broglie wavelength of 1.0 Å is associated with a momentum of (given $h = 6.6 \times 10^{-34}$ Js)

(A) 6.6×10^{-26} kg m/s (B) 6.6×10^{-25} kg m/s
(C) 6.6×10^{-24} kg m/s (D) 6.6×10^{-22} kg m/s

24. Electrons ejected from the surface of a metal, when light of certain frequency is incident on it, are stopped fully by a retarding potential of 3 volts. Photo electric effect in this metallic surface begins at a frequency $6 \times 10^{14}\ s^{-1}$. The frequency of the incident light in s^{-1} is [$h = 6 \times 10^{-34}$J-sec; charge on the electron = 1.6×10^{-19}C]

(A) 7.5×10^{13} (B) 13.5×10^{13}
(C) 14×10^{14} (D) 7.5×10^{15}

25. The mass number of a nucleus is

(A) always less than its atomic number
(B) always more than its atomic number
(C) equal to its atomic number
(D) sometimes more than and sometimes equal to its atomic number

26. The stable nucleus that has a radius 1/3 that of Os^{189} is –

(A) ${}_3Li^7$ (B) ${}_2He^4$
(C) ${}_5B^{10}$ (D) ${}_6C^{12}$

27. Two protons are kept at a separation of 50Å. F_n is the nuclear force and F_e is the electrostatic force between them, then

(A) $F_n >> F_e$ (B) $F_n = F_e$
(C) $F_n << F_e$ (D) $F_n = 2F_e$

28. The energy of the reaction $Li^7 + p \longrightarrow 2\ He^4$ is (the binding energy per nucleon in Li^7 and He^4 nuclei are 5.60 and 7.06 MeV respectively.)

(A) 17.3 MeV

(B) 1.73 MeV

(C) 1.46 MeV

(D) depends on binding energy of proton

29. The specific activity (per gm) of radium is nearly

(A) 1 Bq (B) 1 Ci

(C) 3.7×10^{10} Ci (D) 1 mCi

30. 10 grams of ^{57}Co kept in an open container decays β–particle with a half-life of 270 days. The weight of the material inside the container after 540 days will be very nearly –

(A) 10 g (B) 7.5 g (C) 5 g (D) 2.5 g

31. Choose the statement which is true.

(A) The energy released per unit mass is more in fission than in fusion

(B) The energy released per atom is more in fusion than in fission.

(C) The energy released per unit mass is more in fusion and that per atom is more in fission.

(D) Both fission and fusion produce same amount of energy per atom as well as per unit mass.

32. A N-type semiconductor is

(A) Negatively charged

(B) Positively charged

(C) Neutral

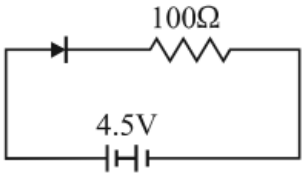
(D) None of these

33. The forbidden energy gap is Ge is 0.72 eV. Given, hc = 12400 eV-Å. The maximum wavelength of radiation that will generate electron hole-pair is :

(A) 172220 Å (B) 172.2Å

(C) 17222Å (D) 1722 Å

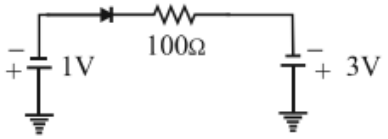
34. A diode connected to an external resistance and an e.m.f. 4.5V. Assuming that the barrier potential developed in diode is 0.5V. What will be the value of current in the circuit in milliampere?



(A) 40 m A (B) 4 m A

(C) 0.4 mA (D) 400mA

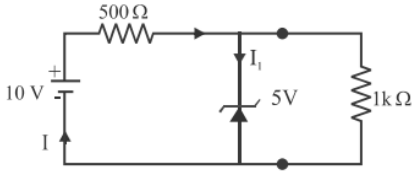
35. An ideal P–N junction diode shown in figure below then find out current through the circuit?



(A) Zero (B) 10mA

(C) 20 mA (D) 50 m A

36. The current flowing through the Zener diode in fig. is –



(A) 20 mA (B) 25 mA

(C) 15 mA (D) 5 mA

37. A p - n junction diode has breakdown voltage of 28V. If applied external voltage in reverse bias is 40V the current through it is

(A) Zero (B) infinite

(C) 10A (D) 15 A

38. For a common emmiter circuit if $\frac{I_C}{I_E} = 0.98$ then current gain for common emitter circuit will be :

(A) 49 (B) 98 (C) 4.9 (D) 25.5

39. In an n-p-n transistor circuit, the collector current is 20 mA. If 90% of emitted electron reach the collector

(A) the emitter current will be 18 mA

(B) emitter current will be 22 mA

(C) base current will be 5 mA

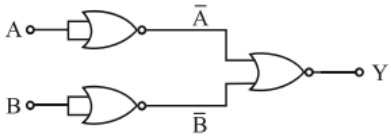
(D) base current will be 1 mA

40. In a transistor amplifier $\beta = 62$, $R_o = 5000\Omega$ and internal resistance of the transistor is 500Ω then find power gain ?

