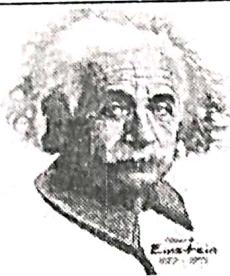


प्रा. मोटेगावकर सरांचे



"Education is not the learning of facts, but the training of the mind to think."

—Albert Einstein

Mark
720

Group
PCB

Repeater NEET (2025-26) PCB Test

Date : 06/07/2025
Time : 3.00 Hrs

Physics - 45

Chemistry - 45

Biology - 90

Question Booklet Version

11

(Write this number on your Answer Sheet)

Roll Number

Question Booklet Sr. No.

• Today's Test Syllabus •

Physics : Basic Math + TPM + Scalars & Vectors

Chemistry : GOC-I + Atomic Structure

Biology : Biological Classification + Plant Kingdom + Circulation

SECTION 'A' PHYSICS

01. $\sin(270^\circ + \theta)$ is equal to

- 1) $\cos\theta$
- 2) $-\cos\theta$
- 3) $\sin\theta$
- 4) $-\sin\theta$

02. Approximate value of $\sin 1^\circ \cos 1^\circ$

- 1) $\frac{\pi}{180}$
- 2) $\frac{\pi}{90}$
- 3) $\frac{\pi}{45}$
- 4) $\frac{\pi}{60}$

03. $\sin^2 15^\circ + \cos^2 25^\circ + \cos^2 15^\circ + \sin^2 25^\circ = ?$

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

04. What is the distance between two points (3,1) and (4, 4) ?

- 1) $\sqrt{10}$
- 2) $\sqrt{5}$
- 3) $\sqrt{11}$
- 4) $\sqrt{12}$

05. Final Approximate value of $(1.002)^3$

- 1) 1.006
- 2) 1.008
- 3) 1.004
- 4) 1.002

06. Value of $(1+x^2)^{-\frac{5}{2}}$ for $|x| \ll 1$

- 1) $1 - \frac{5}{2}x^2$
- 2) $1 + \frac{5}{2}x^2$
- 3) $1 - \frac{2}{5}x^2$
- 4) $1 + \frac{2}{5}x^3$

07. What is the slope of a vertical line

- 1) 0
- 2) ∞
- 3) 1
- 4) -1

08. $\sin 100^\circ$ can be represented as

- 1) $2\cos^2 50^\circ - 1$
- 2) $1 - 2\sin^2 50^\circ$
- 3) $\cos^2 50^\circ - \sin^2 50^\circ$
- 4) $2\sin 50^\circ \cos 50^\circ$

09. If $\theta = 120^\circ$, then

- 1) $\sin \theta = \frac{\sqrt{3}}{2}$
- 2) $\cos \theta = \frac{1}{2}$
- 3) $\cot \theta = \frac{1}{2}$
- 4) $\tan \theta = \sqrt{3}$

10. If a point lies on the x-axis, what is its y-coordinate?

- 1) 1
- 2) 0
- 3) -1
- 4) 5

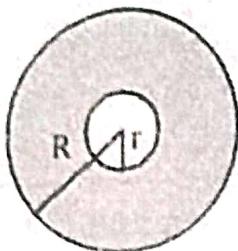
11. What is the temperature at which the Fahrenheit reading is double that of the Celsius reading ?

- 1) 320°F
- 2) 300°F
- 3) 373°F
- 4) None

QUESTION BOOKLET VERSION : 11

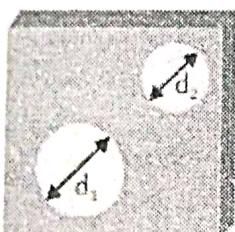
- QUESTION BOOKLET VERSION :11

12. A circular metallic disc of radius R has a small circular cavity of radius r as shown in figure. On heating the system :



- 1) R increases and r decreases
 2) R decreases and r increases
 3) Both R and r increases
 4) Both R and r decreases

13. Two holes of unequal diameters d_1 and d_2 ($d_1 > d_2$) are cut in a metal sheet. If the sheet is heated



- 1) both d_1 and d_2 will decrease
2) both d_1 and d_2 will increase
3) d_1 will increase, d_2 will decrease
4) d_1 will decrease, d_2 will increase

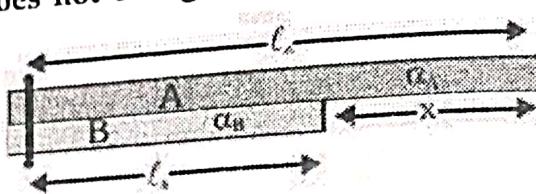
14. A beaker is completely filled with water at 4°C . It will overflow if

1) heated above 4°C
2) cooled below 4°C
3) both (1) & (2)
4) none of the above

BCC BCC** BCC** BCC** BCC** BCC** BCC** BCC** BCC** BCC** BCC****

- RCC**

15. Bars of two different metals are bolted together, as shown in figure. The distance x does not change with temperature if



$$1) \frac{\ell_A}{\ell_B} = \frac{\alpha_A}{\alpha_B}$$

$$2) \frac{\ell_A}{\ell_B} = \frac{\alpha_B}{\alpha_A}$$

$$3) \frac{\ell_A^2}{\ell_B^2} = \frac{\alpha_A}{\alpha_B}$$

$$4) \frac{\ell_A^2}{\ell_B^2} = \frac{\alpha_B}{\alpha_A}$$

16. On a 'X' temperature scale, water freezes at -125.0° X and boils at 375.0° X. On a 'Y' temperature scale, water freezes at -70.0° Y and boils at -30.0° Y. The value of temperature on X-scale equal to the temperature of 50.0° Y on Y-scale is

- 1) 455.0°X 2) -125.0°X
3) 1375.0°X 4) 1500.0°X

17. If celsius temperature scale shows temperature of air 30°C . Find the temperature of air in fahrenheit & kelvin.

- 1) 90°F, 303 K
 - 2) 86°F, 300 K
 - 3) 86°F, 303 K
 - 4) 90°F, 303 K

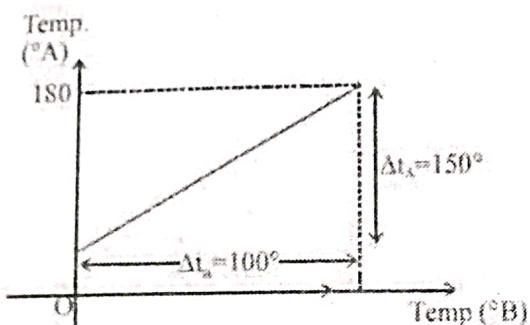
18. Two thermometers 'X' & 'Y' shows boiling point & freezing point of water as 220°X & 20°X and 120°Y & -40°Y respectively. If 'X' shows 100°X , then find the reading in 'Y' thermometer.

- 1) 25°Y
 - 2) 50°Y
 - 3) 20°Y
 - 4) 24°Y

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19. The graph between two temperature scales A & B is shown between upper fixed point and lower fixed point. There are 150 divisions on scale A and 100 divisions on scale B. Then, relationship for conversion between two scales is given by:-



$$1) \frac{t_A - 180}{100} = \frac{t_B}{150} \quad 2) \frac{t_A - 30}{150} = \frac{t_B}{100}$$

$$3) \frac{t_A - 180}{150} = \frac{t_A}{100} \quad 4) \frac{t_B - 40}{100} = \frac{t_A}{100}$$

20. A liquid with coefficient of volume expansion γ is filled in a container of material having coefficient of linear expansion α . If liquid overflows on heating then.

- 1) $\gamma = 3\alpha$ 2) $\gamma > 3\alpha$
3) $\gamma < 3\alpha$ 4) $\gamma > 3\alpha$

21. The apparent coefficient of expansion of a liquid when heated in a copper vessel is C and when heated in a silver vessel is S. If A is the coefficient of linear expansion of copper, the coefficient of linear expansion of silver is

$$1) \frac{C+S-3A}{3} \quad 2) \frac{C+3A-S}{3}$$

$$3) \frac{S+3A-C}{3} \quad 4) \frac{C+S+3A}{3}$$

22. A faulty thermometer reads freezing point and boiling point of water as -5°C and 95°C respectively. What is the correct value of temperature as it reads 60°C on faulty thermometer?

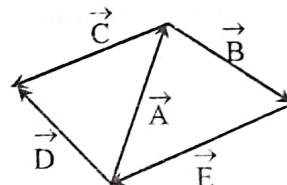
- 1) 60°C 2) 65°C
3) 64°C 4) 62°C

23. A steel scale is to be prepared such that the millimeter intervals are to be accurate within 6×10^{-5} mm. The maximum temperature variation during the ruling of the millimeter marks is ($\alpha = 12 \times 10^{-6} \text{ }^\circ\text{C}^{-1}$)

- 1) 4.0°C 2) 4.5°C
3) 5.0°C 4) 5.5°C .

