1. A seat marked with Reg. No. will be allotted to each student. The student should ensure that he/she occupies the correct seat only. If any student is found to have occupied the seat of another student, both the students shall be removed from the examination and shall have to accept any other penalty imposed upon them.

2. Duration of Test is 3 Hours and Questions Paper Contains 180 Questions. The Max. Marks are 720.

3. Student can not use log tables and calculators or any other material in the examination hall.

4. Student must abide by the instructions issued during the examination, by the invigilators or the centre incharge.

5. Before attempting the question paper ensure that it contains all the pages and that no question is missing.

6. Each correct answer carries 4 marks, while 1 mark will be deducted for every wrong answer. Guessing of answer is harmful.

7. A candidate has to write his/her answers in the OMR sheet by darkening the appropriate bubble with the help of Blue/Black Ball Point Pen only as the correct answer(s) of the question attempted.

8. Use of Pencil is strictly prohibited.

Note: In case of any Correction in the test paper, please mail to dlpcorrections@allen.ac.in within 2 days along with Paper code and Your Form No.
| PHYSICS          | Electromagnetic Induction and Alternating current  
|                 | Electromagnetic Waves  
| OPTICS          | (i) Ray optics & optical Instruments  
|                 | (ii) Wave optics: Nature of Light, Interference, Diffraction & Polarization  
|                 | Modern Physics (Dual Nature of Matter and Radiation, Atoms and Nuclei)  
|                 | Electronic Devices  
| CHEMISTRY       | Redox Reactions  
|                 | Electrochemistry  
|                 | Chemical Kinetics  
|                 | Surface Chemistry  
|                 | General Principles and Processes of Isolation of Elements  
|                 | Coordination Compounds  
|                 | Environmental Chemistry  
|                 | Biomolecules  
|                 | Polymers  
|                 | Chemistry in Everyday Life  
| BIOLOGY         | Biology in Human Welfare  
|                 | (i) Human Health and Disease  
|                 | (ii) Strategies for Enhancement in Food Production  
|                 | (Domestication of Plants & Animals)  
| Ecology         | (i) Organisms and Populations  
|                 | (ii) Ecosystem  
|                 | (iii) Biodiversity and Conservation  
|                 | (iv) Environmental Issues
1. A conducting loop of radius R is present in a uniform magnetic field B perpendicular to the plane of the ring. If radius R varies as a function of time ‘t’, as $R = R_0 + t$. The e.m.f induced in the loop is:

(1) $2\pi (R_0 + t)B$ clockwise
(2) $\pi (R_0 + t)B$ clockwise
(3) $2\pi (R_0 + t)B$ anticlockwise
(4) zero

2. In a circuit L, C and R are connected in series with an alternating voltage source of frequency f. The current leads the voltage by 45°. The value of C is

(1) $\frac{1}{2} \frac{f}{(2fL + R)}$
(2) $\frac{1}{f} \frac{1}{(2fL + R)}$
(3) $\frac{1}{2} \frac{f}{(2fL - R)}$
(4) $\frac{1}{f} \frac{1}{(2fL - R)}$

3. A short linear object of length b lies along the axis of a concave mirror of focal length f at a distance u from the pole of the mirror. What is the size of image?

(1) $\frac{f}{u-f}b$
(2) $\left(\frac{f}{u-f}\right)^2 b$
(3) $\left(\frac{f}{u-f}\right) b^2$
(4) $\frac{f}{u-f} b^2$

4. A slit of width $12 \times 10^{-7}$ m is illuminated by light of wavelength 6000Å. The angular width of the central maximum is approximately -

(1) 30°
(2) 60°
(3) 90°
(4) 0°

5. A radioactive nucleus emits an α-particle and a neutron simultaneously with same speed but in opposite direction in order to form a stable nuclei. If the speed of emitted particles is v and $A$ is the mass number of radioactive nucleus, then speed of stable nucleus is

(1) $\frac{3v}{A-5}$
(2) $\frac{2v}{A-5}$
(3) $\frac{4v}{A-5}$
(4) $\frac{2v}{A+5}$
6. A vertical bar magnet is dropped from the shown position on the axis of a fixed metallic coil as shown in fig - I. In fig - II the magnet is fixed and horizontal coil is dropped. The acceleration of the magnet and coil are $a_1$ and $a_2$ respectively then

- $a_1 > g$, $a_2 > g$
- $a_1 < g$, $a_2 < g$
- $a_1 > g$, $a_2 < g$
- $a_1 < g$, $a_2 > g$

7. In circuit shown in figure the ac source gives a voltage $V = 20 \cos(2000 \, t)$. Neglecting source resistance, the voltmeter and ammeter reading will be

- $0V, 0.47A$
- $1.68V, 0.47A$
- $3V, 1.4A$
- $5.6V, 1.4A$

8. A bucket of total height 60 cm is half filled with a liquid of refractive index 1.5 and half with another liquid of refractive index 2. The apparent depth of the bucket for an observer directly above the bucket–

- (1) 45 cm
- (2) 30 cm
- (3) 35 cm
- (4) 45 cm

9. A calcite crystal is placed over a dot on a piece of paper and rotated. On seeing through the calcite, one will see -

- (1) one dot
- (2) two stationary dots
- (3) two rotating dots
- (4) one dot rotating about the other

10. Two radioactive elements $X$ and $Y$ have half-life times of 50 minutes and 100 minutes, respectively. Samples $X$ and $Y$ initially contain equal numbers of atoms. After 200 minutes, the ratio of number of undecayed atoms of $X$ to number of undecayed atoms of $Y$ is:

- (1) 4
- (2) 2
- (3) $1/2$
- (4) $1/4$
11. In the circuit shown switch S is connected to position 2 for a long time and then joined to position 1. The total heat produced in resistance $R_1$ is:

\[
\frac{LE^2}{2R_1^2} \quad (1) \quad \frac{LE^2}{2R_1^2} \quad (2) \quad \frac{LE^2}{2R_2^2} \quad (3) \quad \frac{LE^2}{2R_1R_2} \quad (4) \quad \frac{LE^2(R_1 + R_2)^2}{2R_1^2R_2^2}
\]

12. In a circuit an alternating current and a direct current are supplied together. The expression of the instantaneous current is given as \( i = 3 + 6 \sin \omega t \). Then the r.m.s. value of the current is:

(1) 3A (2) 6A (3) \( 3\sqrt{2} \) A (4) \( 3\sqrt{3} \) A

13. When an object is at a distance x and y from the optical centre of a lens, a real and a virtual image are formed, respectively with same magnification. The focal length of lens is:

(1) \( x + y \) (2) \( \frac{x + y}{2} \) (3) \( \frac{x + y}{2} \) (4) \( xy \)

14. Light of wavelength \( \lambda \) is incident on a slit of width d and distance between screen and slit is D. Then width of maxima and width of slit will be equal if D is:

(1) \( \frac{d^2}{\lambda} \) (2) \( \frac{2d}{\lambda} \) (3) \( \frac{2d^2}{\lambda} \) (4) \( \frac{d^2}{2\lambda} \)

