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.

प्रवेश विद्यार्थी का रजिस्ट्रेशन न. के अनुसार स्थान निविदा है तथा वे अपने स्थान पर ही बैठें। यदि कोई विद्यार्थी किसी दूसरे विद्यार्थी के स्थान पर बैठा पाए तो उन विद्यार्थियों को परीक्षा कक्ष से बाहर कर दिया जाए और दोनों को अन्य जुर्माना भी स्वीकार करें।

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

परीक्षा की अवधि 3 घंटे है तथा प्रश्न पत्र में 180 प्रश्न हैं। माका अंक 720 हैं।

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

विद्यार्थी परीक्षा कक्ष में लोग फैन, कैल्कुलेटर या किसी अन्य सामग्री का उपयोग नहीं कर सकता है।

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

परीक्षा के समय विद्यार्थी को परीक्षा कक्ष के द्वारा दिये गये निर्देशों को पालन करना आवश्यक है।

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

प्रश्न पत्र हल करने से पहले विद्यार्थी आवश्यक है कि इसमें सभी पेज संतरण हैं और अभाव नहीं।

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

प्रत्येक सही उत्तर के 4 अंक हैं। प्रत्येक गलत उत्तर पर 1 अंक कट लिया जाएगा। उत्तर के अनुमान से भरना हानिकारक हो सकता है।

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.

परीक्षा को हल करने वाले प्रश्न का उत्तर OMR पत्र में सही स्थान पर चैंपेन नोल्स / कार्टे बॉल पॉइंट पेन के द्वारा चौंकाने को गहरा करने देना है।

8. Use of Pencil is strictly prohibited.

पेनसिल का प्रयोग सर्वर्ष्य मन्त्रित है।

Note: In case of any correction in the test paper, please mail to dlpcorrections@allen.ac.in within 2 days along with Your Form No. & Complete Test Details.

यदि इस प्रश्न पत्र में कोई Correction हो तो कृपया आपके Form No. एवं पूर्ण Test Details के साथ 2 दिन के अन्दर dlpcorrections@allen.ac.in पर mail करें।

Do not open this Test Booklet until you are asked to do so / इस प्रश्न पत्र को निर्देश तक न करें जब तक कि आप कोई नहीं संघर्ष के लिए।

Allen Career Institute
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1. Interference pattern is observed by 5000Å light when a (Refractive index $\mu = 1.5$) thin glass plate is placed in path of one of the interfering wave, then central fringe shifts to third bright fringe then thickness of glass plate :-
   (1) $4.8 \times 10^{-6}$ m.  
   (2) 3 $\mu$m  
   (3) $14.98 \times 10^{-6}$ m.  
   (4) $3.78 \times 10^{-6}$ m.

2. To reduce the ripples in a rectifier circuit with capacitor filter :-
   (1) $R_L$ should be increased  
   (2) Input frequency should be increased  
   (3) Capacitors with high capacitance should be used  
   (4) All of the above

3. In YDSE two slits are behaves like two coherent sources of amplitude 'A' and wavelength ' $\lambda$'. In another experiment with same condition two slits are behaves like two incoherent sources of amplitude 'A' and wavelength ' $\lambda$'. ratio of the intensity due to first and second condition at central point on the screen is :-
   (1) 2 : 1  
   (2) 1 : 2  
   (3) 1 : 1  
   (4) 4 : 1

4. In the following circuit the output Y for all possible input of A and B is expressed for the truth table.

```
A  B  Y
0  0  0
0  1  1
1  0  1
1  1  0
```

1. 5000Å के प्रकाश द्वारा उत्पन्न घटक प्रकाश क्रियायों में यह प्रकाश ज्यामिति है कि जहाँ प्रकाश प्रकाश ज्यामिति के नाम पर गाने में से एक के प्रकाश ज्यामिति अस्तित्व का काफी प्रमाण प्रकाश रहे हैं, तो के -$2$ घटक ज्यामिति के सी घटक ज्यामिति में पूर्ण प्रकाश है, काफी के प्रकाश ज्यामिति मात्रह हैं:-
   (1) $4.8 \times 10^{-6}$ m.  
   (2) 3 $\mu$m  
   (3) $14.98 \times 10^{-6}$ m.  
   (4) $3.78 \times 10^{-6}$ m.