24. A meter washer has a hole of diameter d_1 and external diameter d_2 , where $d_2 = 3d_1$. On heating, d_2 increases by 0.3%. Then d_1 will
1) decrease by 0.1% 2) decrease by 0.3%
3) increase by 0.1% 4) increase by 0.3%

25. For figure the correct relation is-



- 1) $\vec{A} + \vec{B} + \vec{E} = 0$ 2) $\vec{C} - \vec{D} = -\vec{A}$
3) $\vec{B} + \vec{E} - \vec{C} = -\vec{D}$ 4) all of the above.

26. The angle between the two vectors $-2\hat{i} + 3\hat{j} + \hat{k}$ and $\hat{i} + 2\hat{j} - 4\hat{k}$ is -

- 1) 0° 2) 90°
3) 180° 4) None

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QUESTION BOOKLET VERSION : 11

38. Find value of $\sin^2 15^\circ + \cos^2 15^\circ = ?$

- 1) 1 2) -1
3) 2 4) 0

39. Find value of $\sin 750^\circ$

- 1) $\frac{\sqrt{3}}{2}$ 2) $\frac{-\sqrt{3}}{2}$ 3) $\frac{-1}{2}$ 4) $\frac{1}{2}$

40. $\sin(A+B) + \sin(A-B)$

- 1) $2\sin A \cos B$ 2) $-2\sin A \cos B$
3) $2\cos A \sin B$ 4) $-2\cos A \sin B$

41. Two metal rods of the same length and area of cross-section are fixed ends to end between rigid supports. The materials of the rods have Young moduli Y_1 and Y_2 , and coefficients of linear expansion α_1 and α_2 . When rods are cooled the junction between the rods does not shift if :

- 1) $Y_1 \alpha_1 = Y_2 \alpha_2$ 2) $Y_1 \alpha_2 = Y_2 \alpha_1$
3) $Y_1 \alpha_1^2 = Y_2 \alpha_2^2$ 4) $Y_1^2 \alpha_1 = Y_2^2 \alpha_2$

42. A steel rod of length 1 m is heated from 25°C to 75°C keeping its length constant. The longitudinal strain developed in the rod is:-
(Given: Coefficient of linear expansion of steel

$$= 12 \times 10^{-6}/^\circ\text{C}$$

- 1) 6×10^{-6} 2) -6×10^{-5}
3) -6×10^{-4} 4) zero

43. A brass disc fits simply in a hole of a steel plate. The disc from the hole can be loosened if the system ($\alpha_{\text{brass}} > \alpha_{\text{steel}}$)

- 1) First heated then cooled
2) First cooled then heated
3) Is heated
4) Is cooled

44. Let the angle between two non zero vectors

 \vec{A} and \vec{B} be 120° and its resultant be \vec{C} .

- (a) C must be equal to $|\vec{A} - \vec{B}|$
(b) C must be less than $|\vec{A} - \vec{B}|$
(c) C must be greater than $|\vec{A} - \vec{B}|$
(d) C may be equal to $|\vec{A} - \vec{B}|$

then the correct statement is -

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

45. If vectors $\vec{A} = \hat{i} + 2\hat{j} + 4\hat{k}$ and $\vec{B} = 5\hat{i}$ represent the two sides of a triangle, then the third side of the triangle has length equal to -

- 1) $\sqrt{56}$ 2) $\sqrt{21}$
3) 5 4) 6

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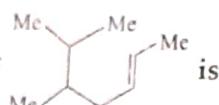
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QUESTION BOOKLET VERSION : 11
SECTION 'B' CHEMISTRY

46. How many sp^3 , sp^2 , sp hybridised carbon atoms are present in given below compound

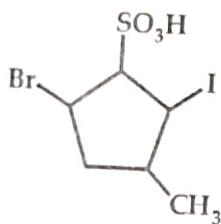


sp^3	sp^2	sp
1) 2	2	0
2) 1	3	0
3) 0	3	1
4) 1	2	1

47. The IUPAC name of  is

- 1) 5-isopropylhex-2-ene
- 2) 5,6-dimethylhept-2-ene
- 3) 5,6-dimethylhept-3-ene
- 4) 2,3-dimethylhept-5-ene

48. The correct IUPAC name of the compound is

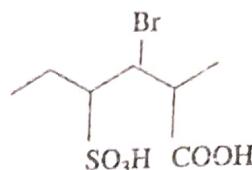


- 1) 2-Iodo-3-methyl-5-bromocyclo pentane sulphonic acid
- 2) 5-Bromo-4-methyl-5-iodocyclo pentane sulphonic acid
- 3) 5-Bromo-3-iodo-2-methylcyclo pentane sulphonic acid
- 4) 5-Bromo-2-ido-3-methylcyclopentane sulphonic acid

49. The IUPAC name of  is :-

- 1) 2,3-Dimethyl hexane
- 2) 2-Ethyl-4-methyl pentane
- 3) 3-Ethyl -2-methyl pentane
- 4) 2,4-Dimethyl hexane

50. Give the IUPAC name of following compound

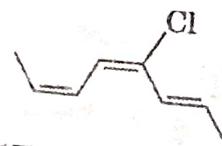


- 1) 2-Methyl-3-bromo-4-sulphohexanoic acid
- 2) 3-bromo-2-methyl-4-sulphohexanoic acid
- 3) 4-Bromo-5-carboxyhexane-3-sulphonic acid
- 4) 5-Carboxy-4-bromohexane-3-sulphonic acid

51. The IUPAC name of  is

- 1) 5-Bromospiro[2.5]octa-1,7-diene
- 2) 1-Bromospiro[2.5]octa-4,7-diene
- 3) 8-Bromospiro[2.5]octa-1,4-diene
- 4) 4-Bromospiro[2.5]octa-1,7-diene

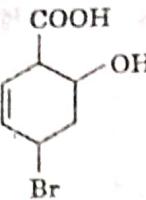
52. What is the correct IUPAC name of the following compound ?



- 1) (2E, 4Z, 6Z)-4-chloro oct-2, 4, 6-triene
- 2) (2Z, 4E, 6E)-5-chloro oct-2, 4, 6-triene
- 3) (2E, 4E, 6Z)-4-chloro oct-2, 4, 6-triene
- 4) (2Z, 4Z, 6E)-5-chloro oct-2, 4, 6-triene

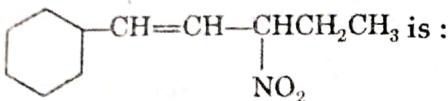
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53. Which is correct IUPAC name of ?



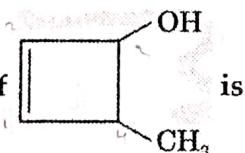
- 1) 4-bromo-2-hydroxy cyclohex-5-ene-1-oic acid
- 2) 4-bromo-2-hydroxy cyclohex-5-ene-1-carboxylic acid
- 3) 4-bromo-6-hydroxy cyclohex-2-ene-1-carboxylic acid
- 4) 4-bromo-6-hydroxy cyclohex-2-ene-1-oic acid

54. The IUPAC name of



- 1) 1-cyclohexyl-3-nitropent-1-ene
- 2) 3-nitro-5-cyclohexylpent-1-ene
- 3) 1-cyclohexyl-3-ethyl-3-nitroprop-1-ene
- 4) 3-cyclohexyl-1-ethyl-1-nitroprop-2-ene

55. The IUPAC name of

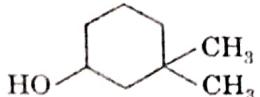


- 1) 3-methyl cyclobut-1-ene-2-ol
- 2) 4-methyl cyclobut-2-ene-1-ol
- 3) 4-methyl cyclobut-1-ene-3-ol
- 4) 2-methyl cyclobut-3-ene-1-ol

56. The IUPAC name of $\text{CH}_3-\overset{\text{O}}{\underset{\text{O}}{\text{C}}}-\text{O}-\text{CH}_2-\overset{\text{O}}{\underset{\text{O}}{\text{C}}}-\text{OH}$ is

- 1) 1-acetoxy acetic acid
- 2) 2-acetoxy ethanoic acid
- 3) 2-methoxycarbonyl ethanoic acid
- 4) 2-ethanoyloxyethanoic acid

57. The IUPAC name of the given compound is



- 1) 1,1-dimethyl-3-hydroxy cyclohexane
- 2) 3,3-dimethyl-1-hydroxy cyclohexane
- 3) 3,3-dimethylcyclohexanol
- 4) 1,1-dimethylcyclohexan-3-ol