15. Alpha particles are fired at a nucleus. Which of the paths shown in figure is not possible?

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

16. A uniform magnetic field exists in region given by \( \vec{B} = 3\hat{i} + 4\hat{j} + 5\hat{k} \). A rod of length 5 m is placed along y – axis is moved along x – axis with constant speed 1 m/sec. Then induced e.m.f. in the rod will be:

(1) zero (2) 25 volt (3) 20 volt (4) 15 volt
17. In a series resonant LCR circuit, if L is increased by 25% and C is decreased by 20%, then the resonant frequency will :-
   (1) Increase by 10%
   (2) Decrease by 10%
   (3) Remain unchanged
   (4) Increase by 2.5%

18. A doctor advises a patient to use spectacles with a convex lens of focal length 40 cm in contact with a concave lens of focal length 25 cm. What is the power of the resultant combination–
   (1) 1.5 D
   (2) –1.5 D
   (3) 6.5 D
   (4) –6.5 D

19. \(10^{-3}\) watt and 5000 Å light is directed on a photoelectric cell. If the current in the cell is \(0.16\ \mu A\), the percentage of incident photons which produce photoelectrons, is
   (1) 0.4%
   (2) 0.04%
   (3) 20%
   (4) 10%

20. A nucleus ruptures into two nuclear parts which have their velocity ratio equal to 2 : 1. What will be the ratio of their nuclear sizes–
   (1) \(2^{1/3} : 1\)
   (2) \(1 : 2^{1/3}\)
   (3) \(3^{1/2} : 1\)
   (4) \(1 : 3^{1/2}\)

21. Two identical conducting rings A & B of radius \(r\) are in pure rolling over a horizontal conducting plane with same speed (of center of mass) \(v\) but in opposite direction. A constant magnetic field \(B\) is present pointing inside the plane of paper. Then the potential difference between the highest points of the two rings, is :
   (1) zero
   (2) \(2Bvr\)
   (3) \(4Bvr\)
   (4) none of these

22. An alternating e.m.f. of angular frequency \(\omega\) is applied across an inductance. The instantaneous power developed in the circuit has an angular frequency :-
   (1) \(\frac{\omega}{4}\)
   (2) \(\frac{\omega}{2}\)
   (3) \(\omega\)
   (4) \(2\omega\)
23. An astronomical telescope has an angular magnification of magnitude 5 for distant objects. The separation between the objective and eye-piece is 36 cm and the final image is formed at infinity. Determine the focal length of objective and eye-piece—

1. \( f_0 = 30 \text{ cm}, f_e = 6 \text{ cm} \)
2. \( f_0 = 25 \text{ cm}, f_e = 10 \text{ cm} \)
3. \( f_0 = 30 \text{ cm}, f_e = 10 \text{ cm} \)
4. \( f_0 = 15 \text{ cm}, f_e = 5 \text{ cm} \)

24. In a photoelectric experiment, the potential difference \( V \) that must be maintained between the illuminated surface and the collector so as just to prevent any electron from reaching the collector is determined for different frequencies \( f \) of the incident illumination. The graph obtained is shown. The maximum kinetic energy of the electrons emitted at frequency \( f_1 \) is —

1. \( hf_1 \)
2. \( \frac{V_1}{(f_1 - f_0)} \)
3. \( h(f_1 - f_0) \)
4. \( eV_1(f_1 - f_0) \)

25. Which circuit will not show current in ammeter?

1. + –
2. + –
3. + –
4. + –

26. A transformer is used to light 140 watt 24 volt lamp from 240 volt AC mains, the current in the main cable is 0.7 amp. The efficiency of the transformer is

1. 63.8%  
2. 84%  
3. 83.3%  
4. 48%
27. When the rectangular metal tank is filled up to the top with an unknown liquid, an observer with eyes level with the top of the tank can just see the corner E. Find the index of refraction of the liquid :-

(1) 1.5  (2) 1.25  (3) 1.67  (4) 2.4

28. The necessary condition for interference pattern of light is that light sources should be –
(1) Of same amplitude, frequency, constant phase difference and of same state of polarisation
(2) Of same amplitude, frequency but with varying phase difference and of same state of polarisation
(3) Of same frequency, constant phase difference and of different state of polarisation
(4) Of same amplitude, different frequency, constant phase difference and of same state of polarisation

29. The graph is showing the photocurrent with the applied voltage of a photoelectric effect experiment. Then :-

(1) A & B will have same intensity and B & C have same frequency
(2) B & C have same intensity and A & B have same frequency
(3) A & B will have same frequency and B & C have same intensity
(4) A & C will have same intensity and B & C have same frequency

30. Avalanche breakdown is due to –
(1) Collision of minority charge carrier
(2) Increase in depletion layer thickness
(3) Decrease in depletion layer thickness
(4) None of these
31. A circular ring of diameter 20 cm has a resistance 0.01 ohm. How much charge will flow through the ring if it is rotated from position perpendicular to the uniform magnetic field of $B = 2 \, T$ to a position parallel to field?
   (1) 4 C  
   (2) 6.28 C  
   (3) 3.14 C  
   (4) 25.12 C

32. The power of a lens having refractive index 1.25 is $+3 \, D$. When placed in a liquid its power is $-2 \, D$. The refractive index of the liquid is :-
   (1) 1.2  
   (2) 1.4  
   (3) 1.5  
   (4) 1.6

33. In Young's double slit experiment, the value of intensity at the site of constructive interference, should be equivalent to which of the following:-
   (1) Sum of intensities of both sources
   (2) Twice the sum of intensities of both sources
   (3) Difference of intensities of both sources
   (4) Four times the sum of intensities of both sources

34. Electrons with de-Broglie wavelength $\lambda$ fall on the target in an X-ray tube. The cut-off wavelength of the emitted X-rays is :-
   (1) $\lambda_0 = \frac{2mc\lambda^2}{h}$  
   (2) $\lambda_0 = \frac{2h}{mc}$  
   (3) $\lambda_0 = \frac{2m^2c^2\lambda^3}{h^2}$  
   (4) $\lambda_0 = \lambda$

35. Which represents NAND gate?
   (1)  
   (2)  
   (3)  
   (4)
36. In a L-R circuit the stored energy in the inductor coil is 5 Joule and rate of heat generation is 10 Watt at a charge flow rate of one coulomb per second. The time constant of circuit is:

(1) 2 sec  
(2) 1 sec  
(3) 1.5 sec  
(4) Data insufficient

37. A ray of light undergoes a deviation of 30° when incident on an equilateral prism of refractive index $\sqrt{2}$. What is the angle subtended by the ray inside the prism with the base of the prism?

