

NEET MODEL QUESTION PAPER 7

NATIONAL TESTING AGENCY
Excellence in Assessment





PHYSICS

- When a copper ball is cooled the largest percentage increase will occur in its
 - diameter
 - area
 - volume
 - density
- A constant volume gas thermometer shows pressure readings of 50 cm and 90 cm of mercury at 0°C , 100°C respectively. The temperature of the bath when pressure reading is 60 cm of mercury.
 - 45°C
 - 30°C
 - 25°C
 - 20°C
- A metal rod having a linear coefficient of expansion $2 \times 10^{-5} /^{\circ}\text{C}$ has a length 1 m at 25°C , the temperature at which it is shortened by 1 mm is (1983 E)
 - 50°C
 - -50°C
 - -25°C
 - -12.5°C
- A mercury thermometer is transferred from melting ice to a hot liquid. The mercury rises to 9/10 of the distance between the two fixed points. Find the temperature of the liquid in Fahrenheit scale.
 - 194°F
 - 162°F
 - 112°F
 - 113°F
- A Fahrenheit thermometer registers 107° while a faulty Celsius thermometer registers 42° . Find the error in the later.
 - 0.6°C
 - 0.72°C
 - 1.2°C
 - 7.2°C
- If L_1 and L_2 are the lengths of two rods of coefficients of linear expansion α_1 and α_2 respectively the condition for the difference in length to be constant at all temperatures is
 - $L_1\alpha_1 = L_2\alpha_2$
 - $L_1\alpha_2 = L_2\alpha_1$
 - $L_1\alpha_1^2 = L_2\alpha_2^2$
 - $L_1\alpha_2^2 = L_2\alpha_1^2$
- When a metal ring is heated
 - the inner radius decreases and outer radius increases
 - the outer radius decreases and inner radius increases
 - both inner and outer radii increases
 - both inner and outer radii decreases
- Two uniform metal rods one of aluminium of length l_1 and another made of steel of length l_2 and linear coefficients of expansion α_a and α_s respectively are connected to form a single rod of $l_1 + l_2$. When the temperature of the combined rod is raised by $t^{\circ}\text{C}$, the length of each rod increases by the same amount. Then $\frac{l_1}{l_1+l_2}$ is
 - $\frac{\alpha_s}{\alpha_a+\alpha_s}$
 - $\frac{\alpha_a}{\alpha_a+\alpha_s}$
 - $\frac{\alpha_a}{\alpha_s}$
 - $\frac{\alpha_s}{\alpha_a}$
- A crystal has a coefficient of linear expansion $12 \times 10^{-6} /^{\circ}\text{C}$ in one direction and $244 \times 10^{-6} /^{\circ}\text{C}$ in every direction at right angles to it. Then the coefficient of cubical expansion of crystal is
 - $450 \times 10^{-6} /^{\circ}\text{C}$
 - $500 \times 10^{-6} /^{\circ}\text{C}$
 - $244 \times 10^{-6} /^{\circ}\text{C}$



- 4) $36 \times 10^{-6}/^{\circ}\text{C}$
- 10.** The Fahrenheit and Kelvin scales of temperature will give the same reading at
- 1) - 40
 - 2) 313
 - 3) 574.25
 - 4) 732.75
- 11.** Two thin metal strips, one of brass and the other of iron are fastened together parallel to each other. Thickness of each strip is 2 mm. If the strips are of equal length at 0°C . The radius of the arc formed by the bimetallic strip when heated to 80°C is (Coefficient of linear expansion of brass = $19 \times 10^{-6}/^{\circ}\text{C}$ & of iron = $12 \times 10^{-6}/^{\circ}\text{C}$).
- 1) 3.57m
 - 2) 2.67m
 - 3) 3.12m
 - 4) 4.56m
- 12.** The coefficient of linear expansion of an in homogeneous rod changes linearly from α_1 to α_2 from one end to the other end of the rod. The effective coefficient of liner expansion of rod is
- 1) $\alpha_1 + \alpha_2$
 - 2) $\frac{\alpha_1 + \alpha_2}{2}$
 - 3) $\sqrt{\alpha_1 \alpha_2}$
 - 4) $\alpha_1 - \alpha_2$
- 13.** The substance which has negative coefficient of liner expansion is
- 1) lead
 - 2) aluminium
 - 3) iron
 - 4) invar steel
- 14.** Which of the following is the smallest rise in temperature?
- 1) 1°F
 - 2) 1°R
 - 3) 1 K
 - 4) 1°C
- 15.** A crystal has linear coefficient $0.00004/^{\circ}\text{C}$, $0.00005/^{\circ}\text{C}$, $0.00006/^{\circ}\text{C}$. Coefficient of cubical expansion of the crystal is
- 1) $0.000015/^{\circ}\text{C}$
 - 2) $0.00015/^{\circ}\text{C}$
 - 3) $0.00012/^{\circ}\text{C}$
 - 4) $0.00018/^{\circ}\text{C}$
- 16.** When the temperature of a body increases from t to $t + \Delta t$, its moment of inertia increases from I to $I + \Delta I$. The coefficient of linear expansion of the body is α . The ratio $\Delta I/I$ is
- 1) $\Delta t/t$
 - 2) $2\Delta t/t$
 - 3) $\alpha \Delta t$
 - 4) $2 \alpha \Delta t$
- 17.** A second's pendulum clock having steel wire is calibrated at 20°C . When temperature is increased to 30°C , then how much time does the clock loose or gain in one week? [$\alpha_{\text{steel}} = 12 \times 10^{-5} (^{\circ}\text{C})^{-1}$]
- 1) 0.3628s
 - 2) 3.626s
 - 3) 362.8s
 - 4) 36.28s
- 18.** The holes through which the fish plates are fitted to join the rails are oval in shape because
- 1) bolts are in oval shape
 - 2) to allow the movement of rails in the direction of length due to change in temperature.
 - 3) to make the fitting easy and tight
 - 4) only oval shape holes are possible