58. Match the following columns :

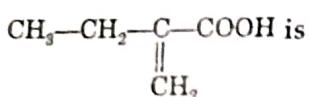
Column-I (Wrong IUPAC name)	Column-II (Reason)
a) $\text{CH}_3-\text{CH}_2-\overset{\text{CN}}{\underset{ }{\text{CH}}}-\text{CH}_2-\text{CH}_3$ Pentane-3-cyanide	p) Numbering of selected carbon chain is wrong
b) $\text{CH}_2=\overset{\text{Br}}{\underset{\text{Cl}}{\text{C}}}-\text{CH}-\text{CH}_3$ 2-chloro-2-bromo-3-butene	q) Selection of carbon chain is wrong
c)	r) Selection of principal functional group is wrong
d)	s) Alphabetic order is not considered for writing the name

- 1) (a-p); (b-p, s); (c-p); (d-q)
- 2) (a-p, s); (b-q); (c-p); (d-p)
- 3) (a-q); (b-p, s); (c-p); (d-p)
- 4) (a-p, s); (b-p); (c-q); (d-p)

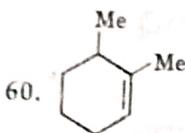
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59. The correct IUPAC name of



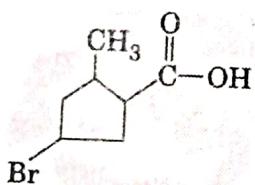
- 1) 2-methyl butanoic acid
- 2) 2-ethylprop-2-enoic acid
- 3) 2-carboxybutene
- 4) None of the above



60. IUPAC name of this compound is

- 1) 1,2-dimethyl cyclohex-2-ene
- 2) 1,2-dimethyl cyclohex-1-ene
- 3) 2,3-dimethyl cyclohex-1-ene
- 4) 1,6-dimethyl cyclohex-1-ene

61. The IUPAC name of the following compound is



- 1) 4-Bromo-2-methylcyclopentane carboxylic acid
- 2) 5-Bromo-3-methylcyclopentanoic acid
- 3) 3-Bromo-5-methylcyclopentane carboxylic acid
- 4) 3-Bromo-5-methylcyclopentanoic acid

62. IUPAC name of the compound is

- 1) 3-ethyl-5-methyl phenol
- 2) 5-methyl-3-ethyl phenol
- 3) 5-methyl-3-ethyl cyclohexanol
- 4) 3-ethyl-5-methyl cyclohexanol

63. Mesityl oxide is a common name of

- 1) 2,4-Dimethyl pentan-3-one
- 2) 3-Methyl cyclohexane carbaldehyde
- 3) 2-Methyl cyclohexanone
- 4) 4-Methyl pent-3-en-2-one

64. In $\text{CH}_2=\overset{2}{\text{C}}(\text{Me})=\overset{3}{\text{CH}}(\text{Me})=\overset{4}{\text{CH}_3}$ molecule, the hybridization of carbon 1, 2, 3 and 4 respectively are :

- 1) $\text{sp}^3, \text{sp}, \text{sp}^3, \text{sp}^3$
- 2) $\text{sp}^2, \text{sp}^2, \text{sp}^2, \text{sp}^3$
- 3) $\text{sp}^2, \text{sp}, \text{sp}^2, \text{sp}^3$
- 4) $\text{sp}^2, \text{sp}^3, \text{sp}^2, \text{sp}^3$

65. compound has :

- 1) 7π bond
- 2) Degree of unsaturation is 10
- 3) 3° Hydrogen
- 4) Four 3° carbon

66. Give IUPAC name of the following compound



- 1) 3, 3-diethenyl pent-1-ene
- 2) 3,3-diethenyl pent-4-ene
- 3) 3-ethenyl-3-ethyl penta-1, 4-diene
- 4) 3,3,3-triethenyl propane

67. Correct name for $(\text{C}_2\text{H}_5)_2\text{C} = \text{C}(\text{CH}_3)\text{CH}_2\text{CO}_2\text{H}$ is

- 1) 4,4-diethyl-3-methyl-3-butenoic acid
- 2) 4-ethyl-3-methyl-3-hexenoic acid
- 3) 3-ethyl-4-methyl-3-hexenoic acid
- 4) 3-ethyl-4-methyl-3-hexene-6-oic acid

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QUESTION BOOKLET VERSION :11

RCC

<p>68. An ion with mass number 56 contains 3 units of positive charge and 30.4% more neutrons than electrons. Assign the symbol to this ion</p> <p>1) $^{55}_{26}Fe^{3+}$ 2) $^{57}_{26}Fe^{3+}$ 3) $^{59}_{26}Fe^{3+}$ 4) $^{56}_{26}Fe^{3+}$</p>	<p>73. The energy per quantum associated with light of wave length 250×10^{-9} m is</p> <p>1) 7.95×10^{-19} J 2) 7.95×10^{-26} J 3) 3.93×10^{-26} J 4) 3.93×10^{-19} J</p>
<p>69. Which of the following statements is not correct regarding electromagnetic spectrum?</p> <p>1) The velocity of X-rays is more than that of microwaves 2) Infra-red radiations have larger wavelength than cosmic rays 3) The frequency of microwaves is less than that of ultra - violet rays 4) X-rays have larger wave number than micro waves</p>	<p>74. The kinetic energy of electrons ejected by using light having frequency equal to threshold frequency (v_0) is :</p> <p>1) hv_0 2) Almost zero 3) Very large 4) h/v_0</p>
<p>70. Light of certain wavelength strikes on a metal surface with intensity x and the metal emits y electrons per second of average energy, z. What will happen to y and z if x is doubled?</p> <p>1) y will be doubled and z will become half 2) y will remain same and z will be doubled 3) Both y and z will be doubled 4) y will be doubled but z will remain same</p>	<p>75. The characteristic not associated with Planck's theory is :</p> <p>1) Radiations are associated with energy 2) The magnitude of energy associated with a quantum is proportional to frequency 3) Radiation energy is neither emitted nor absorbed continuously. 4) Radiation energy is neither emitted nor absorbed discontinuously</p>
<p>71. Suppose 10^{-17} J of energy is needed by the interior of human eye to see an object. How many photons of green light ($\lambda = 550 nm$) are needed to generate this minimum amount of energy?</p> <p>1) 14 2) 28 3) 39 4) 42</p>	<p>76. Ultraviolet light of 6.2 eV falls on Caesium surface (work function = 1.2 eV). The kinetic energy (in electron volts) of the fastest electron emitted is approximately</p> <p>1) 5 eV 2) 4 eV 3) 3 eV 4) 2 eV</p>
<p>72. The frequency of a wave light is 1.0×10^6 sec⁻¹. The wave length for this wave is</p> <p>1) 3×10^4 cm 2) 3×10^{-4} cm 3) 6×10^4 cm 4) 6×10^6 cm</p>	<p>77. The time period of a light is 2.0×10^{-10} S. The wavelength for this wave is</p> <p>1) 0.06m 2) 6m 3) 0.03m 4) 0.3m</p>
	<p>78. The spectrum of radiation emitted by a substance after absorbing energy is called</p> <p>1) Absorption spectrum 2) Emission spectrum 3) White light spectrum 4) None of the above</p>

Space For Rough Work

QUESTION BOOKLET VERSION : 11

79. Bohr's atomic model suggest that

- 1) Electrons have a particle as well as wave character
- 2) Atomic spectrum of atom should contain only five lines
- 3) Electron on hydrogen atom can have only certain values of angular momentum
- 4) All of the above

80. The series of lines appearing in UV region of electromagnetic spectrum of hydrogen is called

- 1) Braket series 2) Pfund series
- 3) Lyman series 4) Paschen series

81. The emission spectrum of hydrogen discovered first and the region of the electromagnetic spectrum in which it belongs, respectively are

- 1) Lyman, ultraviolet
- 2) Lyman visible
- 3) Balmer, ultraviolet
- 4) Balmer, visible

82. According to Bohr's theory, which of the following correctly represents the variation of energy and radius of an electron in n^{th} orbit of H-atom ?

- 1) $E_n \propto \frac{1}{n^2}$, $r \propto \frac{1}{n^2}$
- 2) $E_n \propto \frac{1}{n^2}$, $r \propto n^2$
- 3) $E_n \propto n^2$, $r \propto n^2$
- 4) $E_n \propto n$, $r \propto \frac{1}{n}$

83. The energy of electron in the n^{th} Bohr orbit of H-atom is

- 1) $\frac{-13.6}{n^2} \text{ eV}$
- 2) $\frac{-13.6}{n} \text{ eV}$
- 3) $\frac{-13.6}{n^4} \text{ eV}$
- 4) $\frac{-13.6}{n^3} \text{ eV}$

84. When an electron revolves in a stationary orbit then

- 1) It absorbs energy
- 2) It gains kinetic energy
- 3) It emits radiation
- 4) Its energy remains constant

85. Assertion : Line emission spectra useful in the study of atomic structure.

Reason : Each element has a unique line emission spectrum.