(1) 0°  
(2) 45°  
(3) 60°  
(4) 90°

38. The two coherent sources with intensity ratio $\beta$ produce interference. The fringe visibility will be:

$$\frac{2\sqrt{\beta}}{1+\beta}$$

(1) $\frac{2\sqrt{\beta}}{1+\beta}$  
(2) $2\beta$  
(3) $\frac{2}{1+\beta}$  
(4) $\frac{\sqrt{\beta}}{1+\beta}$

39. Two nucleons are at a separation of 1 fm. The net force between them is $F_1$ if both are neutrons, $F_2$ if both are protons, and $F_3$ if one is a proton and the other is a neutron:

(1) $F_1 > F_2 > F_3$  
(2) $F_2 > F_1 > F_3$  
(3) $F_1 = F_2 > F_3$  
(4) $F_1 = F_3 > F_2$

40. Find current through Zener diode:

(1) 5 mA  
(2) 7.5 mA  
(3) 2.5 mA  
(4) 12.5 mA

41. Which of the following is NOT transported by the EM waves?

(1) Energy  
(2) Momentum  
(3) Charge  
(4) Information
42. If a person can not see objects beyond 40 cm, then power and type of lens by which he can clearly see distant objects is–
(1) –2.5 D and concave lens
(2) –2.5 D and convex lens
(3) –3.5 D and concave lens
(4) –3.5 D and convex lens

43. The main difference between the phenomena of interference and diffraction is that -
(1) Diffraction is due to interaction of light from the same wave front, whereas interference is the interaction of waves from two separate sources.
(2) Diffraction is due to superposition of light from the same wavefront, whereas interference is due to two waves derived from the same source.
(3) Diffraction is due to two waves derived from the same source, while interference is superposition of light from same wavefront.
(4) In both diffraction and interference, number of coherent the same sources is two

44. The number of $\alpha$ and $\beta^-$ emitted during the radioactive decay chain starting from $^{226}_{88}$Ra and ending at $^{206}_{82}$Pb is
(1) $3\alpha \, \& \, 6\beta^-$
(2) $4\alpha \, \& \, 5\beta^-$
(3) $5\alpha \, \& \, 4\beta^-$
(4) $6\alpha \, \& \, 6\beta^-$

45. In common emitter transistor, current gain is 100 and base current is 2 mA. If load resistance is 0.25 $\Omega$ then voltage across load resistance is–
(1) 5 V
(2) 5 mV
(3) 50 mV
(4) 500 mV
46. Sodium is made by the electrolysis of molten mixture of about 40% NaCl and 60% CaCl₂ because:
(1) CaCl₂ helps in conduction of electricity
(2) Ca²⁺ can reduce NaCl to Na
(3) Ca²⁺ can displace Na from NaCl
(4) this mixture has a lower melting point than NaCl

47. The following data were obtained during the first order decomposition of \(2A(g) \rightarrow B(g) + C(s)\) at constant volume and at a particular temperature.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Time</th>
<th>Total pressure (in Pascal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>After 10 min</td>
<td>300</td>
</tr>
<tr>
<td>2</td>
<td>After completion</td>
<td>200</td>
</tr>
</tbody>
</table>

The rate constant in \(\text{min}^{-1}\) is –
(1) 69.3
(2) 0.0693
(3) \(6.93 \times 10^{-4}\)
(4) 6.93

48. Consider the following reaction:
\[
3\text{Br}_2 + 6\text{CO}_3^{2-} + 3\text{H}_2\text{O} \rightarrow 5\text{Br}^- + \text{BrO}_3^- + 6\text{HCO}_3^-
\]
Which of the following statements is true regarding this reaction?
(1) Bromine is oxidized and the carbonate radical is reduced.
(2) Bromine is reduced and the carbonate radical is oxidized.
(3) Bromine is neither reduced nor oxidized.
(4) Bromine is both reduced and oxidized.

49. Which of the following is biodegradable polymer?
(1) Terylene
(2) Teflon
(3) Cellulose
(4) P.V.C

50. Penicillin G is:
(1) Antiseptic
(2) Antibiotic
(3) Food preservative
(4) Tranquilizers

51. Carbon reduction is not used to obtain Cr and Mn because
(1) Process is not thermodynamically feasible.
(2) Process is not economically feasible.
(3) Interstitial compounds are formed by Cr and Mn with carbon at high temperature
(4) Cr and Mn are high melting metals.

46. चैन मके के निष्कर्ष 40% NaCl एवं 60% CaCl₂ का प्रति युग तहत है तथा ये कि:
(1) CaCl₂ चिंतुत से चलाने में क्ष कहा है तथा ।
(2) Ca²⁺, NaCl को Na में अन्वय कहता है ।
(3) Ca²⁺, Na को NaCl से निकलता है ।
(4) इसमें मक के गलता NaCl से कहा है ।

47. निम्न आकार ओर किसी दिए गये बाल को टिकाए चाहे (g) (g) (s)
\[
2A \rightarrow B + C
\]
\(\text{Sr. No. Time Total pressure (in Pascal)}\)
1. After 10 min 300
2. After completion 200

The rate constant in \(\text{min}^{-1}\) is –
(1) 69.3
(2) 0.0693
(3) \(6.93 \times 10^{-4}\)
(4) 6.93

48. निम्न आकार का अनत चाहे की श्रेणी?
\[
3\text{Br}_2 + 6\text{CO}_3^{2-} + 3\text{H}_2\text{O} \rightarrow 5\text{Br}^- + \text{BrO}_3^- + 6\text{HCO}_3^-
\]
\(\text{Sr. No. Time Total pressure (in Pascal)}\)
1. 10 min के फ़्ल 300
2. सेता पत्ते ने 200

49. Which of the following is biodegradable polymer?
(1) Terylene
(2) Teflon
(3) Cellulose
(4) P.V.C

50. Penicillin G is:
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51. Carbon reduction is not used to obtain Cr and Mn because
(1) Process is not thermodynamically feasible.
(2) Process is not economically feasible.
(3) Interstitial compounds are formed by Cr and Mn with carbon at high temperature
(4) Cr and Mn are high melting metals.
52. Which of these do/does not change with time for first order reaction.
   (i) Rate of reaction
   (ii) Rate constant
   (iii) Half life
   (1) (i) only
   (2) (iii) only
   (3) (i) and (ii) only
   (4) (ii) and (iii) only

53. In the conversion \( \text{NH}_2\text{OH} \longrightarrow \text{N}_2\text{O}, \)
   the equivalent weight of \( \text{NH}_2\text{OH} \) will be:
   (1) \( \frac{M}{4} \)
   (2) \( \frac{M}{2} \)
   (3) \( \frac{M}{5} \)
   (4) \( \frac{M}{1} \)

54. The polymer having strongest intermolecular forces is:
   (1) Fibres
   (2) Elastomer
   (3) Thermoplastic
   (4) Thermosetting polymer

55. Which of the following is not an antiseptic drug?
   (1) Iodoform
   (2) Dettol
   (3) B.H.C.
   (4) 0.2% solution of phenol

56. The process used to separate the impurity present in metal is:-
   (1) Concentration
   (2) Calcination and roasting
   (3) Reduction
   (4) Refining

57. The rate of a reaction is expressed in different ways as follows:
   \( + \frac{1}{2}(d[C]/dt) = - \frac{1}{3}(d[D]/dt) \)
   \( = + \frac{1}{4}(d[A]/dt) = - (d[B]/dt) \)
   The reaction is:
   (1) \( 4 \text{A} + \text{B} \longrightarrow 2\text{C} + 3\text{D} \)
   (2) \( \text{B} + 3\text{D} \longrightarrow 4\text{A} + 2\text{C} \)
   (3) \( 4\text{A} + 2\text{B} \longrightarrow 2\text{C} + 3\text{D} \)
   (4) \( \text{B} + (1/2)\text{D} \longrightarrow 4\text{A} + 2\text{C} \)