19. The normal boiling point of liquid hydrogen is -253°C . What is the corresponding temperature on absolute scale.
- 1) 22K
 - 2) 20 K
 - 3) 274 K
 - 4) -20 K
20. The inner diameter of a brass ring at 273 K is 5 cm. To what temperature should it be heated for it to accommodate to ball 5.01 cm in diameter. ($\alpha = 2 \times 10^{-5}/^{\circ}\text{C}$)
- 1) 273 K
 - 2) 372 K
 - 3) 437 K
 - 4) 173 K
21. The initial lengths of two rods A and B are in the ratio 3 : 5 and coefficient of linear expansion are in the ratio 5 : 3. If the rods are heated from 34°C to 65°C , the ratio of their expansion will be
- 1) 1 : 1
 - 2) 3 : 5
 - 3) 1 : 2
 - 4) 2 : 3
22. The rods of lengths L_1 and L_2 are welded together to make a composite rod of length (L_1+L_2) . If the coefficient of linear expansion of the materials of the rods are α_1 and α_2 respectively, the effective coefficient of linear expansion of the composite rod is
- 1) $\frac{L_1\alpha_1-L_2\alpha_2}{L_1+L_2}$
 - 2) $\frac{L_1\alpha_1+L_2\alpha_2}{L_1+L_2}$
 - 3) $\sqrt{\alpha_1\alpha_2}$
 - 4) $\frac{\alpha_1+\alpha_2}{2}$
23. A gas thermometer measures the temperature from the variation of pressure of a sample of gas. If the pressure measured at the melting point of lead is 2.20 times the pressure measured at the triple point of water find the melting point of lead.
- 1) 600 K
 - 2) 420 K
 - 3) 790 K
 - 4) 510 K
24. A brass sheet is 25 cm long and 8 cm breadth at 0°C . Its area at 100°C is ($\alpha=18 \times 10^{-6}/^{\circ}\text{C}$)
- 1) 207.2 cm^2
 - 2) 200.72 cm^2
 - 3) 272 cm^2
 - 4) 2000.72 cm^2
25. Always platinum is fused into glass, because
- 1) platinum is good conductor of heat
 - 2) melting point of platinum is very high
 - 3) they have equal specific heats
 - 4) their coefficients of linear expansion are equal
26. A solid sphere of radius r and mass m is spinning about a diameter as axis with a speed ω_0 . The temperature of the sphere increases by 100°C without any other disturbance. If the coefficient of linear expansion of material of sphere is $2 \times 10^{-4}/^{\circ}\text{C}$, the ratio of angular speed at 100°C and ω_0 is
- 1) 1 : 1
 - 2) 1 : 1.04
 - 3) 1.04 : 1
 - 4) 1 : 1.02
27. The length of a metal rod at 0°C is 0.5m. When it is heated, its length increases by 2.7mm. The final temperature of rod is (coeff. of linear expansion of metal = $90 \times 10^{-6}/^{\circ}\text{C}$)



- 1) 20°C
- 2) 30°C
- 3) 40°C
- 4) 60°C

28. Expansion during heating

- 1) occurs only in solids
- 2) decreases the density of the material
- 3) occurs at same rate for all liquids and gases
- 4) increases the weight of the material

29. A steel scale is correct at 0°C. The length of a brass tube measured by it at 40°C is 4.5m. The correct length of the tube at 0°C is (Coefficients of linear expansion of steel and brass are $11 \times 10^{-6} / ^\circ\text{C}$ and $19 \times 10^{-6} / ^\circ\text{C}$ respectively).

- 1) 4.001 m
- 2) 5.001 m
- 3) 4.999 m
- 4) 4.501 m

30. A clock pendulum made of invar has a period of 0.5 sec at 20°C. If the clock is used in a climate where the temperature averages to 30°C, how much time does the clock lose in each oscillation. for invar $\alpha = 9 \times 10^{-7} \text{ } ^\circ\text{C}^{-1}$

- 1) $2.25 \times 10^{-6} \text{ sec}$
- 2) $2.5 \times 10^{-7} \text{ sec}$
- 3) $5 \times 10^{-7} \text{ sec}$
- 4) $1.125 \times 10^{-6} \text{ sec}$

31. The length of each steel rail is 10m in winter. The coefficient of linear expansion of steel is $0.000012 / ^\circ\text{C}$ and the temperature increases by 15°C in summer. The gap to be left between the rails

- 1) 0.0018m
- 2) 0.0012m
- 3) 0.0022m

- 4) 0.05m

32. The coefficient of linear expansion of a metal is $1 \times 10^{-5} / ^\circ\text{C}$. The percentage increase in area of a square plate of that metal when it is heated through 100°C is

- 1) 0.02%
- 2) 0.1%
- 3) 0.001%
- 4) 0.2%

33. A pendulum clock gives correct time at 20°C at a place where $g = 10 \text{ m/s}^2$. The pendulum consists of a light steel rod connected to a heavy ball. If it is taken to a different place where $g = 10.01 \text{ m/s}^2$ at what temperature the pendulum gives correct time (α of steel $10^{-5} / ^\circ\text{C}$)

- 1) 30°C
- 2) 60°C
- 3) 100°C
- 4) 120°C

34. An iron metal rod is to maintain an accuracy of one part per million. The coefficient of linear expansion of iron is $1 \times 10^{-5} / ^\circ\text{C}$. The minimum variations in temperature of the rod could be

- 1) $\pm 1^\circ\text{C}$
- 2) $\pm 5^\circ\text{C}$
- 3) $\pm 0.1^\circ\text{C}$
- 4) $\pm 0.01^\circ\text{C}$

35. The standard scale of temperature is

- 1) the mercury scale
- 2) the gas scale
- 3) the platinum resistance scale
- 4) liquid scale

36. The coefficient of volume expansion is

- 1) twice the coefficient of linear expansion
- 2) twice the coefficient of real expansion