(A) 25580 (B) 33760

(C) 38440 (D) 55760

41. Identify the operation performed by the circuit given below:



(A) NOT (B) AND (C) OR (D) NAND

42. What will be the input of A and B for the Boolean expression $\overline{(A+B)}.\overline{(A.B)} = 1$

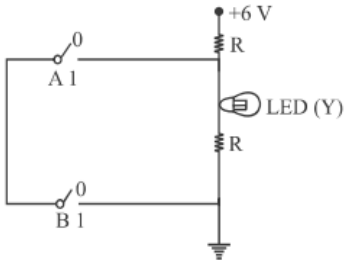
(A) 0, 0 (B) 0, 1 (C) 1, 0 (D) 1, 1

43. Any digital circuit can be realized by repetitive used of only:

(A) NOT gates (B) OR gates

(C) AND gates (D) NOR gates

44. The correct Boolean operation represented by the circuit diagram drawn is :



(A) AND (B) OR (C) NAND (D) NOR

45. An object is placed at 24 cm distance above the surface of a lake. If water has refractive index of 4/3, then at what distance from lake surface, a fish will sight the object-

(A) 32 cm above the surface of water

(B) 18 cm over the surface of water

(C) 6 cm over the surface of water

(D) 6 cm below the surface of water

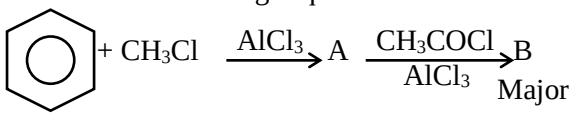
CHEMISTRY

46. Halogenation of alkanes is proceed via…
(A) Electrophilic substitution reaction
(B) Free radical addition reaction
(C) Free radical substitution reaction
(D) Electrophilic addition reaction

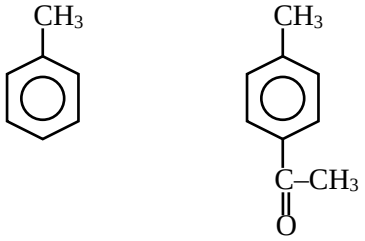
47. $R\text{-}OH + SOCl_2 \xrightarrow{Pyridine} R\text{-}Cl + SO_2 + HCl$
The above reaction is named as :-
(A) Swarts reaction
(B) Darzens reaction
(C) Finkelstein reaction
(D) Hell-volhard-zelinsky reaction

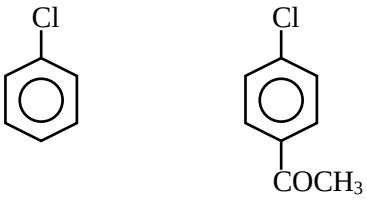
48. $(CH_3)_2\ CHCH_2Cl \xrightarrow{H_2O} (CH_3)_2\ CHCH_2OH$ reaction–I
$(CH_3)_2\ CH - Cl \xrightarrow[acetane]{NaI} (CH_3)_2\ CH–I$ Reaction – II
The mechanisms of reaction (I) and (II) are respectively is :-
(A) Sn^2 and Sn^1 (B) Sn^1 and Sn^2
(C) Sn^1 and Sn^2 (D) Sn^2 and Sn^2

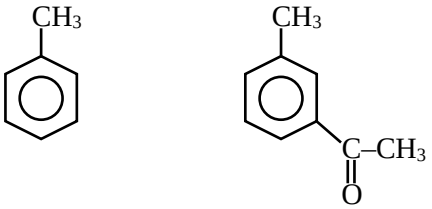
49. In the following sequence of reactions

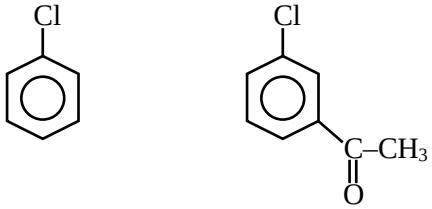


A and B is :

(A) 

(B) 

(C) 

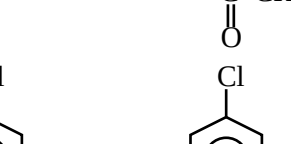
(D) 

50. How many structures of primary chlorides are possible on free radical monochlorination of $(CH_3)_2CHCH_2CH_3$
(A) 4 (B) 1 (C) 2 (D) 3

51. What will be the product formed when toluene is treated with chlorine in the presence of Lewis acid catalyst iron ?
(A) Trichlorophenyl methane
(B) o and p–chloro toluene
(C) m–chlorotoluene
(D) Hexa chlorobenzene

52. Arrange following compounds in the decreasing order of their reactivity towards S_N2 reaction.
$PhCH_2Cl$ $PhCHClMe$ $PhCHClMe_2$
(i) (ii) (iii)
(A) (iii) > (ii) > (i) (B) (i) > (ii) > (iii)
(C) (ii) > (i) > (iii) (D) (ii) > (iii) > (i)

53. Most reactive alkyl halide towards E_2 mechanism is :
(A) $(CH_3)_3\ C–CH_2Br$
(B)

(C) $(CH_3)_3\ C–CH_2CH_2Br$
(D) 

54. $CH_3–CH_2–\underset{\underset{OH}{|}}{CH}–CH_3 \xrightarrow{HCl/ZnCl_2} [X]$

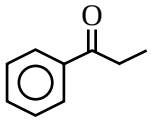
Identify X and the mechanism of the reaction
(A) $CH_3—CH_2—CH_2—CH_2—Cl$ & S_N1
(B) $CH_3—CH_2—CH_2—CH_2—Cl$ & S_N2
(C) $CH_3—\underset{\underset{Cl}{|}}{CH}—CH_2—CH—CH_3$ & S_N1
(D) $CH_3—\underset{\underset{Cl}{|}}{CH}—CH_2—CH_3$ & S_N2