58. Which of the following solutions will exactly oxidize 25 ml acidic solution of 0.1 M iron (II) oxalate?
   (1) 25 ml of 0.1 M KMnO₄
   (2) 25 ml of 0.2 M KMnO₄
   (3) 25 ml of 0.6 M KMnO₄
   (4) 15 ml of 0.1 M KMnO₄

59. In the conversion \( \text{NH}_2\text{O} \longrightarrow \text{N}_2\text{O}, \)
   (1) M/4
   (2) M/2
   (3) M/5
   (4) M/1

M = molecular weight of \( \text{NH}_2\text{OH} \)

60. The polymer having strongest intermolecular forces is:
   (1) Fibres
   (2) Elastomer
   (3) Thermoplastic
   (4) Thermosetting polymer

61. Which of the following is not an antiseptic drug?
   (1) Iodoform
   (2) Dettol
   (3) B.H.C.
   (4) 0.2% solution of phenol

62. The process used to separate the impurity present in metal is:
   (1) Concentration
   (2) Calcination and roasting
   (3) Reduction
   (4) Refining

63. The rate of a reaction is expressed in different ways as follows:
   \( + \frac{1}{2}(d[C]/dt) = - \frac{1}{3}(d[D]/dt) \)
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   (3) \( 4\text{A} + 2\text{B} \longrightarrow 2\text{C} + 3\text{D} \)
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   (3) \( 4\text{A} + 2\text{B} \longrightarrow 2\text{C} + 3\text{D} \)
   (4) \( \text{B} + (1/2)\text{D} \longrightarrow 4\text{A} + 2\text{C} \)

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   (1) 25 ml of 0.1 M KMnO₄
   (2) 25 ml of 0.2 M KMnO₄
   (3) 25 ml of 0.6 M KMnO₄
   (4) 15 ml of 0.1 M KMnO₄
59. Gas responsible for Bhopal gas tragedy of 1984 was –
   (1) Carbon monoxide
   (2) Methyl Isocyanate
   (3) SO₂ & NO₂
   (4) Ethyl isocyanate

60. What is the name of alanine?
   (1) Aminoacetic acid
   (2) Glycol
   (3) α-Aminopropionic acid
   (4) Aminoethanoic acid

61. The substance used in making semiconductor is refined by :-
   (1) By distillation
   (2) By liquation
   (3) By zone refining
   (4) By van Arkel method

62. In the reversible reaction \[2NO₂ \rightleftharpoons \frac{K_{1}}{K_{2}} N₂O₄\] the rate of disappearance of NO₂ is equal to :
   (1) \([2k_{1} / k_{2}] (NO₂)^2\]
   (2) \(2k_{1}[NO₂]^2 - 2k_{2} [N₂O₄]\]
   (3) \(2k_{1}[NO₂]^2 - k_{2} [N₂O₄]\)
   (4) \(2k_{1} - k_{2}[NO₂]\).

63. Oxidation number of C in HNC is :
   (1) +2
   (2) –3
   (3) +3
   (4) Zero

64. Indiscriminate use of DDT is undesirable because –
   (1) It is harmful
   (2) It is degradable
   (3) It causes mutation
   (4) It is accumulated in food chain

65. Which one of the following sets of monosaccharides forms sucrose
   (1) α-D-Galactopyranose and α-D-Glucopyranose
   (2) α-D-Glucopyranose and β-D-fructofuranose
   (3) β-D-Galactopyranose and α-D-fructofuranose
   (4) α-D-Gluropyranose and β-D-fructopyranose
66. Low spin tetrahedral complexes are not formed because
   (1) for tetraheral complexes, the CFSE is lower than pairing energy.
   (2) for tetraheral complexes, the CFSE is higher than pairing energy.
   (3) electrons do not go to e_g in case of tetraheral complexes
   (4) tetraheral complexes are formed by weak field ligands only.

67. Select the correct cell reaction of the cell Pt(s)|Cl_2(g)|Cl^-(aq)||Ag^+(aq)|Ag(s)
   (1) Cl_2(g) + Ag^+(aq) \rightarrow Ag(s) + 2Cl^- (aq)
   (2) Cl_2(g) + 2Ag^+(aq) \rightarrow 2Ag(s) + Cl_2(g)
   (3) 2Cl^- (aq) + 2Ag^+(aq) \rightarrow 2Ag(s) + Cl_2(g)
   (4) AgCl(s) \rightarrow Ag^+(aq) + Cl^-(aq)

68. Chemisorption is
   (1) multilayered
   (2) reversible
   (3) specific in nature
   (4) Very low energy is evolved

69. Which is the not a green house gas –
   (1) CFC’s
   (2) Methane
   (3) H_2
   (4) CO_2

70. The beta and alpha glucose have different specific rotations. When either is dissolved in water, their rotation changes until the same fixed value results. This is called.
   (1) Epimerisation
   (2) Racemisation
   (3) Anomerisation
   (4) Mutarotation

71. The overall complex dissociation equilibrium constant for the complex [Cu(NH_3)_4]^2+ ion will be (beta_4 for this complex is 2.1 \times 10^{13})
   (1) 4.7 \times 10^{-14}
   (2) 2.1 \times 10^{13}
   (3) 11.9 \times 10^{-2}
   (4) 2.1 \times 10^{13}

72. Resistance of a decimolar solution between two electrodes 0.02 meter apart and 0.0004 m^2 in area was found to be 50 ohm. Specific conductance (k) is–
   (1) 0.1 Sm^-1
   (2) 1 Sm^-1
   (3) 10 S m^-1
   (4) 4 \times 10^{-4} S m^-1
73. Which of the following is not an example of gel.
(1) Cheese  (2) Jam  (3) Curd  (4) Alloy

74. Excess nitrate in drinking water can cause :-
(1) Methemoglobinemia  
(2) Laxative effect  
(3) Leucoderma  
(4) Eye damage

75. How many amino acids are present in insulin hormone :-
(1) 51  (2) 41  (3) 101  (4) 201

76. Coordination compounds have great importance in biological systems. In this context which of the following statement is incorrect ?
(1) Chlorophyll is a green pigment in plants and contains calcium 
(2) Haemoglobin is the red pigment of blood and contains iron 
(3) Cyanocobalamin is B₁₂ and contains cobalt 
(4) Carboxypeptidase A is an enzyme and contains zinc

77. 108 g fairly concentrate solution of AgNO₃ is electrolyzed using 0.1 F of electricity. The weight of resulting solution is= [At. wt of Ag = 108]
(1) 94 g  (2) 11.6 g  (3) 96.4 g  (4) None of these

78. When an excess of a very dilute aqueous solution of KI is added to a very dilute aqueous solution of silver nitrate, the colloidal particles of silver iodide are associated with following helmholtz double layer?
(1) AgI | Ag⁺ | I⁻  (2) AgI | K⁺ | NO₃⁻  
(3) AgI | NO₃⁻ | Ag⁺  (4) AgI | I⁻ | K⁺

79. Class of chemical compounds which are used for the treatments of mental disease are called?
(1) Antacids  (2) Antipyretic 
(3) Tranquilizers  (4) Antiseptic

80. (+)-Glucose and (−)-fructose can be differentiated by–
(1) Tollen's reagent  
(2) Fehling solution  
(3) Bromine water  
(4) None of the three
81. Which of the following is correctly matched?