2. किसी दिशा की चर्चा में संधि सिर्फ फिल्टर द्वारा संग्रह के आयु के घटने के कारण:-
   (1) $R_L$ को बढ़ाना चाहिए  
   (2) विनिमय आयु की बढ़िया  
   (3) अधिक कठिनाई के संबंध स्त्रियों बढ़ाना चाहिए  
   (4) चाहिए कमाल का

3. YDSE प्रयोग में दो ही स्लिथ्स खुश प्रकाश कास्म ग्रहण $\lambda$ वर्दा की ग्रहण करते हैं। अवधारणा प्रयोग में उसे आस्तित्व के सच्चे वही दो ही स्लिथ्स अर्थात् अवधारणा के सच्चे वही रोगी तथा $\lambda$ वर्दा की ग्रहण करते हैं पर वे कम अवधारणा है। ये सदत्रिय रोगी में प्रकाश की तीन तथा अंत द्वारा रोगी है।
   (1) 2 : 1  
   (2) 1 : 2  
   (3) 1 : 1  
   (4) 4 : 1

4. निम्नलिखित सिर्फ ये वे के सभी सभी विनिमय रोगी में बन गए हैं।

```
A  B  Y
0  0  0
0  1  1
1  0  1
1  1  0
```

```
A  B  Y
0  1  0
0  1  1
1  0  0
1  1  1
```

1. प्रयोग क्रम के अधुरे न बना कर चले।
5. In Young’s experiment for interference of light the slits are 0.2 cm apart are illuminated by yellow light (\( \lambda = 5896 \, \text{Å} \)). What would be the fringe width on a screen placed 1 meter from the plane of slits. The whole experiment is immersed in water (\( \mu = 4/3 \)):–
   (1) 2.25 mm.  
   (2) 0.8 mm.  
   (3) 1 mm.  
   (4) None

6. The following configuration of gate is equivalent to :
   \[ \begin{array}{c}
   A \rightarrow \text{OR} \rightarrow B \\
   \text{NAND} \rightarrow \text{G} \rightarrow \text{AND} \rightarrow \text{G}
   \end{array} \]
   (1) NAND  
   (2) XOR  
   (3) OR  
   (4) None of these

7. Two sources \( S_1 \) & \( S_2 \) emitting coherent light waves of wavelength \( \lambda \) in the same phase are situated as shown. The distance OP, so that the light intensity detected at P is equal to that at O is :
   \[ \frac{2 \lambda}{D} \]
   (1) \( \sqrt{2} \)  
   (2) \( \frac{D}{2} \)  
   (3) \( \frac{D}{\sqrt{3}} \)  
   (4) \( \frac{D}{\sqrt{3}} \)

8. In NPN transistor, \( 10^{10} \) electrons enter in emitter in \( 10^{-6} \) s. If 2% electrons are lost in base region then collector current and current amplification factor (\( \beta \)) respectively :
   (1) 1.57 mA, 49  
   (2) 1.92 mA, 70  
   (3) 2 mA, 25  
   (4) 2.25 mA, 100

9. A double slit illuminated by two wavelengths 4500Å and 6000Å. What is the lowest order at which maxima of one wavelength coincides with the maxima of other wavelength :
   (1) 1  
   (2) 2  
   (3) 3  
   (4) 4

10. For the transistor circuit shown if \( \beta = 100 \) & voltage between base and emitter is 0.7 V then value of \( V_{CE} \) will be :
   \[ \begin{array}{c}
   8.6k \Omega \\
   5V \\
   C \rightarrow \text{CE} \rightarrow \text{V} \rightarrow \text{E} \rightarrow \text{18V}
   \end{array} \]
   (1) 10 V  
   (2) 5V  
   (3) 13 V  
   (4) 0V
11. A small bar magnet is dropped so that it falls vertically through coil. The graph obtained for voltage produced across the coil is given by:

\[ E_{\text{induced}} \]

\[ \text{time} \]

12. Find the value of \( i_1 \) and \( i_2 \) for given circuit.

\[ 10V \quad 12k\Omega \]

\[ 2k\Omega \]

\[ 14k\Omega \]

\[ 12k\Omega \]