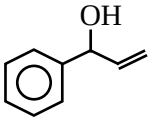
55. When phenol reacts with chloroform and ethanolic potassium hydroxide, the organic compound formed is:-

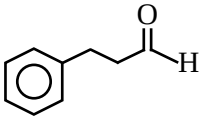
(A) Salicylic acid (B) Salicylaldehyde

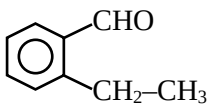
(C) Benzonitrile (D)Phenyl isocyanide

56. An organic compound with the molecular formula $C_9H_{10}O$ form 2,4-DNP derivative, reduce Tollen's reagent and undergoes Cannizzaro reaction, identify the compound

(A) 

(B) 

(C) 

(D) 

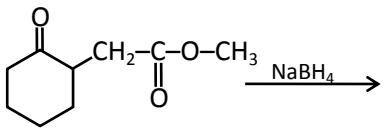
57. Select the incorrect statement about Lucas test ?

(A) Lucas test is used to distinguish between 1°, 2° and 3° alcohols

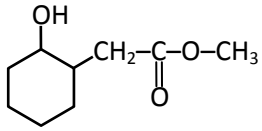
(B) Lucas reagent is conc. HCl and anhy $ZnCl_2$

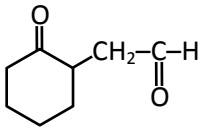
(C) Alcohols are insoluble in Lucas reagent.

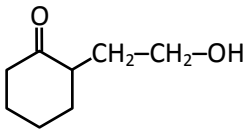
(D) Tertiary alcohol produce turbidity immediately.

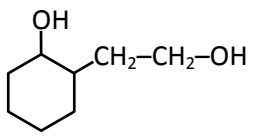
58. 

Product of the given reaction is

(A) 

(B) 

(C) 

(D) 

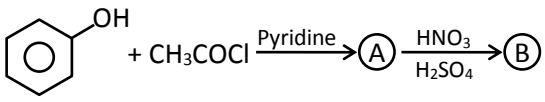
59. Which of the following reaction is named as Reimer-Tiemann reaction

(A) $C_6H_5OH + CHCl_3 + NaOH$

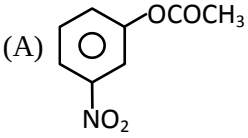
(B) $C_6H_5OH + CO_2 + NaOH$

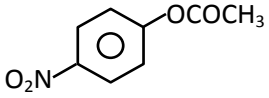
(C) $C_6H_5OH + Br_2 + H_2O$

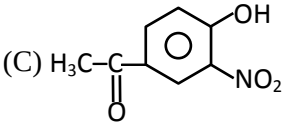
(D) C_6H_5OH + Conc. HNO_3

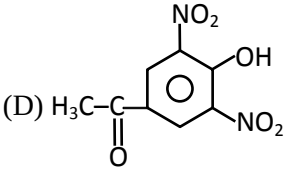
60. 

Product B is :

(A) 

(B) 

(C) 

(D) 

61. $CH_3–CH_2–CH_2–O–CH(CH_3)_2$ $\xrightarrow{HI}$ (A) + (B) products (A) and (B) are

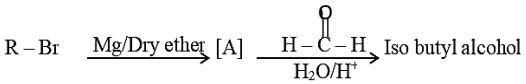
(A) $CH_3CH_2CH_2OH + (CH_3)_2CHI$

(B) $CH_3CH_2CH_2I + (CH_3)_2CHOH$

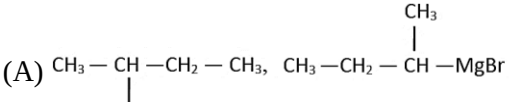
(C) $CH_3CH_2CH_2I + (CH_3)_2CHI$

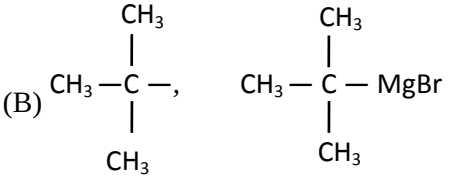
(D) $CH_3CH_2CH_2OH + (CH_3)_2CHOH$

62. In reaction

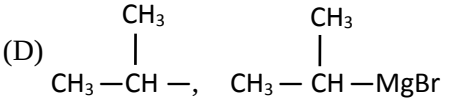


R & [A] is respectively.

(A) 

(B) 

(C) $CH_3–CH_2–CH_2–$,$CH_3–CH_2–CH_2–MgBr$

(D) 

63. The oxidation of ethyl benzene by $KMnO_4$ in acidic medium produces :
(A) Phenyl acetic acid (B) Benzoic acid
(C) Benzaldehyde (D) o-Toluic acid

64. Fehling solution can't differentiated between:
(A) CH_3CHO and CH_3COCH_3
(B) C_6H_5CHO and CH_3CHO
(C) $(CH_3)_2CHCHO$ and CH_3CHO
(D) both (B) and (C)

65. Which of the following can show cannizzaro's reaction ?
(A) $C_6H_5-\overset{\overset{O}{\|}}{C}-CH_3$ (B) $C_6H_5-\overset{\overset{O}{\|}}{C}-H$
(C) $CH_3-\overset{\overset{O}{\|}}{C}-H$ (D) $C_6H_5-\overset{\overset{O}{\|}}{C}-C_6H_5$