- 3) thrice the coefficient of real expansion
- 4) thrice the coefficient of linear expansion
- 37.** The pressure of a gas filled in the bulb of a constant volume gas thermometer at 0°C and 100°C are 28.6 and 36.6 cm of mercury respectively. The temperature of bulb at which pressure will be 35.0 cm of mercury will be
- 1) 80°C
 - 2) 70°C
 - 3) 55°C
 - 4) 40°C
- 38.** The temperature at which Celsius reading is half the Fahrenheit reading
- 1) 40°C
 - 2) 20°C
 - 3) 160°C
 - 4) 80°C
- 39.** Two rods of same length and same diameter are drawn from equal masses and same quantity of heat is supplied to the two rods. Find the ratio of expansions if specific heats of the material is $\frac{2}{3}$ and that of coefficient of linear expansion is $\frac{1}{2}$
- 1) $\frac{4}{3}$
 - 2) $\frac{1}{2}$
 - 3) $\frac{3}{4}$
 - 4) $\frac{1}{3}$
- 40.** An iron rod of length 50 cm is joined to an aluminium rod of length 100 cm. All measurements refer to 20°C . The coefficient of linear expansion of iron and aluminium are $12 \times 10^{-6} /^{\circ}\text{C}$ and $24 \times 10^{-6} /^{\circ}\text{C}$ respectively.
- The average linear expansion coefficient of composite system is:
- 1) $36 \times 10^{-6} /^{\circ}\text{C}$
 - 2) $12 \times 10^{-6} /^{\circ}\text{C}$
 - 3) $20 \times 10^{-6} /^{\circ}\text{C}$
 - 4) $48 \times 10^{-6} /^{\circ}\text{C}$
- 41.** A mercury thermometer is transferred from melting ice to a hot liquid. The mercury rises to $\frac{9}{10}$ of the distance between the two fixed points. Find the temperature of the liquid in Fahrenheit scale
- 1) 194°F
 - 2) 162°F
 - 3) 112°F
 - 4) 113°F
- 42.** The standard scale of temperature is
- 1) the mercury scale
 - 2) the gas scale
 - 3) the platinum resistance scale
 - 4) liquid scale
- 43.** The upper and lower fixed points of a faulty mercury thermometer are 210°F and 34°F respectively. The correct temperature read by this thermometer is
- 1) 22°F
 - 2) 80°F
 - 3) 100°F
 - 4) 122°F
- 44.** The upper and lower fixed points of a faulty mercury thermometer are 210°F and 34°F respectively. The correct temperature read by this thermometer is
- 1) 22°F
 - 2) 80°F
 - 3) 100°F
 - 4) 122°F
- 45.** The excess pressure inside a soap bubble is
- 1) inversely proportional to the surface tension
 - 2) inversely proportional to its radius



- 3) directly proportional to square of its radius
- 4) directly proportional to its radius

CHEMISTRY

46. In the extraction of copper, the slag formed in the blast furnace is

- 1) $CaSiO_3$
- 2) $FeSiO_3$
- 3) $Ca_3(PO_4)_2$
- 4) $MnSiO_3$

47. For the process $2A \rightarrow$ products, rate of reaction w.r.t A at 10^{th} second is $2 \times 10^{-2} \text{ Ms}^{-1}$ then rates of same process at 5^{th} and 15^{th} seconds (order $\neq 0$) respectively are in (in M/s)

- 1) 10^{-1} & 4×10^{-2}
- 2) 2.7×10^{-2} & 1.6×10^{-2}
- 3) 1.6×10^{-2} & 2.7×10^{-2}
- 4) 2×10^{-2} & 2×10^{-2}

48. Which of the following acts as "activator" in the froth floatation process?

- 1) KCN
- 2) NaCN
- 3) Sodium ethyl Xanthate
- 4) Copper sulphate

49. The differential rate law for the reaction $H_2 + I_2 \rightleftharpoons 2HI$ is

- 1) $\frac{-d[H_2]}{dt} = \frac{-d[I_2]}{dt} = \frac{-d[HI]}{dt}$
- 2) $\frac{d[H_2]}{dt} = \frac{d[I_2]}{dt} = \frac{d[HI]}{dt}$
- 3) $\frac{1}{2} \frac{d[H_2]}{dt} = \frac{d[I_2]}{dt} = \frac{-d[HI]}{dt}$
- 4) $-2 \frac{d[H_2]}{dt} = 2 \frac{d[I_2]}{dt} = \frac{d[HI]}{dt}$

50. Generally sulphide ores are concentrated by following process

- 1) Hand picking
- 2) Washing with water
- 3) Leaching
- 4) Froth floatation

51. The value of the rate constant of a reaction depends on

- 1) time
- 2) activation energy

- 3) temperature
- 4) half-life value

52. The common method of extraction of metal from oxide ore is

- 1) reduction with carbon
- 2) reduction with Al
- 3) reduction with H_2
- 4) electrolytic method

53. The rate of a reaction doubles when its temperature changes from 300K to 310K. Activation energy of such a reaction will be ($R = 8.314 \text{ JK}^{-1} \text{ mol}^{-1}$ and $\log 2 = 0.3010$)

- 1) 48.6 kJ mol^{-1}
- 2) 58.5 kJ mol^{-1}
- 3) 60.5 kJ mol^{-1}
- 4) 53.6 kJ mol^{-1}

54. Silver is refined by cupellation process. The process removes the impurity of:

- 1) Cu
- 2) Au
- 3) Pb
- 4) Pt

55. 75% of a first order reaction is completed in 32 minutes. 50% of the reaction would have been completed in

- 1) 24 mins
- 2) 16 mins
- 3) 18 mins
- 4) 23 mins

56. Commercially important ore of lead is

- 1) Siderite
- 2) Galena
- 3) Sphalerite
- 4) Haematite

57. The unit of rate constant for a second order reaction is

- 1) lit. sec
- 2) lit.mol.sec
- 3) $\text{mol}^{-1} \cdot \text{lit. sec}^{-1}$
- 4) mol. sec