- 1) If both A and R are correct and R is correct explanation of A
- 2) If both A and R are correct but R is not correct explanation of A
- 3) If A is correct but R is wrong
- 4) If A and R both are wrong

86. When the electron of a hydrogen atom jumps from $n = 4$ to $n = 1$ state, the number of spectral lines emitted is

- 1) 15
- 2) 9
- 3) 6
- 4) 3

87. According to Bohr's theory, which one of the following values of angular momentum of hydrogen atom is not permitted.

- 1) $\frac{1.25h}{\pi}$
- 2) $\frac{h}{\pi}$
- 3) $\frac{1.5h}{\pi}$
- 4) $\frac{0.5h}{\pi}$

88. Which of the following transitions highest energy is absorbed in H-atom.

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

Space For Rough Work

QUESTION BOOKLET VERSION : 11

89. The energy of electron in hydrogen atom in its ground state is – 13.6 eV. The energy of the level corresponding to the quantum number equal to 5 is

1) – 0.54 eV 2) – 0.85 eV
 3) – 0.64 eV 4) – 0.40 eV

90. The radius of the second Bohr orbit, in terms of the Bohr radius, a_0 , in Li^{2+} is

1) $\frac{2a_0}{3}$ 2) $\frac{4a_0}{9}$
 3) $\frac{4a_0}{3}$ 4) $\frac{2a_0}{9}$

Space For Rough Work

QUESTION BOOKLET VERSION : 11

SECTION 'C' BIOLOGY

RCC

QUE
103.

91. In fern, fertilization does not involve

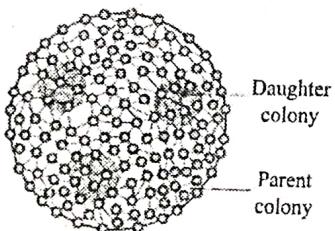
- 1) Archegonia
- 2) Water
- 3) Pollen tube
- 4) Flagellated antherozoids

92. Statement-I: The leaves in gymnosperms are well-adapted to withstand extreme temperature, humidity and wind.

Statement-II : Unlike bryophytes and pteridophytes in gymnosperms the male and female gametophytes do not have an independent free-living existence.

- 1) Both statements are correct.
- 2) Both statements are incorrect.
- 3) Statement-I is correct & Statement-II is incorrect
- 4) Statement-I is incorrect & Statement-II is correct

93. Algae given in the figure is related to which class?



- 1) Phaeophyceae
- 2) Rhodophyceae
- 3) Chlorophyceae
- 4) Cyanophyceae

94. Statement-I: Agar is used in preparation of ice-creams.

Statement-II : Agar is obtained from red algae.

- 1) Both statements are correct.
- 2) Both statements are incorrect.
- 3) Statement-I is correct & Statement-II is incorrect
- 4) Statement-I is incorrect & Statement-II is correct

95. Which one of the following is not an ecological importance of moss plants?

- 1) Some mosses provide food for herbaceous mammals birds and other animals.
- 2) Very high water holding capacity of mosses is useful for trans-shipment of living materials
- 3) Mosses along with lichens are the pioneering organism to colonise rocks
- 4) Mosses form dense mats on the soil and reduce the impact of falling rain

96. Which one is correct about *Marchantia*?

- 1) Plant body is monoecious or dioecious.
- 2) Sporophyte is not differentiated into foot, seta and capsule.
- 3) Spore germinates to produce gametophyte.
- 4) All of these

97. In which of the following, all listed genera belong to the same class of algae

- 1) *Porphyra*, *Ectocarpus*, *Ulothrix*
- 2) *Volvox*, *Spirogyra*, *Chlamydomonas*
- 3) *Chara*, *Fucus*, *Polysiphonia*
- 4) *Sargassum*, *Laminaria*, *Gracilaria*

98. Pyrenoids are made up of

- 1) core of fats surrounded by sheath of protein.
- 2) core of protein surrounded by fatty sheath.
- 3) proteinaceous centre and starchy sheath.
- 4) core of nucleic acid surrounded by protein sheath.

99. In mosses gametophyte has two stages. What are these stages?

- 1) First stage is sporogonium phase and second is protonema.
- 2) First stage is protonema and the second is leafy.
- 3) First stage is gemmae formation and second is meiosis.
- 4) First stage is zygote and second is spore mother cell.

100. The spores and gametes of red algae are

- 1) motile and non-motile.
- 2) both non-motile.
- 3) both non-motile.
- 4) motile spores and non-motile gamete.

101. Natural system of classification is based on

- 1) ontogeny.
- 2) phylogeny.
- 3) morphology.
- 4) morphology and affinities.

102. If the haploid number of chromosomes in gymnosperms (*Pinus*) is 12, what will be the number of chromosomes in its root and endosperm?

- 1) 12 and 12
- 2) 12 and 24
- 3) 24 and 12
- 4) 24 and 36

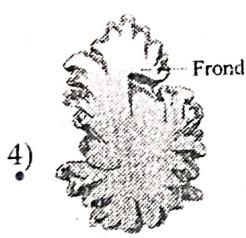
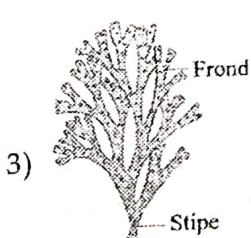
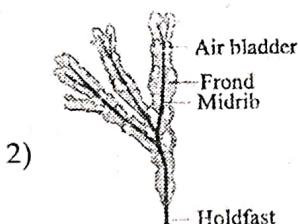
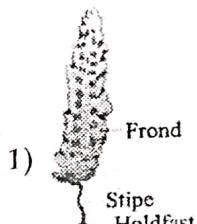
103. Main plant body in pteridophyte is

- 1) sporophyte (2n) having no root, stem and leaf.
- 2) gametophyte (n) having root, stem and leaf.
- 3) gametophyte (n) having no root, stem and leaf.
- 4) sporophyte (2n) having true root, stem and leaf.

104. Which of the following are correct for gymnosperms?

- a) They have adventitious root system.
 - b) The leaves in gymnosperms can withstand extreme of temperature, humidity and wind.
 - c) Microspores are produced in microsporangia.
 - d) They include medium or tall sized trees and shrubs.
- 1) (a) and (c)
 - 2) (a), (b) and (c)
 - 3) (b), (c) and (d)
 - 4) (a) and (d)

105. All belong to Phaeophyceae, except



106. Which of the following matched incorrectly?

- | | |
|------------|-------------------|
| 1) Pinus | - Coralloid root |
| 2) Sequoia | - Tap root |
| 3) Cycas | - Unbranched stem |
| 4) Cedrus | - Branched stem |

107. Botanical snakes are

- 1) algae.
- 2) fungi.
- 3) pteridophytes.
- 4) gymnosperms.

108. Pteridophytes have

- 1) small microphyllous leaves.
- 2) large macrophyllous leaves.
- 3) both microphyllous as well as macrophyllous leaves in some of the ferns.
- 4) All of these.

109. Which one is correct about *Pinus*?

- | | |
|---------------|---|
| 1) Monoecious | - Male (microsporangiate) and female (megasporangiate) cones are produced on same plant |
| 2) Monoecious | - Male and female sporophylls borne on same strobilus |
| 3) Dioecious | - Male and female cones are produced on different plants |
| 4) Monoecious | - Micro and megasporocarp develop on same plant |

110. Algae occur [New/Old NCERT Page 24/30]

- 1) In aquatic habitat
- 2) On moist stone, soil, and wood
- 3) In association with fungi and animals
- 4) All of these

111. Given below are reproductive structures of Cycas. Select the correct sequence w.r.t. their occurrence in the leaf cycle.

- A. Ovule
 - B. Megaspore mother cell
 - C. Megasporophyll
 - D. Endosperm
 - E. Megaspore
- 1) A → C → B → E → D
 - 2) C → A → B → D → E
 - 3) C → A → B → E → D
 - 4) A → D → C → B → E

112. Red algae can reach the maximum depth in sea where no other photosynthetic forms grow

- 1) Due to presence of r-phycoerythrin
- 2) Due to presence of chlorophyll-d
- 3) Due to absence of motile spore and gametes
- 4) Due to deposition of hydrocolloids on its cell wall

Column-I		Column-II	
a.	Algin	i.	Very similar to amylopectin and glycogen
b.	Pyrenoid	ii.	Leaf-like photosynthetic organ
c.	Floridean starch	iii.	Protein besides starch
d.	Frond	iv.	Gelatinous coating

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

QUESTION BOOKLET VERSION : 11

- 114.** Complete the following chart by selecting the correct option for a fern.