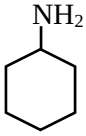
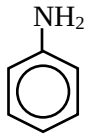
66. Which of the following method is not used for the conversion of carboxylic acids into acid halides?
(A) $RCOOH + SOCl_2 \rightarrow$
(B) $RCOOH + PCl_5 \rightarrow$
(C) $RCOOH + Cl_2 \rightarrow$
(D) $RCOOH + PCl_3 \rightarrow$

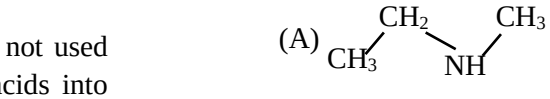
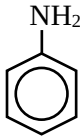
67. Which of the following will not undergo Hell-Volhard Zelinsky (HVZ) reaction ?
(A) HCOOH (B) CH_3COOH
(C) CH_3CH_2COOH (D) $CH_3CHBrCOOH$.

68. The compound which does not give oxime with hydroxylamine is
(A) CH_3COOH (B)CH_3COCH_3
(C) CH_3CHO (D) HCHO.

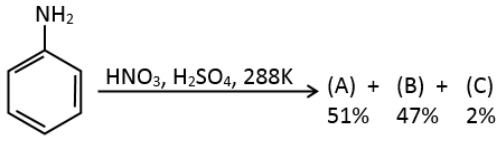
69. Compound (A) on reaction with trichloromethane and caustic potash gives (B) which on reduction give isopropyl methyl amine, structure of (A) is :
(A) $CH_3-\underset{\underset{CH_3}{|}}{N}-CH_3$
(B)$CH_3CH_2CH_2NH_2$
(C) $\begin{matrix} H_3C \\ \diagdown \\ CH-NH_2 \\ \diagup \\ H_3C \end{matrix}$
(D)$CH_3-CH_2-NH-CH_3$

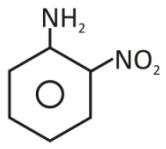
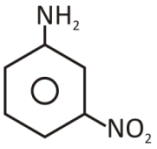
70. Reaction which convert acetamide into methyl amine ?
(A) carbyl amine reaction
(B) Hoffmann bromamide reaction
(C) Gabriel phthalimide synthesis
(D) Reimer tiemann reaction

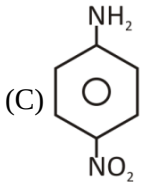
71. Which of the following test by which  and  can be distinguished :
(A) Isocyanide test (B) Hinsberg's test
(C) Mustard oil test (D) Dye-azo test

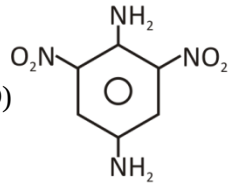
72. Which amine can be prepared by gabriel pthalimide amino synthesis ?
(A) 
(B) $CH_3 - CH_2 - CH_2 - NH_2$
(C) $CH_3-\underset{\underset{CH_3}{|}}{N}-CH_3$
(D) 

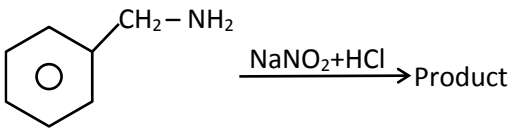
73. Which one of the following reaction yield a secondary amine :
(A) Hoffman bromamide reaction
(B) Gabriel phthalimide reaction
(C) Reduction of alkanamide with $LiAlH_4$]
(D) Reduction of alkylisocyanide with $LiAlH_4$

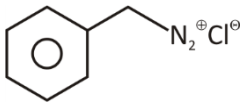
74. 

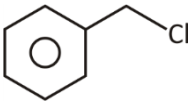
What is the structure of 'B'.
(A)  (B) 

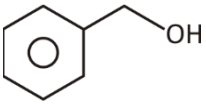
(C) 

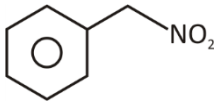
(D) 

75. 

(A) 

(B) 

(C) 

(D) 

76. Which of the following statement is not true about sucrose ?

(A) The glycosidic linkage is present between C_1 of α-glucose and C_1 of β-fructose

(B) It is a non-reducing sugar

(C) It is also named as invert sugar

(D) On hydrolysis it produces glucose and fructose

77. The formation of which of the following polymers involves hydrolysis reaction :

(A) Nylon 6,6 (B)Terylene

(C) Nylon-6 (D) Bakelite

78. Which of the following polymers is synthesized using a free radical polymerization technique ?

(A) Teflon

(B) Terylene

(C) Melamine polymer

(D) Nylon 6,6

79. Which artificial sweetener contains chlorine?

(A) Aspartame (B) Saccharin

(C) Sucralose (D) Alitame

80. Which one of the following is used as antihistamine ?

(A) Omeprozole (B) Chloramphenicol

(C) Brompheniramine (D) Norethindrone

81. A drug that is antipyretic as well as analgesic is :

(A) chloroquine

(B) penicillin

(C) paracetamol

(D) chloropromazine hydrochloride

82. Arrange the following polymers in decreasing order of their intermolecular forces :

Nylon–6 Neoprene Polyvinyl chloride

(A) (B) (C)

(A) A > B > C (B) A > C > B

(C) C > A > B (D) B > A > C

83. Among the following, the essential amino acid is :

(A) Valine (B) Aspartic acid

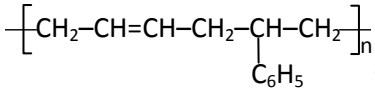
(C) Serine (D) Alanine

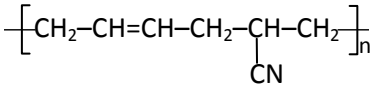
84. Biodegradable polymer having amide linkage ?