5 mA, 5 mA

5 mA, 0

0 mA, 5 mA

5 mA, 0

13. A square loop of side 5 cm enters a magnetic field. The front edge enters the magnetic field at \( t = 0 \) then which graph best depicts magnetic force:

\[ 5cm \]

\[ x = 0cm \]

\[ x = 20cm \]

\[ \times \times \times \times \times \]

\[ \times \times \times \times \times \]

\[ \times \times \times \times \times \]

\[ \times \times \times \times \times \]

\[ \times \times \times \times \times \]

\[ \times \times \times \times \times \]

\[ \times \times \times \times \times \]

\[ \times \times \times \times \times \]

\[ \times \times \times \times \times \]
14. The conductivity of a semiconductor increases with increases in temperature because:
(1) number density of free current carriers increases
(2) relaxation time increases
(3) both number density of carriers and relaxation time increase
(4) number density of current carriers increases relaxation time decreases but effect of decreases in relaxation time is much less than increase in number density.

15. A simple electric motor has an armature resistance of 0.5 Ω and runs from a dc source of 12V. When running unloaded it draws a current of 2A. When a certain load is connected, its speed becomes half of its unloaded value. The new value of current drawn:
(1) 7A (2) 8A (3) 12A (4) 13A

16. Hole is:
(1) anti particle of electron
(2) Vacancy created when an electron leaves a covalent bond
(3) Absence of free electrons
(4) An artificially created particle

17. Light with an energy flux of 60 W/cm² falls on a non-reflection surface at normal incidence. If the surface has an area of 30cm² the total momentum delivered for complete absorption during 30 minutes is:
(1) 36 × 10⁻⁵ N·s.
(2) 36 × 10⁻⁴ N·s.
(3) 108 × 10⁻⁴ N·s.
(4) 1.08 × 10⁷ N·s.

18. The output of the given circuit in figure:
(1) Would be zero at all times
(2) Would be like a half wave rectifier with positive cycles in output
(3) Would be like a half wave rectifier with negative cycles in output
(4) Would be like that of a full wave rectifier
19. The electric field intensity produced by the radiations coming from 100 W bulb at a 3m distance is E. The electric field intensity produced by the radiations coming from 25W bulb at the same distance is :-

   (1) \( \frac{E}{2} \)  
   (2) \( 2E \)  
   (3) \( \frac{E}{\sqrt{2}} \)  
   (4) \( \sqrt{2}E \)

20. If binding energies per nucleon of X, B and A are 7.4 MeV, 8.2 MeV and 8.2 MeV respectively, then the energy released in the reaction : \( X^{200} \rightarrow A^{110} + B^{90} + \text{energy} \), are :-

   (1) 200 MeV  
   (2) 160 MeV  
   (3) 110 MeV  
   (4) 90 MeV

21. The ratio of contributions made by the electric field and magnetic field components to the intensity of an EM wave is :-

   (1) \( c : 1 \)  
   (2) \( c^2 : 1 \)  
   (3) \( 1 : 1 \)  
   (4) \( \sqrt{c} : 1 \)

22. In nuclear reactor enriched uranium used as fuel. This means that the percentage of U-235 isotope has been raised to approximately

   (1) 100%  
   (2) 70%  
   (3) 3%  
   (4) 0.7%

23. The r.m.s and mean value of voltage of the wave form shown are:-

   (1) 5V, 1V  
   (2) \( 5\sqrt{2}V, 1V \)  
   (3) 5V, 2V  
   (4) \( 5\sqrt{2}V, 2V \)

24. What is the power output of \( ^{235}_{92}Y \) reactor if it takes 30 days to use up 2 kg of fuel and if each fission gives 188 MeV of usable energy -

   (1) 59 MW  
   (2) \( 51 \times 10^4 \) MW  
   (3) 188 MW  
   (4) none of the above
25. A L.C.R series circuit is connected with the ac source of \( E = 311 \cos (314t) \) and as a result a current \( I = 7 \cos (314t - \pi/6) \) A flows in the circuit. As one increases continuously the frequency of alternating emf, current (rms) in circuit will:
   (1) Continuously increase
   (2) Continuously decrease
   (3) First increase to a maximum value and then decrease
   (4) First decrease to a minimum value and then increase