Sporophyte → Sporophyll → Spore
germination → Prothallus → Gametes

A

- 1) Mitosis
- 2) Meiosis
- 3) Mitosis
- 4) Equational division

B

- Meiosis
- Mitosis
- Mitosis

- 115.** Read the following and choose the features related to *Marchantia*.

- A. Dioecious
 - B. Non-motile male gametes
 - C. Lack protonema stage
 - D. Independent sporophyte
- 1) A and B only
 - 2) B and D
 - 3) A and C only
 - 4) C and D

- 116.** Choose the incorrect statement.

- 1) Motile stage is absent in membrane of class Rhodophyceae.
- 2) Members of class Chlorophyceae have one or more pyrenoids in the chloroplast.
- 3) Reserve food material is very similar to amylopectin and glycogen in members of class Phaeophyceae.
- 4) Agar is used in the preparation of ice cream and jellies.

- 117.** How many of the following are correctly matched?

- i. *Ectocarpus* - Simple branched filamentous brown algae
- ii. *Sargassum* - Marine red algae -
- iii. *Volvox* - Colonial green algae -
- iv. *Chlorella* - Unicellular algae rich in proteins -
- v. *Chara* - Sex organs are multicellular and jacketed ✓

Choose the correct answer from the options given below.

- 1) Four
- 2) Three
- 3) Two
- 4) Five

- 118.** Select the correct statement about natural system of classification.

- 1) Consider one or two superficial characters of classification of organism.
- 2) Organisms are classified on the basis of natural affinities.
- 3) Linnaeus classified plants on the basis of androecium characteristics.
- 4) Considered fossil records in classification of organisms

- 119.** The given figure is associated with features like



- a) It depicts gametophyte of *Marchantia*.
- b) The thallus is dorsiventral and dichotomously branched.
- c) Rhizoids are multicellular and unbranched.
- d) Gemmae of gemma cup are non-green multicellular asexual reproductive structures.
- e) The sporophyte is not free living and is attached to photosynthetic gametophyte.

The correct set is

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

120. Bryophytes

- A. Have plant body more differentiated than that of algae.
- B. Usually occur in damp, humid, and shaded localities.
- C. Have dominant gametophytic phase in their life.

Choose the correct answer from the options given below:

- 1) Only (A) and (C)
- 2) Only (B) and (C)
- 3) Only (A) and (B)
- 4) All (A), (B), and (C)

121. Kelps are

- 1) Profusely branched green algae
- 2) Red algae which form massive plant bodies
- 3) Profusely branched brown algae which may reach a height of 100 m
- 4) Colonial marine red algae

122. Some characters are given below. Which of them are true for red algae?

- a. Greater concentration found in warmer areas.
- b. Reserve food material is present in the form of agar.
- c. Sexual reproduction may be isogamous, anisogamous, and oogamous.
- d. Complex post-fertilization development occurs.

Choose the correct answer from the options given below :

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

123. Read the following statements w.r.t. algae :

- i. A few freshwater forms of algae form massive plant bodies.
- ii. Vascular tissues are absent.
- iii. Most common asexual spore is zoospore.
- iv. Sexual reproduction can be isogamous, anisogamous, or oogamous.
- v. Embryo formation is seen in marine brown and red algae.

How many above given statements are correct?

- | | |
|---------|----------|
| 1) Two | 2) Three |
| 3) Four | 4) Five |

124. The pulmonary artery is connected to the aorta during foetal life by

- | | |
|------------------|----------------------|
| 1) Foramen ovale | 2) Ductus arteriosus |
| 3) Fossa ovalis | 4) Ductus venosus |

125. Select the incorrect statement from the following:

- 1) The wall of ventricles is thicker than the wall of atria.
- 2) Heart murmurs are heard using stethoscope in case of defective and leaky valves.
- 3) Contraction of right ventricle pump blood into systemic aorta.
- 4) All vertebrates have muscular chambered heart.

126. Select the wrong statement

- 1) Isogametes are similar in structure, function and behaviour.
- 2) Anisogametes differ either in structure, function or behaviour.
- 3) In Oomycetes female gamete is smaller and motile, while male gamete is larger and non-motile.
- 4) Chlamydomonas exhibits both isogamy and anisogamy and Fucus show oogamy.

127. Which of the following statements is incorrect?

- 1) Plant virus has single stranded RNA.
- 2) Animal virus has single and double strand RNA or dsDNA.
- 3) Unit which makes the protein coat of virus is called of peplomere.
- 4) Viroids discovered by Diener are made up of only free RNA.

128. Select the Incorrect statement.

- 1) Cuscuta is a parasitic plant.
- 2) Bladderwort and Venus fly trap are examples of insectivorous plants.
- 3) Plantae includes algae, bryophytes, pteriophytes, gymnosperms and angiosperms.
- 4) The mode of nutrition in plants is holozoic.

129. Which of the following statements is false about viruses?

- 1) Viruses are obligate parasites.
- 2) Viruses can multiply only when they are Inside the living cells.
- 3) Viruses cannot pass through bacterial proof filters.
- 4) Viruses are made up of protein and DNA or RNA (never both DNA and RNA).

130. Select the incorrect match.

Class	Member
1) Phycomycetes	<i>Albugo</i>
2) Basidiomycetes	<i>Claviceps</i>
3) Ascomycetes	<i>Penicillium</i>
4) Deuteromycetes	<i>Trichoderma</i>

131. Dikaryotic stage is a characteristic of

- 1) phycomycetes and ascomycetes.
- 2) ascomycetes and basidiomycetes.
- 3) phycomycetes and basidiomycetes.
- 4) basidiomycetes and deuteromycetes.

QUESTION BOOKLET VERSION : 11

132. Match Column-I and Column-II and choose the correct option.

Column I	Column II
a. Phycomycetes	i. <i>Agaricus, Ustilago</i>
b. Ascomycetes	ii. <i>Mucor, Rhizopus</i>
c. Deuteromycetes	iii. <i>Alternaria, Colletotrichum</i>
d. Basidiomycetes	iv. <i>Penicillium, Claviceps</i>

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

133. The protein coat of virus is made up of subunits

- 1) Capsid 2) Capsomeres
 3) Polypeptide 4) Glycocalyx

134. Statement I : Potato spindle tuber disease is caused by high molecular weight ssDNA molecule.

Statement II : Prions are infectious abnormally folded protein molecule which causes neurological diseases.

- 1) Both statement I and statement II are true.
 2) Both statement I and statement II are false.
 3) Statement I is true, but statement II is false.
 4) Statement I is false, but statement II is true.

135. Which of the following is a correct statement?

- 1) Slime moulds are saprophytic organisms classified under kingdom Monera.
 2) Mycoplasmas have DNA, ribosome, and cell wall.
 3) Cyanobacteria are a group of autotrophic organisms classified under kingdom Monera.
 4) Bacteria are exclusively heterotrophic organisms.

SECTION 'D' Biology

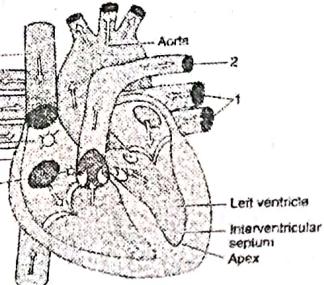
136. Read the following statements.

- i) The opening between the right atrium and the right ventricle is guarded by tricuspid valve.
 ii) Bicuspid or mitral valve guards the opening between the left atrium and the left ventricle.
 iii) The openings of the right and the left ventricles into the pulmonary artery and the aorta respectively are provided with the semilunar valves.
 iv) Only ventricle of heart is made of cardiac muscles.
 v) The walls of ventricles are much thicker than that of the atria.
 vi) A specialised cardiac musculature present in the right upper corner of the right atrium called the atrio-ventricular node (AVN).

Which option contain only wrong statement ?

- 1) (i), (ii) and (v) 2) (i), (ii) and (iii)
 3) (iv) and (vi) 4) (i), (ii), (iv), (v) and (vi)

137. Identify 1, 2, 3, 4 and 5 respectively in the given section of human heart.



- 1) Pulmonary veins, pulmonary artery, vena cava, SA node, AV node
 2) Pulmonary artery, pulmonary veins, vena cava, AV node, SA node
 3) Pulmonary artery, pulmonary veins, vena cava, SA node, AV node
 4) None of the above

138. Normal activities of the heart are regulated intrinsically, i.e., auto regulated by specialised muscles (nodal tissue), hence the heart is called myogenic. Read following statement and choose correct option for right statement ?