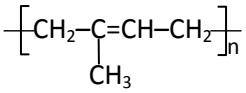
(A) PHBV (B) Nylon 2-nylon 6

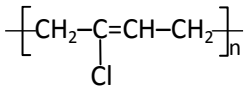
(C) Nylon–6, 6 (D) Dacron

85. Structure of styrene – butadiene polymer is

(A) 

(B) 

(C) 

(D) 

86. Amylopectin has :-

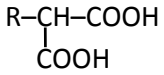
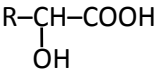
(A) C_1 - C_4 and C_1 - C_6 both glycosidic linkage

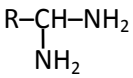
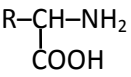
(B) only C_1 - C_4 glycosidic linkage

(C) only C_1 - C_6 glycosidic linkage

(D) None of these

87. Which of the following can form zwitter ion ?

(A)  (B) 

(C)  (D) 

88. Glucose $\xrightarrow{Br_2 \text{ Water}}$ Product is:

(A) hexanoic acid (B) gluconic acid

(C) saccharic acid (D) bromohexane

89. Match the column I with column II and mark the appropriate choice.

Column-I	Column-II
(A) Nucleoside	(i) Sugar + base + phosphoric acid group
(B) Nucleoside	(ii) Cytosine + uracil
(C) DNA	(iii) Sugar + base
(D) RNA	(iv) Cytosine + thymine

(A) A – (iii), B – (i), C – (iv), D – (ii)

(B) A – (i), B – (iv), C – (iii), D – (ii)

(C) A – (ii), B – (iii), C – (i), D – (iv)

(D) A – (iv), B – (ii), C – (i), D – (iii)

90. Narrow spectrum antibiotic is

(A) Chloramphenicol (B) Penicillin-G

(C) Ampicillin (D) Amoxycillin

BIOLOGY

91. The variation in which environmental factor shows major effect on the rate of metabolism in organisms?
(A) Rainfall (B) Temperature
(C) Light (D) Water

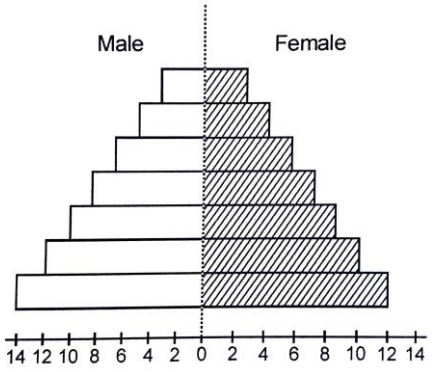
92 . Small animals have a larger surface area relative to their volume, thus when there is cold outside:-
(A) They lose body heat very slowly and easily regulate internal body temperature
(B) They lose body heat very fast and easily regulate internal temperature
(C) They lose body heat very fast and find it difficult to regulate internal body temperature
(D) They lose body heat very slowly and easily conform to environmental condition

93. Mac Arthur explained the concept of :
(A) Competitive exclusion
(B) Resource partitioning
(C) Competitive release
(D) All of the above

94. What is the type of ecological relationship that can involve different species and in which both participants are harmed ?
(A) Competition (B) Amensalism
(C) Commensalism (D) Predation

95. Climax vegetation of a region is generally :
(A) Xerophytic (B) Hydrophytic
(C) Mesophytic (D) Halophytic

96. Study the given age pyramid diagram & identify appropriate option :-



(A) There is high sex ratio in this population.
(B) It represents a stable population.
(C) It represents population of Japan.
(D) There is a growing population with low sex ratio in children age group.

97. Which of the following is not a structural adaptation ?
(A) Thick cuticle
(B) Sunken stomata
(C) Cardiac glycosides
(D) Thorns

98. Which feature is not related to keystone species ?
(A) Found in large number
(B) Role in ecosystem stability
(C) Helps to maintain diversity
(D) All of the above

99. If a regulator is placed in 10°C, then its
(A) body temperature decreased and metabolism increased.
(B) body temperature increased and metabolism decreased.
(C) body temperature remains same and metabolism decreased.
(D) body temperature remains same and metabolism increased.

100. Soil of tropical rainforest is :
(A) Very rich in organic matter
(B) Poor in organic matter due to high rate of leaching
(C) Formed at a slow rate due to unfavourable conditions.
(D) Rich in humus.

101. Signal for time of migration of birds like Siberian cranes is :
(A) Temperature (B) Duration of light
(C) Rainfall (D) Food

102. At high altitude oxygen binding affinity of haemoglobin is :
(A) Decreased
(B) Increased
(C) Remains same
(D) May increase or decrease

103. Sub-soil remain frozen, in the following biome–
(A) Desert (B) Tropics
(C) Sea coasts (D) Tundra

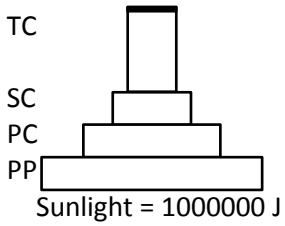
104. Photosynthesis and respiration are central to which cycle ?
(A) The nitrogen cycle
(B) The carbon cycle
(C) The phosphorus cycle
(D) The sulphur cycle

105. Living organisms interact among themselves and also with the surrounding physical environment, and form :
(A) Community (B) Ecosystem
(C) Populations (D) Succession

106. Ecosystems need a constant supply of energy to synthesize the molecules they require to
(A) increase the photosynthetic efficiency
(B) reduce respiratory loss
(C) counteract the universal tendency toward increasing disorderliness.
(D) Control the impacts of predation.