26. In the nuclear reaction \( X^A \to Z+1 Y^A \to Z+1 R^{A-4} \to Z+1 R^{A-4} \) the order of emitted particle will be:
   (1) \( \alpha, \beta, \gamma \)
   (2) \( \beta, \gamma, \alpha \)
   (3) \( \gamma, \alpha, \beta \)
   (4) \( \beta, \alpha, \gamma \)

27. A 4A current flows when a coil is connected to a 12V battery but 2.4A current flows when this coil is connected to the ac source of 12V (rms) and \( \frac{100}{\pi} \) Hz frequency. Then inductance of the coil is :
   (1) 10 mH
   (2) 20 mH
   (3) 400 mH
   (4) 80 mH

28. Which of the following statements is false?
   (1) The energy spectrum of \( \alpha \)-decay is line spectrum.
   (2) The energy spectrum of \( \beta \)-particles is continuous.
   (3) The energy spectrum of \( \gamma \)-decay is continuous.
   (4) The energy spectra of \( \alpha \) & \( \gamma \)-decay are line spectra

29. Find the number of image formed by both mirror :
   (1) 2
   (2) 4
   (3) 5
   (4) 6

30. Carbon 14 is found in living organisms in the amount of 100 atoms of carbon 14 for every 10^20 atoms of carbon 12. Carbon 14 emits beta particles and has a half-life of about 6000 years. The count rate from carbon 14 in a fossil indicates that the amount of carbon 14 atoms in the fossil has decreased to about 10 atoms of carbon 14 for every 10^20 atoms of carbon 12. What is the best estimated age of the fossil:
   (1) 600 years
   (2) 20000 years
   (3) 30000 years
   (4) 54000 years
31. An arrow shape object is viewed through a metal tube with the help of four plane mirrors A, B, C and D as shown in the figure. Every mirror is inclined at an angle of 45° with the horizontal. Which of the following represents correct images made by these mirrors in sequence?

(1) \[ \uparrow \quad \downarrow \quad \uparrow \quad \uparrow \]
(2) \[ \downarrow \quad \uparrow \quad \uparrow \quad \downarrow \]
(3) \[ \downarrow \quad \downarrow \quad \uparrow \quad \uparrow \]
(4) \[ \uparrow \quad \uparrow \quad \downarrow \quad \uparrow \]

32. The intensity of an X-ray beam reduces to 36.8% of its initial intensity after traversing a gold film of thickness \( 5 \times 10^{-3} \) m. Its absorption coefficient is:

(1) \( 50 \, m^{-1} \)
(2) \( 100 \, m^{-1} \)
(3) \( 150 \, m^{-1} \)
(4) \( 200 \, m^{-1} \)

33. A small object of length \( L \) lies along the principal axis and at a distance \( u \) is from a concave mirror of focal length \( f \). The size of image will be:

(1) \[ L \left( \frac{f}{u-f} \right)^{1/2} \]
(2) \[ L \left( \frac{u+f}{f} \right)^{2} \]
(3) \[ L \left( \frac{u-f}{f} \right)^{2} \]
(4) \[ L \left( \frac{f}{u-f} \right)^{2} \]

34. An x-ray tube, when operated at 50 kV tube voltage, records an anode current 20 mA. If the efficiency of the tube for production of x-rays is 1% then the heat produced per second in calories is nearly:

(1) 249
(2) 236
(3) 1000
(4) 990

Use stop, look and go method in reading the question.
35. Figures shows the graph of angle of deviation \( \delta \) versus refractive index \( \mu \) of the material of constant thin angled prisms corresponding to light rays incident at a small angle of incidence. The prism angle and slope of the line are respectively:

(1) 4° and 2
(2) 2° and 1/2
(3) 2° and 4
(4) 4° and 4

36. In a TV tube the electron are accelerated by a potential difference of 10 kV. Then, their deBroglie wavelength is nearly:

(1) 1.2 Å
(2) 0.12 Å
(3) 12 Å
(4) 0.01 Å

37. Velocity of light in diamond, glass and water decreases in the order:

(1) Water > Glass > Diamond
(2) Diamond > Glass > Water
(3) Diamond > Water > Glass
(4) Water > Diamond > Glass

38. Consider the statements given below:
(A) The wave and the particle aspects are both neccessary for a complete description of light
(B) The wave and particle aspects cannot be revealed simultaneously in a single experiment. The-
(1) A is true, B is false
(2) A is false, b is true
(3) Both A and B are false
(4) Both A and B are true