- i) Mass of this tissue is seen in the lower left corner of the right atrium close to the atrioventricular septum called the sino-atrial node (SAN).
 ii) A bundle of nodal fibres, atrioventricular bundle (AV bundle) continues from the AVN which passes through the atrio ventricular septa is known as bundle of His.
 iii) Bundle of His immediately divides into a right and left bundle which form Purkinje fibres.
 iv) The nodal musculature has the ability to generate action potentials without any external stimuli, i.e., it is autoexcitable.
 v) The SAN can generate the maximum number of action potentials, i.e., 90-95 min
 vi) Our heart normally beats 70-75 times in a minute (average 72 beats min I).

- 1) Three wrong 2) Four wrong
 3) Five right 4) Six right

QUESTION BOOKLET VERSION : 11

RCC

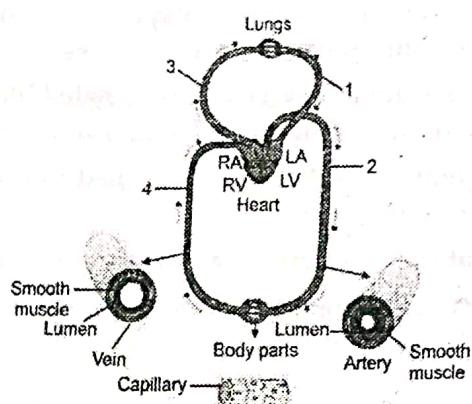
139. How many statements are correct?

- i) Monocyte — It is phagocytic which destroy foreign organisms entering in the body.
 - ii) Eosinophil — Involved in allergic process.
 - iii) Basophil — Secrete histamine, serotonin, heparin etc.
 - iv) Lymphocyte — It is of two major types B and T forms.
- 1) One 2) Two
 3) Three 4) Four

140. How many statements are correct?

- i) Your heart is myogenic.
 - ii) Medulla oblongata can moderate the cardiac function through ANS.
 - iii) Erythroblastosis foetalis can be avoided by administering Rh antigens to the mother immediately after the delivery of the first child.
 - iv) Birds and mammals have double circulation of blood.
 - v) In amphibians, heart pumps mixed blood to the body.
- 1) More than three 2) Only three
 3) Only two 4) Only one

1. This is systematic plan of blood circulation in human. Identify 1, 2, 3 and 4 respectively.



- 1) Pulmonary artery, dorsal aorta, pulmonary vein, vena cava
- 2) Pulmonary vein, dorsal aorta, vena cava, pulmonary artery
- 3) Pulmonary vein, dorsal aorta, pulmonary artery, vena cava
- 4) Dorsal aorta, vena cava, pulmonary vein, pulmonary artery

142. Fill up the blanks and select most suitable words.

- i) _____(1)_____ circulatory system is present in arthropods and molluscs.
 - ii) _____(2)_____ circulatory system is present in annelids and chordates.
 - iii) Fish have _____(3)_____ chambered heart.
 - iv) Birds posses _____(4)_____ chambered heart.
 - v) In fish the heart pumps out _____(5)_____ blood which is _____(6)_____ by the gills and supplied to the body parts from where _____(7)_____ blood is returned to the heart.
- 1) 1-closed; 3-two; 5-deoxygenated
 2) 2-open; 3-two; 4-Four
 3) 5-oxygenated; 6-deoxygenated; 7-deoxygenated
 4) 1-open; 3-two; 5-deoxygenated

143. Match the column (with reference to human heart) and choose the correct option :

Name of septa	Nature
A. Interatrial	1. Thin muscular
B. Interventricular	2. Thick muscular
C. Atrioventricular	3. Thick fibrous
1) A B C / 1 3 2	2) A B C / 1 2 3
3) A B C / 2 1 3	4) A B C / 2 3 1

144. Match the options given in column I with those in column II

Column I	Column II
a. Factor I	i) Prothrombin
b. Factor II	ii) Fibrinogen
c. Factor VIII	iii) Christmas factor
d. Factor IX	iv) Anti-haemophilic globulin
1) a-i, b-iii, c-ii, d-iv	2) a-iv, b-iii, c-ii, d-i
3) a-ii, b-i, c-iv, d-iii	4) a-iii, b-ii, c-i, d-iv

145. Read the following statements:

- i) The enzyme plasmin is responsible for lysis of fibrin during fibrinolysis.
- ii) Lymph has abundant WBCs and mostly lymphocytes.
- iii) Predatory animals like tigers can coagulate blood by hydrolyzing fibrinogen to fibrin using trypsin.
- iv) The life span of platelets is about 1 month.
- v) Serum is plasma with clotting factors like fibrinogen.

Which of the above statements are incorrect?

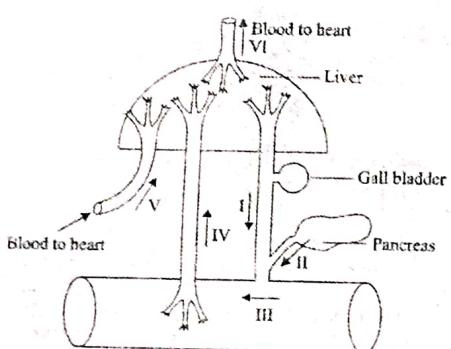
- 1) (i) and (ii)
- 2) (ii) and (iii)
- 3) (iii) and (iv)
- 4) (iv) and (v)

QUESTION BOOKLET VERSION : 11

146. Read the following statements and choose the correct option:

- SA node is located at the right upper corner of right atrium.
 - Purkinje fibres are found in atria.
 - Pulse Pressure = Systolic BP – Diastolic BP.
 - AV node is located in left atrium.
 - 'Lubb' sound produced during heartbeat is caused by ventricular systole.
- 1) (ii) and (iv) are incorrect
 2) (i), (ii) and (iv) are correct
 3) (iii), (iv) and (v) are correct
 4) (ii) and (iv) are correct

147. The diagram below shows how things get to and from the liver. They are labeled as I, II, III, IV, V and VI.



Which one of the following labeling is the correct one?

- I is the hepatic portal vein and V is the hepatic vein
- III is the intestine and VI is the hepatic portal vein
- IV is the hepatic portal vein and VI is hepatic vein
- II is the pancreatic artery and V is the hepatic arterk

148. Select the incorrect statements from the following:

- Molluscs and arthropods have open circulatory system.
- Single circulation is seen in Pisces.
- Birds and mammals have incomplete double circulation.
- Annelids have closed circulatory system.

149. Identify the wrong statements w.r.t. human circulatory /system.

- The atria are demarcated externally from the ventricles by coronary sulcus.
- Chordae tendineae are fibrous cords that join the flaps of atrioventricular valves with papillary muscles of ventricles.
- The opening of superior vena cava into the right atrium is guarded by Thebesian valve.
- Semilunar valves are located at the base of pulmonary artery and aorta.

150. Read the following statements:

- Vasa vasorum are small blood vessels supplying the walls of thicker vessels.
 - Systemic heart refers to the left atrium and left ventricle in higher vertebrates.
 - Chordae tendineae prevent the bulging of AV valves into ventricles during strong atrial contraction.
 - Stimulation of vagus nerve increases the heart rate.
- Which of the above statements are correct?
- (i) and (ii)
 - (i) and (iii)
 - (iii) and (iv)
 - (i) and (iv)

151. Find the mismatch from the following:

- Left atrium—Receives oxygenated blood from lungs through two pulmonary veins
- Right ventricle—Pumps deoxygenated blood to lungs through pulmonary arteries
- Right atrium—Receives deoxygenated blood from coronary sinus, and the two vena cavae
- Left ventricle—Pumps oxygenated blood to the body through aorta

152. Which of the following statements are wrong?

- Heart is protected by a double-walled membranous bag called pericardium.
 - Bundle of His is a tract of conducting fibres that carries impulses from atria to ventricles.
 - Impulses generated by SA node stimulates the atria and ventricles to contract simultaneously.
 - SA node has inherent ability to generate nerve impulse at higher rate compared to the rest of cardiac muscle fibers.
- (i) and (ii)
 - (ii) and (iii)
 - (iii) and (iv)
 - (i) and (iv)

153. How many of the following are present in the ventricles of human heart?

Eustachian valve, Chordae tendineae, Papillary muscles, Coronary sinus

- 1) One
- 2) Two
- 3) Three
- 4) Four

154. Examine the following table of ABO blood groups. Fill up the blanks (i), (ii) (iii) and (iv) from the options given below.