107. NPP = GPP – (A), A is
(A) Plant respiration
(B) Plant & animal respiration
(C) Respiration of community
(D) Animal respiration.

108. The given ecological pyramid represents pyramid of energy in an ecosystem. What must be the amount of energy at tertiary consumer level in this ecosystem :

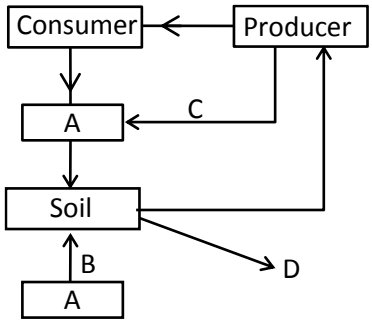


(A) 100 J (B) 1 J (C) 10 J (D) 10,00 J

109. Which of the following is not a favourable factor for increasing the rate of decomposition?
(A) Oxygen richness of soil
(B) Detritus rich in lignin
(C) Warm environment
(D) High soil moisture

110. Humufication is :
(A) The accumulation of humus
(B) The breakdown of humus to release minerals
(C) The loss of nutrients from humus
(D) Breakdown of detritus into smaller fragments

111. In the given representation phosphorous cycle which represents loss of phosphorous to oceans?



(A) A (B) B (C) C (D) D

112. Succession involves :
(A) Replacement of plant communities
(B) Change in physical environment
(C) Change in type of consumers
(D) All of the above

113. Which is correct sequence in the detritus food chain ?
(A) Grass → Deer →Tiger
(B) Dead leaves → Bacteria → Earthworm → Bird → Snake
(C) Tree→ Dead leaves →Bacteria → Earthworm → Bird → Snake
(D) Grass → Insect → Frog → Snake

114. Secondary producers are
(A) Plants (B) Herbivores
(C) Carnivores (D) Decomposers

115. Which of the following statements is incorrect?
(A) Breaking down of complex organic matter into inorganic substances is called decomposition.
(B) Water insoluble organic nutrients go down into the horizon & precipitate, this is called leaching.
(C) Detrivores break down complex organic matters of detritus into smaller particles. it is termed as fragmentation.
(D) Saprophytic fungi & bacteria secrete digestive enzymes for extra cellular digestion of detritus.

116. During the process of ecological succession-
(A) Species diversity decreases
(B) Structural complexity decreases
(C) Niche becomes specialized
(D) Food chain becomes simple

117. Sedimentary Bio-geochemical cycle is shown by-
(A) Phosphorus (B) Nitrogen
(C) Carbon (D) Oxygen

118. Construction of a road through a forest is a case of
(A) Over exploitation
(B) Habitat fragmentation
(C) Urbanization
(D) Land filling

119. Which properties of species increase their chances of extinction?
(A) Endemism (B) Large body size
(C) High trophic level (D) All of the above

120. "Sacred grooves" are example of:
(A) Legal Ex-situ conservation
(B) Social in-situ conservation
(C) Ex situ conservation
(D) Habitats with rapid species loss

121. Current species extinction is known as :
(A) Natural extinction
(B) Mass extinction
(C) 6^{th} mass extinction
(D) 5^{th} mass extinction

122. Which of the following is not an example of in-situ conservation?
(A) Biosphere Reserves
(B) National Parks
(C) Wildlife Sanctuaries
(D) Wildlife Safari parks

123. Wildlife protection act come into existence in:
(A) 1981 (B) 1972 (C) 1987 (D) 1974

124. 'Evil Quartet' does not describe :
(A) Alien species invasion
(B) Habitat loss and Fragmentation
(C) Coevolution
(D) Over exploitation

125. 'Great Indian bustard' is found in
(A) Kanha National Park
(B) Gir National Park
(C) Periyar National Park
(D) Desert National Park

126. 'Rivet Popper' hypothesis was proposed by :
(A) David Tillmann
(B) Alexander Van Humboldt
(C) Paul Ehrlich
(D) Norman Mayer

127. India has only 2.4 percent of world's land area but it share in the global biodiversity is:
(A) 12% of word (B) 8.1% of world
(C) 5% of world (D) 4% of world

128. Tropical areas of world are rich zone of biodiversity than temperate areas because in tropical regions:
(A) Frequent glaciation in past
(B) Disturbed environment
(C) Posses less seasonal variation and relatively constant habitats
(D) More solar energy available

129. Which of the following animal group has highest percentage among threatened species is?
(A) Insect (B) Mammals
(C) Amphibians (D) Reptile

130. One of the ex situ conservation methods for endangered species is
(A) wildlife sanctuaries
(B) biosphere reserves
(C) cryopreservation
(D) national parks

131. Which one of the following pairs of geographical areas show maximum biodiversity in our country?
(A) Sunderbans and Rann of Kutch
(B) Eastern Ghats and West Bengal
(C) Eastern Himalaya and Western Ghats
(D) Kerala and Punjab