39. A point object is placed at the centre of a glass sphere of radius 6 cm and refractive index 1.5. The distance of the image from the surface of the sphere is:

(1) 2 cm
(2) 4 cm
(3) 6 cm
(4) 8 cm
40. A double slit interference experiment is performed by a beam of electron of energy 100 eV and the fringe spacing is observed to be $\beta$. Now if the electrons energy is increased to 10 keV, then the fringe spacing-
(1) remains the same (2) becomes 10 $\beta$
(3) becomes 100 $\beta$ (4) becomes $\frac{\beta}{10}$

41. The refractive index of block of glass is :-

(1) $\frac{\sqrt{3} + 1}{2}$ (2) $\frac{\sqrt{2} + 1}{2}$ (3) $\sqrt{3}/2$ (4) $\sqrt{7}/6$

42. Ultraviolet light of wavelength 300 nm and intensity 1.0 W/m$^2$ falls on the surface of a photosensitive material. If 1% of the incident photons produce photoelectrons, then the number of photoelectrons emitted from an area of 1.0 cm$^2$ of the surface-
(1) $9.61 \times 10^{14}$ per sec
(2) $4.12 \times 10^{13}$ per sec
(3) $1.51 \times 10^{12}$ per sec
(4) $2.13 \times 10^{11}$ per sec

43. If the ray rectraces its path, then the refractive index of the prism is :-

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

44. Surface of soldium is illuminated by a light of 3000 A° wavelength. Work function of sodium is 2.6 eV. Then maximum K.E. of emitted electrons is-
(1) 1.53 eV (2) 1.87 eV
(3) 2.46 eV (4) 4.14 eV

45. Momentum of a photon of electro-magnetic radiation is $3.3 \times 10^{-29}$ kgm/s. Then frequency of related waves is-
(1) $3.0 \times 10^3$ Hz (2) $6.0 \times 10^2$ Hz
(3) $7.5 \times 10^{12}$ Hz (4) $1.5 \times 10^{13}$ Hz
46. How much electric charge is required to deposit 7.25g Al from molten $\text{Al}_2\text{O}_3$?
(1) 7773.61 C  (2) 7773.61 C
(3) 23320.83 C  (4) 23320.83 C

47. The change in the optical rotation of freshly prepared solution of glucose is known as :-
(1) tautomerism  (2) racemisation
(3) specific rotation  (4) mutarotation

48. The equilibrium constant for the reaction
$\text{Cu(s)} + 2\text{Ag}^{+}(aq) \rightleftharpoons \text{Cu}^{2+}(aq) + 2\text{Ag}(s)$
$E^\text{o}_\text{cell} = +0.45\text{V}$, is nearly
(1) $10^{15}$  (2) $3 \times 10^7$
(3) $3 \times 10^{15}$  (4) $10^{14}$

49. Major contributors to acid rain are :-
(1) $\text{SO}_2$ & $\text{NO}_2$  (2) $\text{CO}$ & $\text{CO}_2$
(3) $\text{SO}_3$ & $\text{CO}_2$  (4) $\text{NO}$ & $\text{NO}_2$

50. The standard emf for Daniel cell is 1.1V calculate
the standard Gibbs free energy for the reaction:
$\text{Zn(s)} + \text{Cu}^{2+}(aq) \rightleftharpoons \text{Zn}^{2+}(aq) + \text{Cu(s)}$
$E^\text{o} = +0.45\text{V}$, is nearly
(1) $10^{15}$  (2) $3 \times 10^7$
(3) $3 \times 10^{15}$  (4) $10^{14}$

51. Regular use of which of the following fertilisers increases the acidity of soil ?
(1) Potassium nitrate  (2) Urea
(3) Superphosphate of lime  (4) Ammonium sulphate

52. The potential of hydrogen electrode in contact with a solution whose pH is 10 is :-
(1) $-0.059\text{V}$  (2) $-0.59 \text{ V}$
(3) $0.59 \text{ V}$  (4) $-0.59 \times 2 \text{ V}$

53. Which is anionic detergents :-
(1) Cetyl trimethyl ammonium bromide  (2) Sodium salt of alkyl benzene sulphonates
(3) Both of them  (4) None of them