(1) [Cu(NH₃)₄]²⁺ Diamagnetic
(2) [Ni(CN)₄]²⁻ Para magnetic
(3) [MnCl₄]²⁻ Diamagnetic
(4) [Fe(CN)₆]⁴⁻ Diamagnetic

82. Given \( E^{\circ}_{\text{Ag}/\text{Ag}} = 0.80 \text{V}, \ E^{\circ}_{\text{Mg}^{2+}/\text{Mg}} = -2.37 \text{V}, \)
\( E^{\circ}_{\text{Cu}^{2+}/\text{Cu}} = 0.34 \text{V}, \ E^{\circ}_{\text{Hg}^{2+}/\text{Hg}} = 0.79 \text{ V}. \)

Which of the following statements is correct

(1) AgNO₃ can be stored in copper vessel.
(2) Cu(NO₃)₂ can be stored in magnesium vessel.
(3) CuCl₂ can be stored in silver vessel.
(4) HgCl₂ can be stored in copper vessel.

83. Which polymer is not correctly matched?

<table>
<thead>
<tr>
<th>Polymer</th>
<th>Monomer</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Buna-N</td>
<td>Butadiene and acrylonitrile</td>
</tr>
<tr>
<td>(2) Glyptal</td>
<td>Sebastic acid and Ethylene glycol</td>
</tr>
<tr>
<td>(3) Orlon</td>
<td>Acrylonitrile</td>
</tr>
<tr>
<td>(4) Dacron</td>
<td>Terephthalic acid and ethylene glycol</td>
</tr>
</tbody>
</table>

84. In a Lassaignes’s test for sulphur in the organic compound with sodium nitroprusside solution the purple colour formed is due to:

(1) [Fe(CN)₅NOS]⁴⁻
(2) [Fe(CN)₅S]²⁻
(3) [Fe(CN)₅NOS]²⁻
(4) [Fe(CN)₅]⁶⁻

85. Which among the following statement is wrong regarding Mohr’s salt :-

(1) It has five ions per molecule
(2) It is a double salt.
(3) It does not give test of Fe²⁺ ions.
(4) It contains two type of cations.
86. The activation energy of a reaction at a given temperature is found to be 2.303RT J mol\(^{-1}\). The ratio of rate constant to the Arrhenius factor is:

<table>
<thead>
<tr>
<th>Option</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>0.1</td>
</tr>
<tr>
<td>(2)</td>
<td>0.01</td>
</tr>
<tr>
<td>(3)</td>
<td>0.001</td>
</tr>
<tr>
<td>(4)</td>
<td>0.02</td>
</tr>
</tbody>
</table>

87. What will be the emf for the given cell?

\[
\text{Pt} | \text{H}_2 (g,P_1) | \text{H}^+(aq) | \text{H}_2 (g,P_2) | \text{Pt}
\]

\[
\frac{\frac{RT}{F} \ln \frac{P_1}{P_2}}{2F} \quad \frac{\frac{RT}{F} \ln \frac{P_1}{P_2}}{2F} \quad \frac{\frac{RT}{F} \ln \frac{P_1}{P_2}}{2F} \quad \text{None of these}
\]

88. HDP (High density polythene) is prepared by:

1. Polymerisation of ethene in presence of Ziegler natta catalyst
2. Polymerization of ethene in absence of any catalyst
3. Polymerization of acetylene in presence of Ziegler natta catalyst
4. Polymerization of acetylene in absence of any catalyst

89. Which of the following gives paracetamol on acetylation:

<table>
<thead>
<tr>
<th>Option</th>
<th>Compound</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(\text{OH}) (\text{NH}_2)</td>
</tr>
<tr>
<td>(2)</td>
<td>(\text{OH}) (\text{NH}_2)</td>
</tr>
<tr>
<td>(3)</td>
<td>(\text{NH}_2)</td>
</tr>
<tr>
<td>(4)</td>
<td>(\text{OH}) (\text{NH}_2)</td>
</tr>
</tbody>
</table>

90. Among the following complexes the one which shows zero crystal field stabilization energy [CFSE] is:

<table>
<thead>
<tr>
<th>Option</th>
<th>Complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>([\text{Mn(H}_2\text{O)}_6]^3^+)</td>
</tr>
<tr>
<td>(2)</td>
<td>([\text{Fe(H}_2\text{O)}_6]^3^+)</td>
</tr>
<tr>
<td>(3)</td>
<td>([\text{Co(H}_2\text{O)}_6]^2^-)</td>
</tr>
<tr>
<td>(4)</td>
<td>([\text{Co(H}_2\text{O)}_6]^3^+)</td>
</tr>
</tbody>
</table>
91. Which of the following is not a freshwater fish?
   (1) Mystus  (2) Catla  (3) Clarias  (4) Hilsa

92. Consider the following four statement (I-IV) regarding kidney transplant and select the two correct ones out of these.
   I. Even if a kidney transplant surgery is successful the recipient may need to take immuno-suppressant for a long time.
   II. The cell-mediated immune response is responsible for the graft rejection.
   III. The B-lymphocytes are responsible for secretion of perforin.
   IV. The acceptance or rejection of a kidney transplant depends on specific interferons.
   (1) II and III  (2) III and IV  (3) I and III  (4) I and II

93. Trisomy 21 or mongolism are other names for :
   (1) Klinefelter's syndrome  (2) Turner's syndrome  (3) Down's syndrome  (4) Sickle cell anemia

94. Protina and Rattan are protein rich variety of
   (1) Rice  (2) Maize  (3) Wheat  (4) Cotton

95. Mammals from colder climates generally have shorter ears and limbs to minimise heat loss, this is called as :-
   (1) Bergmann rule  (2) Allen’s rule  (3) Gause rule  (4) Rensch’s rule

96. What is not true for primary succession?
   (1) Humus or organic matter is absent in the early stages
   (2) The area is barren from the beginning
   (3) Reproductive structures of previous living beings may be present
   (4) Takes more time as compared to secondary succession

97. Green muffler is planting of tree to reduce noise pollution it is done :-
   (1) On waste lands  (2) Along roads  (3) Along canals  (4) On the slopes of hill
98. The storage of energy at consumer level is known as :-
(1) Net primary productivity
(2) Total photosynthesis
(3) Gross primary production
(4) Secondary productivity

99. Which one factor is not include in “Evil quartet”
(i) Habitat loss and fragmentation
(ii) Over exploitation
(iii) Alien species invasions
(iv) Narrowly utilitarian
(v) Co-extinction
(1) v (2) iv (3) ii (4) iii