Blood group	Antigens on RBCs	Antibodies in plasma	Donor's group
A	A	(ii)	A, O
B	B	Anti-A	(iv)
AB	A, B	Nil	AB, A, B, O
O	(i)	(iii)	O

- 1) i-Nil, ii-Anti-B, iii-Anti-A, B, iv-B, O
- 2) i-Nil, ii-Nil, iii-Anti-B, iv-A,B,O
- 3) i-Anti-B, ii-Anti-A, iii-Anti-B, iv-A,B
- 4) i-Nil, ii-Nil, iii-Anti-A, iv-B,O

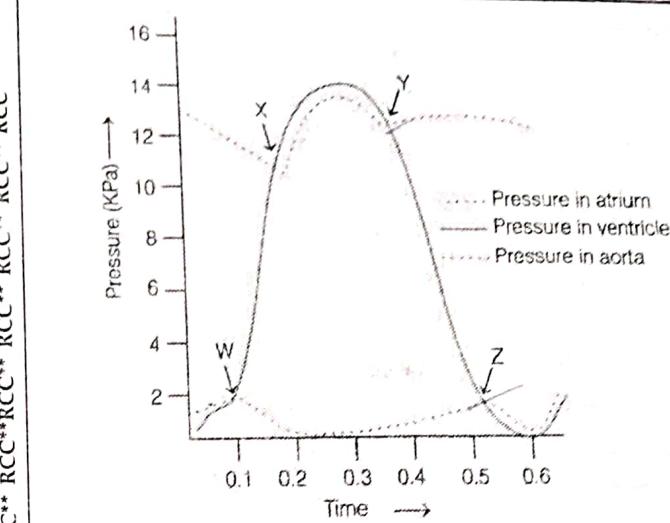
155. Which of the following statements are correct?

- A. Persons with AB blood group are called universal recipients because they can accept blood from persons with AB as well as the other blood groups.
- B. Erythroblastosis foetalis can be treated by administering Rh- antibodies to mother immediately before the delivery of the first child.
- C. Nearly 20% of human populations are Rh negative.
- D. An enzyme complex thrombokinase, is required for the conversion of fibrinogens into fibrin.

Choose the correct answer from the options given below.

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

156. The given graph depicts the change in pressure in the left side of the heart during a single heartbeat. Which of the following valves are open or closed between the points Y and Z, respectively?



Atrio-ventricular valves Semilunar valves

- 1) Closed Closed
- 2) Open Closed
- 3) Open Open
- 4) Closed Open

157. Consider the statements given below.

- I. Ca^{2+} plays an important role in blood coagulation.
 - II. Coagulation is the response of a body towards an injury or trauma.
 - III. Factors for clotting of blood are present in blood plasma.
 - IV. Fibrin consists of damaged, but live formed elements of blood trapped inside.
- Which of the above given statements are correct?
- 1) I and III
 - 2) I, II and III
 - 3) II and IV
 - 4) III and IV

158. Which of the following statements is/are incorrect about the lymph?

- I. Lymph is a red coloured fluid containing large proteins and formed elements.
- II. It is also called tissue fluid which leaks out through capillaries into tissue spaces.
- III. It contains specialised lymphocytes which are responsible for the immunity of the body.
- IV. Lymph is an important carrier for nutrients and hormones.
- V. Fats are absorbed through the lymph in the lacteals present in the intestinal villi.

Choose the correct option.

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

QUESTION BOOKLET VERSION : 11

159. Statement I-The plasma of different individuals contains two natural antibodies which are produced in response to antigen.

Statement II-Failure to carefully match donor and recipient blood during blood transfusion can cause RBC destruction.

- 1) Both statement I and statement II are incorrect.
- 2) Statement I is correct, but statement II is incorrect.
- 3) Statement I is incorrect, but statement II is correct.
- 4) Both statement I and statement II are correct.

160. Statement I-A dark reddish brown scum formed at the site of a cut is a coagulum which is formed mainly of a network of threads called thrombin.

Statement II-Tissue that releases certain factors at the site of injury can also initiate coagulation.

- 1) Both statement I and statement II are incorrect.
- 2) Statement I is correct, but statement II is incorrect.
- 3) Statement I is incorrect, but statement II is correct.
- 4) Both statement I and statement II are correct.

161. Consider the following statements.

I. Fibrinogen is a glycoprotein complex that elevates in amount in response to systemic inflammation.

II. The agglutination assays are only used for detection of blood groups using coagulation mechanism.

III. Generally open circulatory system is considered as more advantageous since whole of the organism receives blood at once.

IV. The opening between the right atrium and the right ventricle is guarded by tricuspid valve.

V. The heartbeat rate of an individual can be calculated by counting the number of QRS complexes that occur in a given time period.

Choose the set of incorrect statements from the options given below.

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

PCB TEST

162. Match the following columns.

- | Column I | Column II |
|-------------------|--------------------------|
| a. Eosinophils | i. Coagulation |
| b. RBCs | ii. Universal recipient |
| c. AB blood group | iii. Resist infections |
| d. Platelets | iv. Contraction of heart |
| e. Systole | v. Gas transport |

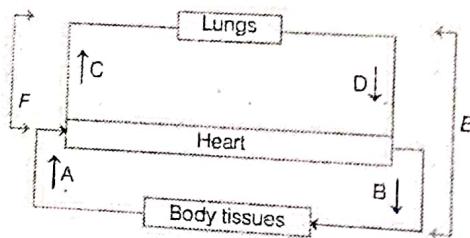
Codes

- 1) a-iii, b-v, c-ii, d-i, e-iv
- 2) a-ii, b-v, c-iii, d-i, e-iv
- 3) a-v, b-iv, c-iii, d-i, e-ii
- 4) a-ii, b-iii, c-i, d-iv, e-v

163. The given figure represents the pathway of blood -through the body.

Identify the labelled parts (A-F) from the list (i-vi).

- i) Pulmonary circulation
- ii) Superior vena cava
- iii) Aorta
- iv) Systemic circulation
- v) Pulmonary artery
- vi) Pulmonary vein



- 1) A-(iH), B-(ii), D-(i), E-(v) ✗
- 2) C-(v), F-(i), D-(vi), A-(ii)
- 3) D-(ii), B-(iii), F-(iv), E-(v)
- 4) B-(iv), C-(iii), D-(ii), E-(vi) ✗

164. Match the following columns.

- | Column I | Column II |
|-----------------|--|
| a. Leucocytes | i. 5-5.5 million mm ⁻³ |
| b. Thrombocytes | ii. 6000-8000 mm ⁻³ |
| c. Erythrocytes | iii. 12-16 gms/100mL |
| d. Haemoglobin | iv. 1,50,000-3,50,000 mm ⁻³ |

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

QUESTION BOOKLET VERSION : 11
165. Read the following statements.

- I. Atria receive blood from all parts of the body which subsequently flows to ventricles.
 - II. Action potential generated at sino-atrial node passes from atria to ventricles.

Choose the correct option.

- 1) Action mentioned in statement I is dependent on action mentioned in statement II
 - 2) Action mentioned in statement II is dependent on action mentioned in statement I
 - 3) Action mentioned in statements I and II are independent of each other
 - 4) Action mentioned in statements I and II are synchronous

166. Which one of the following statements is correct?

- 1) The tricuspid and the bicuspid valves open due to the pressure exerted by the simultaneous contraction of the atria
 - 2) Blood moves freely from atrium to the ventricle during joint diastole
 - 3) Increased ventricular pressure causes closing of the semilunar valves
 - 4) The Atrio-Ventricular Node (AVN) generates an action potential to stimulate atrial contraction

167. All the components of the nodal tissue are autoexcitable. Why does the SA node act as the normal pacemaker?

- 1) SA node has the lowest rate of depolarisation
 - 2) SA node is the only component to generate the threshold potential
 - 3) Only SA node can convey the action potential to the other components
 - 4) SA node has the highest rate of depolarisation

168. A specialised nodal tissue embedded in the lower corner of the right atrium, close to atrioventricular septum, delays the spreading of impulses to heart apex for about 0.1 sec. The delay allows

- 1) blood to enter aorta
 - 2) the ventricles to empty completely
 - 3) blood to enter pulmonary arteries
 - 4) the atria to empty completely

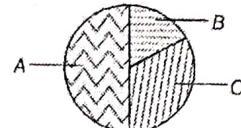
RCC

169. In a laboratory, blood group of an individual is Identified by agglutination tests. This test uses blood serum containing specific antibodies, i.e. anti-serum, against foreign agent. These detect and neutralise antigens.