132. UV radiation of wavelength shorter than _____, are almost completely absorbed by Earth's atmosphere, given that the ozone layer is intact.
(A) UV–B (B) UV–A (C) UV–C (D) UV

133. Domestic sewage is not related to
(A) Organic waste (B) Microbes
(C) Heavy metals (D) All of the above

134. Human role is found in
(A) Cultural eutrophication
(B) Biomagnification
(C) E–waste creation
(D) All of the above

135. If there is no green-house effect in atmosphere of earth then earth's average temperature will be:-
(A) 15°C (B) 0°C (C) –18°C (D) –10°C

136. Highest contribution in green-house effect is of:
(A) CH_4 (B) CO_2 (C) N_2O (D) CFC

137. Increasing skin cancer and high mutation rate are the result of:-
(A) Ozone depletion (B) Acid rain
(C) CO pullution (D) CO_2 pollution

138. The Ozone hole over Antarctica develops each year between-
(A) Late August to Early October
(B) Late October to early November
(C) Early July to Late October
(D) None of these

139. Highest concentration of non biodegradable waste will be present in -
(A) Producer
(B) Primary consumer
(C) Secondary consumer
(D) Top consumer

140. High BOD and low DO in an aquatic body leads to:
(A) Higher growth of fresh water animals
(B) Water become clean
(C) Fish mortality increase
(D) Algal bloom

141. Electrostatic precipitators can remove over_____ particulate matter present in the exhaust from a thermal power plant.
(A) 80% (B) 20% (C) 35% (D) 99%

142. Green muffing can protect us from:
(A) CO_2 pollution
(B) Sound pollution
(C) Radioactive pollution
(D) Both (A) and (B)

143. Noise was added as a pollutant to
(A) Water (Prevention and Control of Pollution) Act, 1974
(B) Air (Prevention and Control of Pollution) Act in 1987
(C) Air (Prevention and Control of Pollution) Act in 1981
(D) Both 1 & 2

144. Polyblend is related to control of
(A) water pollution (B) e–waste
(C) plastic waste (D) radioactive waste

145. Main cause of eutrophication is –
(A) Fluctuation of temperature
(B) Unusual growth of aquatic vegetations
(C) Enrichment of nutrients
(D) Abundance of microorganism

146. Dobson unit (DU) is related to
(A) atmospheric pollution
(B) Ozone thickness
(C) Ozone breakdown
(D) BOD of water

147. The term 'biomagnification' refers to –
(A) Increase in concentration of non-biodegrable pollutant through a food chain.
(B) Growth of organisms due to food consumption
(C) Observation of microbes under microscope
(D) Increase in population size

148. Sonalika and kalyan Sona are high yielding varieties of
(A) Sugarcane (B) Rice
(C) Wheat (D) Maize

149. Credit for bringing green revolution to Inida goes to
(A) B.P. Pal
(B) Normal Borlaug
(C) M.S. Swamination
(D) Mehta

150. The dwarf varieties of wheat brought from Mexico into India were
(A) Sonara-64 and Sonalika
(B) Sonara-64 and Lerma Roja-64
(C) Sharbati sonara and Pusa Lema
(D) Sonalika

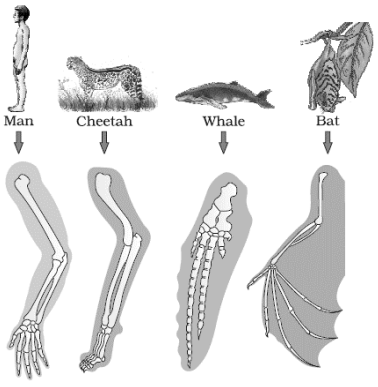
151. Which of the following statements is not correct for Big-Bang theory of origin of universe ?
(A) Originated about 20 billion year back
(B) Originated after repeated huge explosion
(C) Originated after single and huge blast
(D) Unimmaginable in physical terms

152. 'Early Greek thinkers thought units of life called spores were transferred to different planets including earth'.
This view of origin of life is studied under :
(A) Theory of biogenesis
(B) Theory of abiogenesis
(C) Theory of special creation
(D) Theory of panspermia

153. _____ can be considered as an evidence for first part of the conjectured story, i.e., chemical evolution.
(A) S.L. Miller's experiment
(B) Alfred Wallace theory
(C) Analysis of meteorite content
(D) Both (A) and (C)

154. Homologous organs are similar in origin and anatomy but perform different function generally. It is due to :
(A) Adaptation of different needs in different geographical area
(B) Adaptation to similar need in similar geographical area
(C) Mutation
(D) Protection and defence

155. Find out the correct option regarding the animals shown in the below figure :



(A) Indicates their common ancestry
(B) Indicates divergent evolution
(C) Shows homologous organs
(D) All of the above

156. According to Hugo De Vries, single step large mutation that causes speciation is called ____.
(A) Dominant mutation
(B) Lethal mutation
(C) Saltation
(D) Recessive mutation

157. Excess use of herbicides, pesticides, antibiotics etc has resulted in selection of resistant varieties in a much lesser time scale, these are examples of evolution by :
(A) Branching descent
(B) Adaptive radiation
(C) Anthropogenic action
(D) Genetic drift

158. _____ lived in near east and central Asia between 1,00,000 - 40,000 years back ?
(A) Homo erectus (B) Homo habilis
(C) Neanderthal man (D) Australopithecines