58. In Thermite process, the reducing agent is:

- 1) C
- 2) Zn
- 3) Na
- 4) Al



59. For $N_2O_5 \rightarrow 2NO_2 + \frac{1}{2} O_2$, it is found that $\frac{-d}{dt}[N_2O_5] = K_1[N_2O_5]$, $\frac{d}{dt}[NO_2] = K_2[N_2O_5]$; $\frac{d}{dt}[O_2] = K_3[N_2O_5]$ then
- 1) $K_1 = 2K_2 = 3K_3$
 - 2) $2K_1 = 4K_2 = K_3$
 - 3) $2K_1 = K_2 = 4K_3$
 - 4) $K_1 = K_2 = K_3$
60. Zone refining method is used for refining
- 1) Al
 - 2) Ge
 - 3) Cu
 - 4) Fe
61. The conversion of A to B follows second order kinetics. Doubling the concentration of A will increase the rate of formation of B by a factor
- 1) 4
 - 2) 2
 - 3) 1/4
 - 4) 1/2
62. Which of the following metallurgical processes does not involve heating?
- 1) smelting
 - 2) calcinations
 - 3) roasting
 - 4) levigation
63. The value of energy of activation for radio active decay is
- 1) high
 - 2) low
 - 3) zero
 - 4) moderate
64. The most abundant element in the earth crust is
- 1) O
 - 2) Si
 - 3) gold
 - 4) iron
65. 99% of a 1st order reaction completed in 2.303 minutes. What is the rate constant and half-life of the reaction
- 1) 2.303 and 0.3010
 - 2) 2 and 0.3465
 - 3) 2 and 0.693
 - 4) 0.3010 and 0.693
66. In the electrolytic refining of copper, Ag and Au are found:
- 1) on cathode
 - 2) on anode
 - 3) in the anodic mud
 - 4) in the cathodic mud
67. In the rate of reaction $A \rightarrow B$ triples on increasing the concentration of A by 9 times, then the order of reaction is
- 1) 2
 - 2) 1
 - 3) 1/2
 - 4) 4
68. The formula of calamine ore is
- 1) ZnS
 - 2) $FeCO_3$
 - 3) $ZnCO_3$
 - 4) Cu_2S
69. The decomposition of Cl_2O is
- 1) explosive reactions
 - 2) second order reactions
 - 3) first order reactions
 - 4) thermal reactions
70. In the extraction of copper the smelt formed in the blast furnace contains
- 1) $Cu_2S + \text{little } FeS$
 - 2) $Cu_2S + \text{little } FeO$
 - 3) $Cu_2O + \text{little } FeS$
 - 4) $Cu_2O + \text{little } FeO$
71. In a first order reaction, 50 minutes time is taken for the completion of 93.75% of a reaction. Halflife of the reaction is
- 1) 25 min
 - 2) 12.5 min
 - 3) 20 min
 - 4) 10 min
72. The most stable method for extraction of copper from low grade sulphide ore is
- 1) Smelting process
 - 2) Hydrometallurgical process
 - 3) Leaching process
 - 4) Electrolytic process
73. Which one of the following statement for order of reaction is not correct?
- 1) Order can be determined experimentally
 - 2) Order of reaction is equal to sum of the powers of concentration terms in differential rate law
 - 3) It is not affected with stoichiometric coefficient of the reactants
 - 4) Order cannot be fractional



- 74.** The flux used in the extraction of iron from Haematite in the blast furnace is
- 1) Lime stone
 - 2) Silica
 - 3) Coke
 - 4) CO
- 75.** In reactions involving gaseous reactants and gaseous products the units of rate are
- 1) Atm
 - 2) Atm-sec
 - 3) Atm.sec⁻¹
 - 4) Atm² sec²
- 76.** Roasting of copper ore is carried out in which of the following furnace?
- 1) Reverberatory furnace
 - 2) Blast furnace
 - 3) Either reverberatory furnace or blast furnace
 - 4) Neither 1 nor 2
- 77.** Which of the following enzyme is used in the conversion of proteins to Amino acids
- 1) Urease
 - 2) Diastase
 - 3) Maltase
 - 4) Pepsin
- 78.** In the metallurgy of Fe, when $CaCO_3$ is added to blast furnace, calcium ion appears as
- 1) CaO
 - 2) metallic Ca
 - 3) gangue
 - 4) slag
- 79.** Gold number is used to show
- 1) Protective power of lyophilic colloids
 - 2) Protective power of lyophobic colloid
 - 3) Peptisation power of a colloid
 - 4) Precipitation power of a colloid
- 80.** Which one of the following oxides is reduced by water gas to obtain the metal during its extraction?
- 1) Fe_2O_3
 - 2) NiO
 - 3) ZnO
 - 4) WO_3
- 81.** In Haber's process of Ammonia synthesis, the substance that acts as catalytic poison
- 1) Fe_2O_3
 - 2) As_2O_3
 - 3) CO_2
 - 4) H_2S
- 82.** Which of the following metal cannot occur in native state?
- 1) Cu
 - 2) Zn
 - 3) Ag
 - 4) Fe
- 83.** Butter is
- 1) Fat dispersed in milk
 - 2) Fat dispersed in water
 - 3) Water dispersed in fat
 - 4) Water dispersed in oil
- 84.** The froth floatation process is used for the concentration of
- 1) ore having low density
 - 2) ore having magnetic nature
 - 3) ore having high density
 - 4) ore having water soluble gangue
- 85.** Which of the following is not a characteristic of chemisorptions
- 1) Adsorption is irreversible
 - 2) ΔH is of the order of 80-240 K.J
 - 3) Adsorption is specific
 - 4) Multilayered
- 86.** Refractory metals are used in construction of furnaces because
- 1) they can withstand high temperature
 - 2) they are chemically inert
 - 3) their melting point is high
 - 4) their melting point is low
- 87.** The size of the colloidal particle ranges between
- 1) $10^{-2} - 10^{-3} cm$
 - 2) $10^{-3} - 10^{-5} cm$
 - 3) $10^{-4} - 10^{-7} cm$
 - 4) $10^{-7} - 10^{-9} cm$
- 88.** Which of the following elements mostly occur as sulphide ores.
- 1) Zn, Cu, Na
 - 2) Zn, Cu, Pb
 - 3) Fe, Al, Ti
 - 4) Cu, Ag, Au



89. In both dialysis and osmosis which particles do not pass through semi permeable membrane

- 1) water
- 2) Small molecules
- 3) colloids
- 4) All of these

90. The relationship between standard reduction potential of a cell and equilibrium constant is shown by

- 1) $E_{cell}^0 = \frac{n}{0.059} \log K_c$
- 2) $E_{cell}^0 = \frac{0.059}{n} \log K_c$
- 3) $E_{cell}^0 = 0.059 \log K_c$
- 4) $E_{cell}^0 = \frac{\log K_c}{n}$