Based on this method, if the blood shows coagulation with then

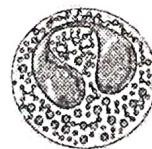
- 1) antiserum is B, the blood group is AB
 - 2) antiserum is A and B, blood group is O
 - 3) antiserum is A, blood group is A
 - 4) antiserum is B, blood group is O

170. The figure shows the 0.8 second duration of a single cardiac cycle, with A, B and C denoting its stages. Choose the appropriate statement about A, B and C after identifying them.



- 1) During C, the semilunar valves close producing second heart sound
 - 2) During B, the atria contract due to a wave of contraction by SA node
 - 3) During A, tricuspid and bicuspid valves open and blood flows from the atria into the ventricles
 - 4) During B, tricuspid and bicuspid valves closes producing first heart sound

171. Examine the depicted figure and identify it along with its characteristics.



Cell	Characteristics
1) Monocyte cell	<ul style="list-style-type: none"> • inflammatory response • form 20% of blood cells
2) T-lymphocyte	<ul style="list-style-type: none"> • involved in immune response • form 64% of blood cells
3) Basophils	<ul style="list-style-type: none"> • 6-8% of blood composition • engulf foreign agents
4) Eosinophils	<ul style="list-style-type: none"> • 2-3% of blood composition • involved in allergic response

QUESTION BOOKLET VERSION : 11

172. "Ram got injured while playing soccer. His wound continues to bleed without stopping. After acute diagnosis, doctor's found that his body was not able to form prothrombinase due to certain deficiency".

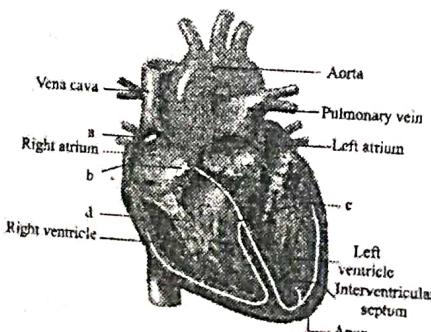
What could be the most appropriate reason for his condition?

- 1) Possible deficiency of heparin and catalase enzyme
- 2) Surplus amount of Mg^{2+} and blood platelets disintegration
- 3) Deficiency of calcium ions
- 4) Deficiency of sodium or potassium oxalate

173. Read the following statements and find out the incorrect statements.

- a. Heart is situated in the thoracic cavity, is between the two lungs, slightly tilted to the right.
 - b. Heart has the size of a clenched fist.
 - c. Heart is protected by double walled membranous bag, pericardium, enclosed the pericardial fluid.
 - d. Human heart has four chambers, two relatively larger upper chambers called atria and two smaller lower chambers called ventricles.
 - e. A thick muscular wall called the inter-atrial septum separates the right and the left atria, whereas a thin-walled, the inter-ventricular septum, separates the left and right ventricles.
- 1) a, d and e 2) b, c and d
 3) b, c and e 4) a and d

174. Recognise the figure and find out the correct matching.



- 1) a-SAN, b—AVN, c—Bundle of His, d—Chordae tendinae

- 2) b—SAN, a—AVN, c—Bundle of His, d—Chordae tendinae
- 3) a—SAN, b—AVN, d—Bundle of His, c—Chordae tendinae
- 4) b—SAN, a—AVN, d—Bundle of His, c—Chordae tendinae

175. Dr. Raju Wanare has ordered a test for serum bilirubin. The patient goes to a pathologist who should collect his blood in a test tube containing

- 1) Anti-coagulant sodium citrate
- 2) Anti-coagulant double oxalate
- 3) Anti-coagulant fluorides
- 4) No anti-coagulant

176. In the following table 'X' is formed by the division or branching of 'Y'. Which one is an exception?

'X'	'Y'
I. Arteriole	Artery ✓
II. Capillary	Arteriole ✓
III. Venule	Vein ✓
IV. Renal Artery	Aorta
1) I	2) II
3) III	• 4) IV

177. In the given figure of the heart, which of the marked structures (1, 2, 3, 4 and 5) carry oxygenated blood?



- 1) 1, 2, 3 and 4 2) 1 and 5
 3) 1 and 4 4) 3 and 5

178. 'X', a pregnant lady went for a regular checkup towards the end of her pregnancy. The unborn child heart rate showed to be 80 beats per minute. Can you conclude anything from the below that describes the baby's heart condition?

- 1) Faster heart rate
- 2) Slower heart rate
- 3) Normal heart rate
- 4) Defective brain function

QUESTION BOOKLET VERSION : 11

179. Which of the following connections in the human heart are correct?

(a) The superior vena cava connects the right atrium.

QUESTION BOOKLET

179. Which of the following connections in the human heart are correct?

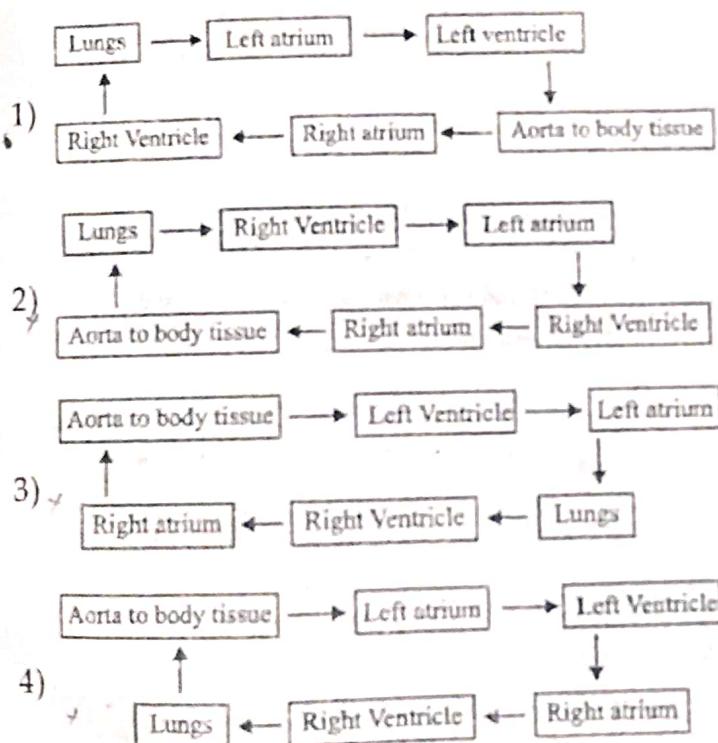
(a) connects the right atrium to the

- human heart**

 - I. Fossa ovalis connects the right atrium to the left atrium.
 - II. Ligamentum arteriosum connects the aorta and pulmonary trunk.
 - III. Coronary sinus connects coronary veins to the left atrium.
 - IV. A pulmonary trunk connects the right ventricle to the lungs.

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

180. Find the correct sequence that depicts the flow of blood in human circulatory system.





Answer Key - Repeater PCB PCB Test (Solution)

Date : 06-07-2025

Physics	Chemistry	Biology					
		55.	56.	57.	58.	59.	60.
01. 2	19. 2	37. 2	55. 2	73. 1	91. 3	109.1	127.3
02. 1	20. 2	38. 1	56. 4	74. 2	92. 1	110.4	128.4
03. 2	21. 2	39. 4	57. 3	75. 4	93. 3	111.3	129.3
04. 1	22. 2	40. 1	58. 3	76. 1	94. 1	112.1	130.2
05. 1	23. 3	41. 1	59. 2	77. 1	95. 2	113.2	131.2
06. 1	24. 4	42. 3	60. 4	78. 2	96. 3	114.2	132.1
07. 2	25. 4	43. 4	61. 1	79. 3	97. 2	115.3	133.2
08. 4	26. 2	44. 12	62. 4	80. 3	98. 3	116.3	134.4
09. 1	27. 2	45. 1	63. 4	81. 4	99. 2	117.1	135.3
10. 2	28. 3	46. 3	64. 3	82. 2	100. 32	118.2	136.3
11. 1	29. 3	47. 2	65. 2	83. 1	101.4	119.1	137.1
12. 3	30. 3	48. 4	66. 3	84. 4	102.3	120.4	138.2
13. 2	31. 1	49. 4	67. 2	85. 1	103.4	121.3	139.4
14. 3	32. 4	50. 2	68. 4	86. 3	104.3	122.3	140.1
15. 2	33. 4	51. 3	69. 1	87. 1	105.4	123.2	141.3
16. 3	34. 4	52. 3	70. 4	88. 3	106.1	124.2	142.4
17. 3	35. 4	53. 3	71. 2	89. 1	107.3	125.3	143.2
18. 4	36. 2	54. 1	72. 1	90. 3	108. 4	126.3	144.3