100. How many statements are correct :-
(a) Eutrophication is natural aging of a lake by nutrient enrichment of its water.
(b) Methane is major cause of green house effect.
(c) Ozone is harmful for human in troposphere.
(d) Thickness of ozone is measured in metre scale.
(1) Four (2) Three
(3) Two (4) One

101. In Bombyx mori, if juvenile hormone is absent at the time of larval moulting, the worm will ?
(1) Moult into larval stage
(2) Moult into adult
(3) Moult into pupa
(4) Do not moult and die

102. Malignant property of benign tumor which is absent in malignant tumor ?
(1) Slow growth
(2) Presence of Metastasis
(3) Invasion into surrounding tissue
(4) All the above

103. A disease which causes the black colour of the urine :-
(1) Leukemia (2) Haemophilia
(3) Sickle-cell anaemia (4) Alkaptonuria

104. ‘Sonalika’ is the improved variety of which crop
(1) Maize (2) Pea
(3) Rice (4) Wheat
105. How many statements are not correct? 
(a) Domestic sewage contains biodegradable organic matter
(b) A scrubber remove gases like sulphur
(c) Electrostatic precipitates can remove 99% particulate matter present in exhaust from thermal power plant.
(d) Particulate size 2.5 μm or less in diameter are not harmful for human health.
(1) One  (2) Three  (3) Four  (4) Two

106. If biotic potential of a species becomes high then
(1) No. of species in area will increase
(2) Species diversity in area will increase
(3) No. of individuals of a particular species will increase
(4) No. of individuals of other species always decrease

107. The extinction of passenger pigeon was due to:-
(1) Increased number of predatory birds
(2) Over exploitation by humans
(3) Non-availability of the food
(4) Bird flu virus infection

108. The share of CFC in green house effect is :-
(1) 60%  (2) 20%  (3) 14%  (4) 6%

109. Ultraviolet rays causes :-
(A) Skin cancer  (B) High blood pressure
(C) Blood sugar  (D) DNA damage
(1) A, B  (2) B, C  (3) A, D  (4) C, D

110. Net primary productivity is a :-
(1) NPP = G.P.P. – R  (2) NPP = G.P.P. + R
(3) NPP = G.P.P.  (4) NPP = R

111. Exotic breeds popularly used in our country ?
(1) White leghorn and Rhode Island Red
(2) Rhode Island Red and Andalusian
(3) White leghorn and Andalusian
(4) Plymoth Rock and Andalusian

112. How many signs in the list given below are included in warning signs of drug and alcohol abuse?
Drop in academic performance, isolation, increased interest in hobbies, fluctuations in weight, aggressive behaviour, fatigue
(1) 6  (2) 5  (3) 4  (4) 3
113. Cholera, leprosy and diptheria are:
   (1) Bacterial diseases  (2) Viral diseases  
   (3) Fungal diseases  (4) Protozoan diseases

114. Most important steps in plant breeding:
   (1) Selection  (2) Hybridisation  
   (3) Selection of superior characters  (4) Mass selection

115. Match the Column-I to Column-II

<table>
<thead>
<tr>
<th>Column–I</th>
<th>Column–II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Forest Act</td>
<td>(i) 1974</td>
</tr>
<tr>
<td>(B) Water pollution Act</td>
<td>(ii) 1981</td>
</tr>
<tr>
<td>(C) National forest policy</td>
<td>(iii) 1927</td>
</tr>
<tr>
<td>(D) Air pollution Act</td>
<td>(iv) 1988</td>
</tr>
</tbody>
</table>

116. A logistic growth curve depicting a population that is limited by a definite carrying capacity is shaped like:
   (1) J  (2) L  (3) M  (4) S

117. What type of interaction shows in this graph between two organisms x and y –
   (1) Mutualism  (2) Commensalism  
   (3) Proto-Co-Operation  (4) Predation

118. Which of the following gas mainly causes “Green house effect”?
   (1) Oxygen and hydrogen  (2) Carbon dioxide and nitrogen  
   (3) Carbon dioxide and chlorofluorocarbons  (4) Nitrogen and sulphur dioxide

119. Fresh water present on earth is:
   (1) 97.5%  (2) 0.01%  
   (3) 2.5%  (4) 1.97%

120. Which one is renewable and exhaustible resource?
   (1) Wildlife  (2) Fossil fuel  
   (3) Minerals  (4) Coal
121. Which among the following is real product of honey bee ?
   (1) Honey   (2) Propolis
   (3) Beewax   (4) Pollen

122. Which of the following statement is true for the structure given below :

(1) It interferes with the transport of the neurotransmitter dopamine
(2) Useful in patients who have undergone surgery
(3) Obtained from Cannabis sativa
(4) It has a potent stimulating action on nervous system

123. What is the wrong statement about passive acquired immunity ?
   (1) Host immune system does not participate
   (2) Induced by antigen
   (3) Applicable in immunodeficient host
   (4) Used for treatment in acute infection

124. Cereals and Millets are mainly deficient in which amino acids?
   (1) Methionine and cysteine
   (2) Lysine
   (3) Tryptophan
   (4) Both (2) and (3)

125. Drought resistant and fire resistant plant species are found in which biome ?
   (1) Northern coniferous
   (2) Temperate deciduous
   (3) Tropical deciduous
   (4) Chaparral

121. निम्न में से कौन सा मधुमक्खी का वास्तविक उत्पाद है?
   (1) शहद   (2) प्रोपॉलिस
   (3) मधुमक्खी का मोम   (4) पराण

122. नीचे दी गई संरचना के लिए निम्न में से कौन सा कथन सत्य है?

(1) यह तंत्रिका अन्य डोमेन में परिवर्तन में बाधा डालती है।
(2) जिन रोगियों में सत्यत्वक्रश हुई है, उनके लिए बहुत उपयोगी है।
(3) कैन्नाबिस सैंडियापरे पोषे प्राप्त की जाती है।
(4) इसका केंद्रीय तंत्रिका तंत्र पर जोड़कर उद्देश्यक असर पड़ता है।

123. निम्नक्रियाविधि प्रतिरक्षा के बारे में गलत कथन क्या है?
   (1) मेंजवान प्रतिरक्षा तंत्र की भागीदारी नहीं होती है।
   (2) एप्टीजन द्वारा प्रेरण
   (3) प्रतिरक्षात्मक कमजोर मेंजवान में उपयोगी
   (4) एक्सट्रे संक्रमण के इलाज में प्रयुक्त

124. धान और दालों में निम्न में से किस आमिन अमिन की कमी होती है?
   (1) Methionine and cysteine
   (2) Lysine
   (3) Tryptophan
   (4) (2) और (3) दोनों

125. सूखा प्रतिरोधी तथा आग प्रतिरोधी पादप जातियों किस बायोम में पायी जाती है?
   (1) उत्तरी शांतिपूर्वी
   (2) शीतोष्ण पर्वतारी
   (3) उणकटिबंधीय पर्वतारी
   (4) चैपारल
126. In equation \( \frac{dN}{dt} = rN \left( \frac{K - N}{K} \right) \); here \( K \) is defined by:

1. Maximum population density achievable under available resources.
2. Carrying capacity of habitat
3. Both (1) & (2)
4. Maximum intrinsic rate of growth

127. In tropical rain forests, the soil is characterized by:

1. Sandy soil
2. Thin surface soil
3. Thin layer of rocks
4. Poor organic (nutrient) content

   (i) i & iii
   (ii) ii & iv
   (iii) i & ii
   (iv) i, iii & iv

128. Chipko movement is related to:

1. Tehri dam project
2. Forest conservation
3. Ganga water project
4. Narmada dam project

129. Slash and burn agriculture commonly called as Jhum cultivation in north-eastern states of India related to:

1. Deforestation
2. Afforestation
3. Crop rotation
4. Dry farming

130. Species which play a vital role in controlling the relative abundance of other species, and control functioning of the community is called:

1. Dominant species
2. Key stone species
3. Link species
4. Network species

131. Most common honey bee of India is:

1. Apis indica
2. Apis mellifera
3. Apis florea
4. Apis dorsata
132. Disease which is shown in the figure spreads through :-

(1) Contaminated food and water
(2) Using towel of infected individual
(3) Through the bite by female mosquito vectors
(4) Droplet infection

133. If a pregnant women is suffering from Rubella infection, then after delivery, which type of antibodies are present in her neonates?

(1) IgM only
(2) IgG only
(3) IgM and IgG
(4) IgA and IgG

134. Select the correct match :-

<table>
<thead>
<tr>
<th>Disease</th>
<th>Pathogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Brown rust of wheat</td>
<td>(i) Virus</td>
</tr>
<tr>
<td>(B) Black rot of crucifers</td>
<td>(ii) Bacteria</td>
</tr>
<tr>
<td>(C) Turnip mosaic</td>
<td>(iii) Fungi</td>
</tr>
</tbody>
</table>

(1) A = iii, B = i, C = ii
(2) A = i, B = ii, C = iii
(3) A = ii, B = iii, C = i
(4) A = iii, B = ii, C = i

135. Two closely related species which are competing for the same resources, can not co-exist indefinitely and the competitively inferior will be eliminated eventually. This is called :-

(1) Allen's law
(2) Resource partining
(3) Competitive exclusion principle
(4) Competitive release
136. Which zone of lake has minimum species diversity
   (1) Littoral zone
   (2) Limnetic zone
   (3) Profundal zone
   (4) Tropical zone

137. Which of the following is expected to have the highest value in a grassland:
   (1) Net production (N.P.)
   (2) Secondary production
   (3) Tertiary production
   (4) Gross production (G.P.)

138. The aim of Earth summit held at Rio-de-Janeiro in 1992:
   (1) Conservation of rivers
   (2) Establishment of biosphere reserves
   (3) Conservation of biodiversity
   (4) Water pollution control

139. Which abiotic factor mainly affects the kinetics of enzymes and through it the basal metabolism activity and other physiological functions of the organism:
   (1) Light
   (2) Temperature
   (3) Water
   (4) Soil

140. Exploring molecular, genetic and species level diversity for products of economic importance is called:
   (1) Biodiversity
   (2) Bioprospecting
   (3) Biopiracy
   (4) Bioremediation

141. Which of the following cell is non phagocytic and forms cellular barrier of innate immunity?
   (1) T-lymphocyte
   (2) Natural killer cells
   (3) Monocyte
   (4) Polymorphs
142. Which of the following statement is **false** for the structure given below?

![Antigen binding site](image)

- (1) Represented by $H_L^2$
- (2) These molecule contains peptide bonds
- (3) These are secreted by Plasma cells
- (4) They have four peptide chains of four types

143. What is the cause of transplant rejection?

- (1) Mismatching of HLA
- (2) Autoimmunity
- (3) Immune system disorder
- (4) Gene mutation

144. The dwarf wheat varieties brought from Mexico into India were -

- (1) Sonalika
- (2) Sabrmati Sonara and Pusa Lerma
- (3) Sonora 64 and Lerma Rojo 64
- (4) Sonora 64 and Kalyan Sona

145. Which type of Biome is represented by the 'X'?

![Biome Diagram](image)

- (1) Tropical forest
- (2) Temperate forest
- (3) Coniferous forest
- (4) Grassland
146. Match the following column:
Which type of diversity found in what type of place

<table>
<thead>
<tr>
<th>List – I</th>
<th>List – II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Alpha diversity</td>
</tr>
<tr>
<td>(ii)</td>
<td>Gama diversity</td>
</tr>
<tr>
<td>(iii)</td>
<td>Maximum diversity</td>
</tr>
<tr>
<td>(iv)</td>
<td>Beta diversity</td>
</tr>
</tbody>
</table>

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

147. How many statements are correct?
(a) Automobiles are major cause for atmospheric pollution atleast in metro cities.
(b) Water which contain 0.1% of impurities is harmful for drinking.
(c) As organic matter increased BOD decreases.
(d) High concentration of DDT affect Ca-metabolism in birds.

(1) One (2) Three (3) Two (4) None

148. Which is not a positive pollution?
(1) More use of fertilizer
(2) Land filling by wastes
(3) Deforestation
(4) Dumping of radioactive waste in soil

149. CNG is a:
(1) Compressed natural gas
(2) Collecting natural gas
(3) Compound natural gas
(4) All of these

150. Regions with very high levels of species richness and high degree of endemism are called:
(1) Biosphere reserve
(2) Sacred grooves
(3) Hot spot
(4) Amazon forest

151. Spleen is a large bean-shaped organ which mainly contains lymphocytes and phagocytes. It acts as a filter of the blood by trapping microorganisms.
(1) Tissue fluid borne
(2) blood-borne
(3) water-borne
(4) lymph-borne
152. Which of the following pair is not matched correctly :
(1) Cytokine barrier : interferons
(2) Physical barrier : skin and mucosa
(3) Vector-borne disease : Pneumonia
(4) Aedes mosquito : Chikungunya

153. What is the basic concept of vaccine for formation of immunity ?
(1) Specificity
(2) Immunological memory
(3) Diversity
(4) Discrimination

154. Wheat variety for resistance to leaf and stripe rust.
(1) Sonalika (2) Himgiri
(3) HUW 468 (4) Sonora 64

155. An assemblage of population of plant, animal bacteria and fungi that live in an area and interact with each other formed:-
(1) Ecosystem (2) Population
(3) Community (4) Environment

156. In following diagram D is a :-
(1) Discharge corona
(2) Positively charged wire
(3) Lime spray
(4) Collection plate grounded

157. Which one of the following regarding ecological pyramid is not correct ?
(1) In most ecosystems, the pyramid of number are upright
(2) In tree-dominated ecosystem the pyramid of number is inverted.
(3) The pyramid of energy expresses mainly the rate of food production
(4) In aquatic ecosystem, the pyramid of biomass is upright.
158. Acidic rain is due to increase in atmospheric concentration of :-
(1) O$_3$
(2) CO$_2$ and CO
(3) SO$_3$ and CO
(4) SO$_2$ and nitrogen oxide

159. Topography is :-
(1) Study of temperature variations on earth
(2) Study of precipitation on earth
(3) Study of weathering process
(4) Study of physical structure of earth surface