BOTANY

91. Maximum nutritional diversity is found in the group

- 1) Fungi
- 2) Plantae
- 3) Monera
- 4) Animalia

92. In fungi a dikaryon is formed when

- 1) Meiosis is arrested
- 2) Nuclei of two haploid cells do not fuse immediately
- 3) Cytoplasm does not fuse
- 4) Nuclei of two haploid cells fuse immediately

93. Match the entities in column I with column II

Column – I	Column – II
A. Primata	I. Dog
B. Diptera	II. Wheat
C. Sapindales	III. Mango
D. Poales	IV. Housefly
E. Carnivora	V. Man

- 1) A – V, B – IV, C – III, D – I, E – II
- 2) A – V, B – IV, C – I, D – III, E – II
- 3) A – V, B – IV, C – III, D – II, E – I
- 4) A – II, B – III, C – I, D – IV, E – V

94. Which of the following archaeobacteria are present in get of cows and buffaloes and they are also responsible for production of methane

- 1) Halohiles
- 2) Thermoacidophiles
- 3) Methonogens
- 4) Eubacteria

95. What is the correct sequence of ‘taxonomic categories’ in hierarchical arrangement?

- 1) Kingdom → Class → Division → Order → Family → Genus → Species
- 2) Kingdom → Phylum → Class → Order → Family → Genus → Species
- 3) Species → Genus → Family → Order → Class → Division → Kingdom
- 4) Species → Genus → Phylum → Family → Order → Division → Kingdom

96. Which of the following statements is not true for cyanobacteria?

- 1) It lacks sexual reproduction
- 2) It lacks cilia and flagella
- 3) It lacks chlorophyll – a pigments
- 4) It contain phycoerythrin and phycoerythrin photosynthetic pigments

97. Class – “X”? Sub class – Polypetalase? Series – calyciflorae? Order – ‘Y’? Family – “Z”

Identify “x”, “y”, and “z” in given diagram of taxonomic hierarchy

- 1) Dicotyledonae, Rosales, Fabaceae
- 2) Solanaceae, Polemoniales, Dicotyledonae
- 3) Fabaceae, Rosales, Dicotyledonae
- 4) Convolvulaceae Polemoniales, Monocotyledonae

98. Which of the following is a wall less cellular organism?

- 1) Virion
- 2) Viroid
- 3) Mycoplasmas
- 4) Cyanobacteria

99. Match the following

	List –I		List – II
A	Flora	I	Species restricted to



			particular area
B	Flauna	II	Species living in any other place except its native place
C	Exotic species	III	Plant life occurring in a particular region
D	Endemic species	IV	Total number of animals found in particular region

The current match is

- 1) A-III, B-IV, C-II, D-I
- 2) A-IV, B-III, C-II, D-I
- 3) A-IV, B-III, C-I, D-II
- 4) A-I, B-III, C-IV, D-II

100. Identify the set of photosynthetic protists

- 1) Euglena, Gonyaulax, Navicula (Diatoms)
- 2) Pinnularia, Dictyostelium, Physarum
- 3) Amoeba, Plasmodium, Paramoecium
- 4) Noctiluca, Diatomia, Entamoeba

101. The following are the various steps involved in preparation of herbarium given in an irregular order. Arrange them in correct order

- I. Mounting II. Labelling
III. Poisoning IV. Drying

- 1) V, IV, III, VI, I, II
- 2) V, VI, IV, III, I, II
- 3) I, IV, V, VI, III, II
- 4) V, II, III, VI, I, IV

102. According to five kingdom system of classification, all single celled eukaryotes are placed in Kingdom

- 1) Protista
- 2) Fungi
- 3) Monera
- 4) Plantae

103. "In given habitat we have 20 plant species and 20 animal species". Choose the most appropriate statement that can follow the above data

- 1) It represents the diversity of that particular habitat
- 2) It represents the biodiversity of that particular habitat

- 3) It explains the process of evolution
- 4) all the above

104. Pellicle of Euglena is a ____ rich layer which makes the body flexible

- 1) Chitin
- 2) Cellulose
- 3) Protein
- 4) Hemicellulose

105. The term 'systematics' refers to

- 1) Identification and study of organ systems
- 2) identification and preservation of plants and animals
- 3) diversity of kinds of organisms and their relationship
- 4) study of habitats of organisms and their classification

106. Which organisms causes red tide?

- 1) Diatoms
- 2) Gonyaulax
- 3) Red algae
- 4) Trichodesmum

107. Identify the incorrect statement

- 1) all primary and secondary metabolites are organic compounds
- 2) Secondary metabolites are seen in cells of members of Monera, Fungi, Plantae
- 3) some secondary metabolites have ecological importance
- 4) Rubisco is an example for secondary metabolite

108. Members of which of the following group have longitudinal and transverse flagella

- 1) Euglena
- 2) Desmids
- 3) Gonyaulax
- 4) Diatoms

109. As we go from species to kingdom in a taxonomic hierarchy, the number of dissimilar characters.

- 1) will decrease
- 2) will increase
- 3) remain same
- 4) may increase or decrease



110. Plant like character in slime moulds is cellulosic cell wall in

- 1) Spore
- 2) Plasmodium
- 3) Pseudoplasmodium
- 4) Vegetative phase

111. The most abundant prokaryotes helpful to humans in making curd from milk and in production of antibiotics are ones categorized as

- 1) Chemosynthetic autotrophs
- 2) Heterotrophic bacteria
- 3) Cyanobacteria
- 4) Archaeobacteria

112. Cup or saucer shaped ascocarp is called

- 1) Apothecium
- 2) Perithecium
- 3) cleistothecium
- 4) Acervulus

113. Match the following columns

	Column – I		Column – II
A	Aspergillus niger	I	Acetic acid
B	Acetobacter aceti	II	Butyric acid
C	Clostridium butylicum	III	Lactic acid
D	Lactobacillus	IV	Citric acid