159. Which of the following is incorrect statement regarding human evolution ?
(A) Dryopithecus and Ramapithecus were hairy and walked like gorilla and chimpanzee
(B) Prehistoric cave arts developed about 18,000 years ago
(C) Man like primates walked in eastern Africa about 3-4 MYA and they were not probably taller than 4 feet
(D) Homo habilis probably ate meat

160. What is true about finches ?
(a) Present in galapagos island.
(b) Have changes in beak pattern / shape, as of food available.
(c) Arose from common ancestor.
(d) Best example of adaptive radiation.
(A) a, c, d (B) b, c, d
(C) a, b, c (D) a, b, c, d

161. Brain capacity of Homo habilis was :
(A) 650-800 cc (B) 800-900 cc
(C) 600-1000 cc (D) 900-1100 cc

162. About_____, the dinosaurs suddenly disappeared from the earth.
(A) 65 mya (B) 65 bya
(C) 85 mya (D) 95 mya

163. According to Lamark, Giraffe's neck and forelimbs get elongated during the course of evolution, due to :
(A) Inheritance of acquired characters
(B) Natural selection and use of organs
(C) Geographical isolation
(D) Convergent evolution

164. Find out A and B in given below sketch of evolutionary history of vertebrates through geological periods:
Early reptiles $\rightarrow$ A $\rightarrow$ Pelycosaur $\rightarrow$ Therapsids $\rightarrow$ B
(A) A - Saurapsids, B - Birds
(B) A - Saurapsids, B - Mammals
(C) A - Synapsids, B - Mammals
(D) A - Thecodonts, B – Dinosaurs

165. Some other scientist performed experiment similar to S.L. Miller and they obtained –
(A) Sugar, N_2 bases, pigments and fats
(B) Fats, pigments and RNA
(C) Protein, Nucleic acids
(D) Both (B) and (C)

166. Select the correct statement from the following :
(A) Darwinian variations are small and direction less
(B) Fitness is the end result of the ability to adapt and gets selected by nature
(C) Analogous organs show common ancestry.
(D) Mutations are random and directional

167. For successful bee-keeping, which of the following points are important ?
(i) Knowledge of the nature and habits of bees.
(ii) Selection of suitable location for keeping the beehives.
(iii) Management of beehives during different seasons.
(iv) Cross hybridization among the selected parents.
(A) (i), (iii) and (iv) (B) (ii) and (iv)
(C) (i), (ii) and (iii) (D) (i) and (iii)

168. Fisheries includes rearing, catching and selling of _____.
(A) Fish
(B) Shell-fish
(C) Crustaceans (prawn, crabs)
(D) All of the above

169. What are the correct strategies for enhancement in food production ?
(i) Animal husbandry
(ii) Plant breeding
(iii) Embryo transfer technology
(iv) Tissue culture techniques
(A) i, ii and iii are correct
(B) Only iii is incorrect
(C) i and iii are correct
(D) All are correct

170. _____ is the practice of mating of animals within the same breed, but having no common ancestors on either side of their pedigree up to 4-6 generations.
(A) Inbreeding
(B) Cross breeding
(C) Out crossing
(D) Interspecific hybridisation

171. According to the World Health Organisation (WHO), reproductive health means a total well-being in all aspects of reproduction, that is:
(A) Physical
(B) Social
(C) Emotional and behavioural
(D) All of the above

172. Which of the following are the major tasks under RCH programmes?
(A) Creating awareness among people about various reproduction related aspects
(B) Providing facilities and support for building up a reproductively unhealthy society
(C) Both (A) and (B)
(D) None of the above

173. In the rhythm method of birth control, the couple abstain from intercourse_____.
(A) One day before and after ovulation
(B) Two days before and after ovulation
(C) Three days before and after ovulation
(D) One week before and after ovulation

174. Why barrier method is the clinically safest way of contraception?
(A) Can prevent unwanted pregnancy for long time
(B) They contain spermicides that kill sperms and prevent fertilisation
(C) They do not produce metabolic side effects
(D) They are easily disposable

175. Cu ions released from copper releasing Intra Uterine Devices (IUDs) :
(A) Make cervix hostile to sperm
(B) Make uterus unsuitable for implantation
(C) Prevent ovulation
(D) Suppress sperm motility

176. Which method of contraception has almost nil side effects ?
(A) IUD (B) Pills
(C) Coitus interruptes (D) LNG-20

177. In which of the following methods embryos with more than 8 blastomeres is transferred into the uterus ?
(A) GIFT (B) ZIFT (C) IUT (D) IUI

178. A contraceptive method, which provides some protection against HIV is :
(A) IUD (B) Pills
(C) Condom (D) Periodic abstinence

179. Which of the following statement is correct?
I. Infertility is the inability to produce viable offsprings due to defects in the female partner
II. Intense lactation helps in contraception
III. An ideal contraceptive should be user-friendly, effective with no or least side-effects
(A) II only (B) I, II and III
(C) II and III (D) I and III

180. Nearly___(i)___million MTPs are performed in a year all over the world which accounts to ___(ii)___ of the total number of conceived pregnancies in a year.
(A) (i)-40 to 50, (ii)-1/4th
(B) (i)-50 to 60, (ii)-1/5th
(C) (i)-45 to 50, (ii)-1/4th
(D) (i)-45 to 50, (ii)-1/5th