160. JFM includes :-
(1) Protection of forest for improve the variety of plants
(2) Jhoom cultivation
(3) Joint the small forest area and form a large biosphere reserve
(4) Protection of forest by participation of local communities and government

161. Which of the following is pair of viral diseases?
(1) common cold, AIDS
(2) dysentery, common cold
(3) typhoid, tuberculosis
(4) ringworm, AIDS

162. "Infected cell can survive while viruses are being replicated and released" is true for which of the following :-
(1) Macrophage
(2) T-Helper
(3) HIV-factory
(4) Both (1) and (3)

163. Match the right option -

<table>
<thead>
<tr>
<th>Column-I</th>
<th>Column-II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Dee geo-wav-gen</td>
<td>(i) rice</td>
</tr>
<tr>
<td>(B) Sharbati sonora</td>
<td>(ii) Mutation</td>
</tr>
<tr>
<td>(C) Cow pea</td>
<td>(iii) Pusa komal</td>
</tr>
<tr>
<td>(D) Chilli</td>
<td>(iv) Pusa Sadabahar</td>
</tr>
</tbody>
</table>

(1) A - (i), B - (ii), C - (iii), D-(iv)
(2) A - (i), B - (ii), C - (iii), D-(iv)
(3) A - (i), B - (ii), C - (iii), D-(iv)
(4) A - (iv), B - (i), C - (ii), D-(iii)

164. A new variety of A. esculentus called Parbhani Kranti is created by
(1) Mutation breeding
(2) Selection
(3) Tissue culture
(4) Genetic engineering

158. बालू मिट्टी लेंगे जिसमें जिसकी मात्रा बढ़ने पर अंजन बना है तो यह (१) O$_3$
(2) CO$_2$ व CO
(3) SO$_3$ व CO
(4) SO$_2$ व नाइट्रोजन ओक्साइड

159. तापमान व परीक्षण नतं अंजन के अध्ययन (१) पृथ्वी पर तापमान संख्या (२) पृथ्वी पर वातावरण (३) अग्नि व प्रकाश के अध्ययन (४) P. मि सह द के लिए सरकार के अध्ययन

160. JFM में सरकार के :-
(1) पर्यावरण के लिए बढ़ाने का संशोधन और (२) ज्ञान में (३) छोटे-छोटे बच्चे को मिला कर बढ़ाने के लिए पर्यावरण (४) राजस्व नीति का उपयोग

161. निम्न में से कौन श्रेणी में विचार धर्म है?
(1) श्रेणी का युज का AIDS
(2) अंजन, श्रेणी का वाम
(3) यू. हाइफाइ, ज्ञान में वाम लाने की सिस्टम
(4) दांग्रिकार्म, AIDS

162. "संक्रमण के श्रेणी वाले पर्यावरण संशोधन शासन उत्तराधिकार वाले पर्यावरण का हो सकता है और वाशार्यें हो सकते हैं।" के लिए निम्न में से किसिमें लिए जाते हैं?
(1) ब्रह्म विजय विचार (२) साहा कस्तर दे श्रेणी का शिक्षा (३) एक और श्रेणी दो चीज़ों (४) ब्रह्मांड के श्रेणी

163. सहूलिका पंक्ति का भिन्नता न करें.
165. Interaction of biotic factor with each other and their integration with its physical environment, creates a structure is called:-
(1) Community (2) Ecosystem (3) Organism (4) Population

166. Sacred groves are example of in situ conservation are found in :-
(A) Khasi and Jaintia – In Meghalaya (B) Aravalli hills – In Rajasthan (C) Chanda and Bastar – In Madhya Pradesh (D) Western ghats – In Karnataka
(1) A, B Only (2) B, C Only (3) A, C Only (4) A, B, C, D

167. What will be effect of addition of organic materials in water ?
(1) C.O.D. remain unaffected (2) B.O.D. remain unaffected (3) Increase B.O.D. (4) Reduce B.O.D.

168. Frequent occurrence of water blooms in a lake indicates :-
(1) Nutrient deficient (2) Oxygen deficiency (3) Excessive nutrient availability (4) Absence of herbivores

169. What can be correct for following food web ?

170. Which of the following statement is not true for nutrient cycles ?
(1) They are of two types i.e. gaseous and sedimentary (2) Cycling of nutrients is not influenced by environmental factors (3) Lithosphere acts as reservoir for sedimentary cycle (4) Atmosphere could function as reservoir during gaseous cycle
171. Which one of the following options gives the correct matching of a disease with its causative organism and mode of infection?

<table>
<thead>
<tr>
<th>Disease</th>
<th>Causative Organisms</th>
<th>Mode of infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elephantiasis</td>
<td><em>Wuchereria bancrofti</em></td>
<td>With infected water and food</td>
</tr>
<tr>
<td>Malaria</td>
<td><em>Plasmodium vivax</em></td>
<td>Bite of male Anopheles mosquito</td>
</tr>
<tr>
<td>Typhoid</td>
<td><em>Salmonella typhi</em></td>
<td>With inspired air</td>
</tr>
<tr>
<td>Pneumonia</td>
<td><em>Streptococcus Pneumoniae</em></td>
<td>Droplet infection</td>
</tr>
</tbody>
</table>

172. Which of the following pair is not matched correctly?

1. IgG : - Protects body fluids
2. IgD : - Activation of B-lymphocytes
3. IgM : - Mediates regional Hypersensitivity
4. IgE : - Protection from parasites

173. Center of origin of rice is :-

1. China    2. India    3. Brazil    4. USA

174. Which factor is /are mainly responsible for formation of major biomes?

1. Annual variation in precipitation
2. Annual variation in the intensity and duration of temperature
3. Regional and local variations
4. Both (1) and (2)

175. Decomposers like fungi and bacteria are :-

i. autotrophs
ii. heterotrophs
iii. saprotrophs
iv. chemo-autotrophs

1. i and iii
2. i and iv
3. ii and iii
4. i and ii

176. In nature, a given habitat has enough resources to support a maximum possible number, beyond which no further growth is possible this is termed as :-

1. Population density
2. Carrying capacity
3. Population size
4. Community
177. Exposure to ozone hole lead to extreme skin sensitivity in some persons and develop a condition such as: -
(1) Colour blindness
(2) Hemophilia
(3) Hypercholesterolemia
(4) Xeroderma pigmentosum

178. Catalytic converter is used in automobiles:
(1) For removing the poisonous lead
(2) For converting CO and harmful hydrocarbons into CO₂ and water vapours
(3) For removing water from air
(4) For removing organic matter from lake

179. What is exactly is stability for a biological community?
(1) It should not show much variation in productivity
(2) It must be either resistant or resilient to occasional disturbances
(3) It must also be resistant to invasions by alien species
(4) All of the above

180. Maximum amount of total global carbon is present in:
(1) Hydrosphere nearly 71%
(2) Atmosphere nearly 1%
(3) Atmosphere nearly 71%
(4) Fresh water bodies nearly 30%

Your moral duty is to prove that Allen is Allen

Your Target is to secure Good Rank in Pre-Medical 2016