The correct match is

- 1) A- III, B-I, C-II, D-IV
- 2) A-IV, B-I, C-II, D-III
- 3) A-IV, B-II, C-I, D-III
- 4) A-I, B-II, C-III, D-IV

114. Fungus used extensively in biochemical and genetic work is

- 1) Aspergillus
- 2) Claviceps
- 3) Penicillium
- 4) Neurospora

115. If two plants belong to same division but in different order, they may belong to the same

- 1) Genus
- 2) Family
- 3) Class
- 4) Species

116. Morels and truffles are edible and are considered delicacies, these belong to class

- 1) Oomycetes
- 2) Zygomycetes
- 3) Basidiomycetes
- 4) Ascomycetes

117. The label of a herbarium sheet does not carry information on

- 1) Local names
- 2) Height of the plant
- 3) Date of collector
- 4) Name of the collector

118. Scientific name of Yeast, a member of ascomycetes is

- 1) Saccharum
- 2) Saccharomyces
- 3) Streptomyces
- 4) Staphylococcus

119. In which of the following metabolic reactions take place?

- 1) In living organisms
- 2) Both in living and non-living organisms
- 3) In isolated cell free systems
- 4) Both 1 and 3

120. In Whittakers five kingdom system of classification how many kingdoms are characterized by well defined membrane bound true nucleus

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

121. Study the following and select the set of correct statement.

- I. In majority of higher animals and plants, growth and reproduction are mutually exclusive events
 - II. Living organisms share similarities only vertically
 - III. The basis of taxonomy like identification, naming and classification, of organisms are universally evolved under international codes
 - IV. Non-living object is capable of reproducing or replicating by itself
- 1) I and III



- 2) II and III
- 3) III and IV
- 4) I and IV

122. Most ancient living fossils/special monerans are

- 1) Archaeobacteria
- 2) Eubacteria
- 3) Cyanobacteria
- 4) All

123. Biodiversity can be best defined as

- 1) Occurance of number and types of organisms on earth
- 2) Variety of life in an ecosystem
- 3) Species and ecosystem of a region
- 4) Totally of genes, species and ecosystem of a given region

124. Bacteria reproduce mainly by

- 1) Conjugation
- 2) Transformation
- 3) Transduction
- 4) Fission

125. The species (Man, Housefly, Mango, Wheat, Dog, Cat, Lion, Tiger, Makoi) given here belong to how many different families?

- 1) 4
- 2) 7
- 3) 5
- 4) 6

126. Match the column A – with column – B

Column – A	Column – B
A. Phycomycetes	I. Alternaria
B. Ascomycetes	II. Aspergillus
C. Basidiomycetes	III. Albugo
D. Deuteromycetes	IV. Agaricus

- 1) A-IV, B-I, C-III, D-II
- 2) A-IV, B-III, C-I, D-II
- 3) A-III, B-IV, C-II, D-I
- 4) A-III, B-IV, C-II, D-I

127. Anitrogen fixing microbe associated with Azolla in rice-fields is

- 1) Frankia
- 2) Oscillatoria
- 3) Spirulina
- 4) Anabaena

128. Whittaker's five kingdom system of classification was not based in

- 1) Complexity of cell structure

- 2) Complexity of body organization
- 3) habitat
- 4) Mode of nutrition

129. Matching the following lists

	List – I		List – II
A	Saccharomyces cerevisiae	I	Production of immunosuppressive agent
B	Monascus purpureus	II	Ripening of swiss cheese
C	Trichoderma polysporum	III	Commercial production of ethanol
D	Propionibacterium	IV	Production of blood cholesterol lowering agent

- 1) A-III, B-I, C-IV, D-II
- 2) A-III, B-IV, C-I, D-II
- 3) A-IV, B-III, C-II, D-I
- 4) A-IV, B-II, C-I, D-III

130. Cell wall is present in other members of kingdom

- 1) Protista
- 2) Plantae
- 3) Animalia
- 4) Fungi

131. The gases produced in anaerobic sludge digesters are

- 1) Methane, CO_2
- 2) Hydrogen sulphide, CO_2
- 3) Hydrogen, Methane
- 4) Methane, Hydrogen sulphide, CO_2

132. Body organization is multi cellular with loose tissues in

- 1) Animalia
- 2) Plantae
- 3) Fungi
- 4) Protista

133. Which one of the following microbes form symbiotic association with plants and helps in their nutrition?

- 1) Glomus
- 2) Aspergillus
- 3) Asotobacter
- 4) Trichoderma



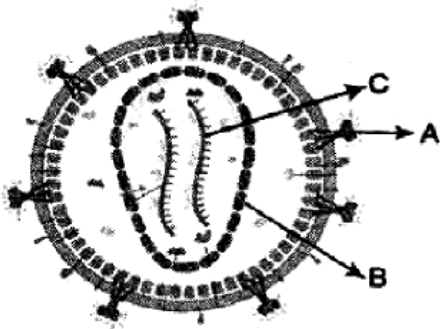
134. Which statement is not related to Mycoplasma?
- 1) They lack cell wall
 - 2) They lack membrane bound true nucleus
 - 3) They are pathogenic in animals and plants
 - 4) They cannot survive without oxygen

135. A genetically engineered micro organism used successfully in bio remediation of oil spills is a species of
- 1) Basillus
 - 2) Pseudomonas
 - 3) Trichoderma
 - 4) Xanthomonas

ZOOLOGY

136. The antibody that is capable of crossing the placental barrier and is responsible for the Rh incompatibility between an Rh negative mother and an Rh positive foetus is
- 1) IgA
 - 2) IgM
 - 3) IgG
 - 4) IgD

137. The picture given below shows HIV. Identify the correct matched sets of parts diagram



- 1) A-G_p 120, B-Nucleocapsid, C-RNA
 - 2) A-G_p 41, B-Nucleocapsid, C-RNA
 - 3) A-G_p 41, B-Nucleocapsid, C-Viral genome
 - 4) A-G_p 120, B-Viral genome, C-RNA
138. Which of the following is the major immunoglobulin in human serum, accounting for 80% of the immunoglobulin pool?

- 1) IgM
- 2) IgD
- 3) IgE
- 4) IgG

139. SCID is

- 1) Autoimmune disorder
- 2) Allergy
- 3) Secondary Immunodeficiency
- 4) Primary Immunodeficiency

140. Gamma immunoglobulins are synthesized in

- 1) liver
- 2) bone marrow
- 3) kidney
- 4) lymphoid tissue

141. Retroviruses can cause cancer in humans. The reason can be

- 1) Presence of gene for reverse transcriptase
- 2) Their genome has tumor suppressor genes
- 3) Presence of V-oncogenes in their genome
- 4) Their genetic material is RNA

142. Study of interaction of antigen and antibody in blood is termed

- 1) serology
- 2) cryobiology
- 3) angiology
- 4) haematology

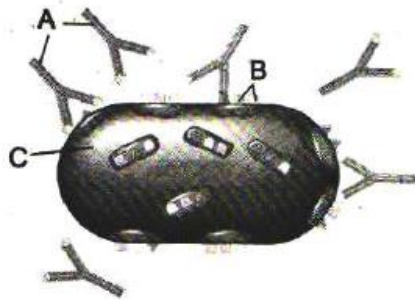
143. Malignant tumours are

- I. Mass of neoplastic cells
- II. Cell that grow very rapidly and damaging the surrounding normal tissue
- III. Cells that show the property of metastasis

Which of the statements given above are correct?

- 1) I and II
- 2) I and III
- 3) II and III
- 4) All of these

144. Observe the picture given below and identify the answer



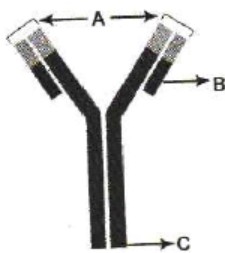
- 1) A-paratope, B-epitope, C-bacterial cell
- 2) A-antibody, B-paratope, C-bacterial cell
- 3) A-antibody, B-epitope, C-bacterial cell
- 4) A-paratope, B-bacterial cell, C-epitope

145. Match the following columns

Column – I (Cancer causing agent)	Column – II (Example)
A. Chemical	I. Carcinogens
B. Physical	II. Cigarette smoke
C. Biological	III. X-rays
D. Cancer causing	IV. Oncogenic viruses

- 1) A-2, B-3, C-4, D-1
- 2) A-3, B-1, C-4, D-2
- 3) A-1, B-4, C-2, D-3
- 4) A-4, B-2, C-3, D-1

146. Identify the correctly labeled parts of antibody



- 1) A-paratope, B-light chain, C-F_c end
- 2) A-epitope, B-light chain, C-F_c end
- 3) A-epitope, B-heavy chain, C-F_c end
- 4) A-paratope, B-heavy chain, C-F_c end

147. Ringworm in humans is caused by

- 1) bacteria
- 2) fungi
- 3) nematodes
- 4) typhoid

148. Immunoglobulin present in tears is

- 1) IgD

- 2) IgG
- 3) IgA
- 4) IgM

149. Consider the following statements

- I. The property of metastasis is shown by malignant tumors
- II. Carcinogens are the agents that cause cancer
- III. benign tumor causes little damage to body cells

Which of the statements given above are correct?

- 1) I and II
- 2) I and III
- 3) II and III
- 4) I, II and III

150. Antigen binding site immunoglobulin is

- 1) variable region of heavy chain
- 2) variable region of light chain
- 3) constant region of light chain
- 4) variable region of both heavy and light chain

151. Cadherins are

- 1) Junctions of epithelial cells
- 2) Tumor suppressor genes
- 3) Cellular products that promote motility
- 4) Large glycoproteins of B-lymphocytes

152. Choose incorrect statement about spleen

- 1) filter for blood borne microbes
- 2) primary lymphoid organ
- 3) reservoir of RBC
- 4) site for interaction of lymphocytes with antigens

153. Biological response modifiers used in the treatment of cancer

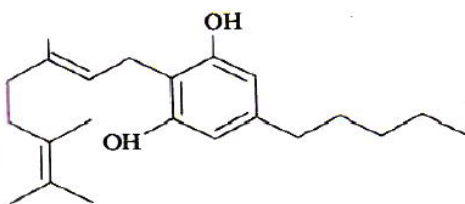
- 1) Vincristin
- 2) α – interferons
- 3) cyclosporine
- 4) corticosteroids

154. Cells that display foreign antigens coupled to MHC II molecules on their surface include

- 1) macrophages
- 2) dendritic cells



- 3) B cells
4) all of the above
- 155.** Sarcoma is related to the cancer of
- 1) connective and muscular tissue
 - 2) epithelial tissue
 - 3) bones
 - 4) adipose tissue
- 156.** Lymphocytes that assist in the regulation and coordination of the immune response are
- 1) B cells
 - 2) NK and B cells
 - 3) helper T cells
 - 4) plasma cells
- 157.** Cancer is caused by all of the following except
- 1) Cellular oncogenes
 - 2) Tumour suppressor genes
 - 3) Viral oncogenes
 - 4) Chemical carcinogens
- 158.** Specific antibodies are released into body fluids by
- 1) B-cells
 - 2) T-cells
 - 3) memory cells
 - 4) plasma cells
- 159.** Which of these is a member of the group of chemicals whose chemical structure is given below?



- 1) marijuana
 - 2) hashish
 - 3) ganja
 - 4) all of these
- 160.** T-cells detect antigens
- 1) inside nucleus
 - 2) on the cell surface
 - 3) inside cytoplasm
 - 4) on nuclear membrane
- 161.** Find the wrong match
- 1) Benign tumor – Cancerous

- 2) Carcinoma in situ – Not yet metastasized
 - 3) Malignant tumour – Neoplastic
- 162.** Antigens may be large molecules of
- 1) proteins
 - 2) carbohydrates
 - 3) lipoproteins
 - 4) all of these
- 163.** The blue baby's syndrome results from
- 1) excess of TDS (total dissolved solids)
 - 2) excess of chloride
 - 3) methaemoglobin
 - 4) excess if dissolved oxygen.
- 164.** For a disease do develop in the body the correct sequence of components of immune system that should fail to work effectively are
- A) skin → fever → B cells → antibodies → macrophage
 - B) mucous membrane → NK cells → B cells → antibodies → T. Cells
 - C) Tears → B cells → macrophages → antibodies → saliva
 - D) Skin → inflammation → phagocytic cell → B cell → antibodies
- 165.** Which part of the brain is involved in loss of control when a person drinks alcohol
- 1) Cerebellum
 - 2) Cerebrum
 - 3) Thalamus
 - 4) Pons varolli
- 166.** Hole forming proteins called perforins are produced by
- 1) helper T cells
 - 2) regulatory cells
 - 3) cytotoxic T cells
 - 4) all of these
- 167.** Match the pair of the drug and its effect?
- | | |
|-------------------------------------|---|
| 1) Amphetamines | - CNS stimulants |
| 2) Lysergic acid diethylamide (LSD) | -Psychedelic (hallucinogen) |
| 3) Heroin | - Depressant, slows down body functions |
| 4) Barbiturates | -Tranquilizer |



168. Study the following and choose correct ones

List – I	List – II	List – III
I) interleukin	virus infected cells	differentiates immune cells
II) gamma interferons	Tc cells	activates Tc cells
III) CTLs	Effector cells	kills tum or cells
IV) T _H cells	CD ₄ + cells	recognizes antigens bound to MHCII

- 1) only III and IV
- 2) only I and III
- 3) only II and IV
- 4) only I and II

169. The chronic use of drugs and alcohol results in

- 1) excess mucous and blood clots
- 2) internal bleeding and muscular pain
- 3) cirrhosis and nervous system damages
- 4) leukaemias and lymphomas

170. The primary and secondary immune responses are carried out with the help of

- 1) B-lymphocytes and T-lymphocytes
- 2) Natural killer cells and macrophages
- 3) macrophages and interferons
- 4) natural killer cells and interferons

171. MALT constitutes about ... percent of the lymphoid tissue in human body

- 1) 20%
- 2) 70%
- 3) 10%
- 4) 50%

172. Lymphocytes that inhibit the development and proliferation of T and B cell are

- 1) B cells
- 2) suppressor T cells
- 3) macrophages
- 4) neutrophils

173. HIV that causes AIDS first starts destroying:

- 1) Thrombocyte
- 2) B-lymphocytes
- 3) Leucocytes
- 4) Helper T-lymphocytes

174. Match the following

List –I	List - II
A) mononuclear phagocytes	1) neutrophils
B) antigen presenting cell	2) synovial cells
C) polymorpho nuclear phagocytes	mast cells
inflammatory mediators	dendritic cells

- 1) A-2, B-4, C-1, D-3
- 2) A-1, B-4, C-3, D-2
- 3) A-2, B-4, C-3, D-1
- 4) A-4, B-2, C-1, D-3

175. Widal test is carried out to test

- 1) Malaria
- 2) Diabetes mellitus
- 3) HIV/AIDS
- 4) Typhoid fever

176. Gamma interferons stimulate

- 1) Metastasis
- 2) Hypersensitivity
- 3) Fever response
- 4) Erythropoiesis

177. Cirrhosis of liver is caused by the chronic intake of

- 1) Opium
- 2) Alcohol
- 3) Tobacco (chewing)
- 4) Cocaine



178. Read the following and identify the correct answer

	Line of Defense		Type of Defense		Example
A	First line	P	Specific	W	Neutrophils
B	Second line	Q	Non-specific	X	Lysozyme
C	Third line			Y	Natural Killer cells
				Z	B-Lymphocytes

- 1) A-Q-W
- 2) B-Q-W-Y
- 3) C-P-Y-Z
- 4) B-P-Y

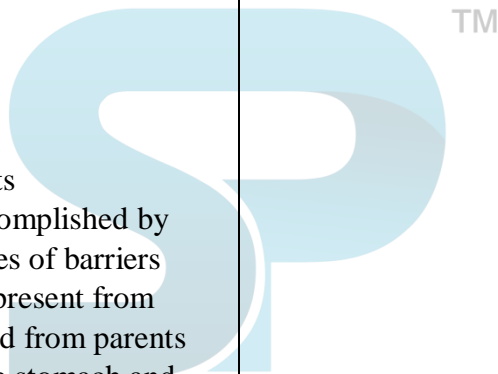
179. A certain patient is suspected to be suffering from Acquired Immuno Deficiency Syndrome. Which diagnostic technique will you recommend for its detection?

- 1) ELISA
- 2) MRI
- 3) Ultra sound
- 4) WIDAL

180. Choose the true statements

- I. Innate immunity is accomplished by providing different types of barriers
- II. Acquired immunity is present from the birth and is inherited from parents
- III. Sweat, tears, acid in the stomach and saliva prevent microbial growth

- 1) I, III
- 2) II, III
- 3) I, II
- 4) All





PHYSICS

1 - 10	4	3	3	1	1	1	3	1	2	3
11 - 20	2	2	1	1	2	4	4	2	2	2
21 - 30	1	2	1	2	4	2	4	2	4	1
31 - 40	1	4	4	3	2	4	1	3	3	3
41 - 45	1	2	4	4	2					

CHEMISTRY

46 - 50						2	2	4	4	4
51 - 60	1	1	4	3	2	2	3	4	3	2
61 - 70	1	4	3	1	2	3	3	3	2	1
71 - 80	2	2	4	1	3	1	4	4	1	2
81 - 90	4	2	3	1	4	1	3	2	3	2

BOTANY

91 - 100	3	2	3	3	3	3	1	3	1	1
101 - 110	2	1	2	3	3	2	4	3	2	1
111 - 120	2	1	2	4	3	4	2	2	4	1
121 - 130	1	1	1	4	2	4	4	3	2	1
131 - 135	4	3	1	4	2					

ZOOLOGY

136 - 140						3	1	4	4	4
141 - 150	3	1	4	3	1	1	2	3	4	4
151 - 160	1	2	2	4	1	3	2	4	1	2
161 - 170	1	4	3	4	1	3	3	1	3	1
171 - 180	4	2	4	1	4	3	2	1	1	2

TM