54. While charging the lead storage battery ?
(1) $\text{PbSO}_4$ anode is reduced to Pb
(2) $\text{PbSO}_4$ cathode is reduced to Pb
(3) $\text{PbSO}_4$ cathode is oxidised to Pb
(4) $\text{PbSO}_4$ anode is oxidised to $\text{PbO}_2$

55. Which is correct statement :-
(1) Aspirin is narcotic analgesic  (2) Morphine is narcotic analgesic
(3) Ofloxacin is bacteriostatic  (4) Chloramphenicol is bactericidal
56. An electrochemical cell can behave like an electrolytic cell when:–
(1) \( E_{\text{cell}} = 0 \)
(2) \( E_{\text{cell}} > E_{\text{ext}} \)
(3) \( E_{\text{ext}} > E_{\text{cell}} \)
(4) \( E_{\text{cell}} = E_{\text{ext}} \)

57. Which is non reducing sugar:–
(1) Maltose
(2) Lactose
(3) Sucrose
(4) All

58. Resistance of a conductivity cell filled with 0.1M KCl solution is 100 ohm. If the resistance of the same cell when filled with 0.02 M KCl solution is 520 ohm, Calculate molar conductivity of 0.1M KCl solution. Conductivity of 0.1M KCl is 1.29 Sm\(^{-1}\).
(1) 1.24 \times 10^{-2} \text{Sm}^2 \text{mol}^{-1}
(2) 1.24 \times 10^{-1} \text{Sm}^2 \text{mol}^{-1}
(3) 1.24 \times 10^{-4} \text{Sm}^2 \text{mol}^{-1}
(4) 1.24 \text{Sm}^2 \text{mol}^{-1}

59. Which is disaccharide:–
(1) Maltose
(2) Lactose
(3) Sucrose
(4) All

60. Which does not posses oxidation number of S equal to +6?
(1) Caro’s acid
(2) Marshall's acid
(3) Oleum
(4) Hypo

61. Veronal is an example of:–
(1) Antaacid
(2) Tranquilizer
(3) Antibiotic
(4) Analgesic

62. In \( \text{CH}_2 = \text{CCl}_2 \), the two carbon atoms have oxidation number respectively:–
(1) −2, +2
(2) −2, −2
(3) +2, +2
(4) +2, −2

63. Which is thermoplastic:–
(1) Polyethylene
(2) Polystyrene
(3) Polyvinyl chloride
(4) All

64. The number of mole of oxalate ions oxidised by one mole of \( \text{MnO}_4^- \) ion is:–
(1) \( \frac{1}{5} \)
(2) \( \frac{2}{5} \)
(3) \( \frac{5}{2} \)
(4) 5

65. The reason for double helical structure of DNA is operation of:
(1) Vanderwaal’s forces
(2) Dipole-Dipole interaction
(3) Hydrogen bonding
(4) Electrostatic attractions

66. \( E^0 \) for two reactions are given below:–
\[ \text{Cr}^{3+} + 3e^- \rightarrow \text{Cr}; \quad E^0 = -0.74V \]
\[ \text{OCl}^- + \text{H}_2\text{O} + 2e^- \rightarrow \text{Cl}^- + 2\text{OH}^-; \quad E^0 = 0.94V \]
What will be the \( E^0 \) for?
3\text{OCl}^- + 2\text{Cr} + 3\text{H}_2\text{O} \rightarrow 2\text{Cr}^{3+} + 3\text{Cl}^- + 6\text{OH}^-
(1) −1.68 V
(2) 1.68 V
(3) −0.20V
(4) 0.20 V
67. Which is incorrect statement :-
(1) Fibrous proteins are generally insoluble in water
(2) Maltase convert maltose into glucose
(3) Vitamine B and Vitamin C are water soluble
(4) Vitamine B₁₂ can not be stored in our body

68. Consider an elementary reaction
2A(g) + B(g) → C(g) + 4D(g)
In an experiment, the initial partial pressure of A and B are P_A = 0.4 atm and P_B = 0.3 atm. When P_C = 0.1 atm the rate of the reaction, relative to the initial rate is :-

(1) \( \frac{1}{6} \) (2) \( \frac{8}{27} \) (3) \( \frac{1}{2} \) (4) \( \frac{1}{7} \)

69. Number of essential amino acids in human body:-
(1) 10 (2) 16 (3) 14 (4) 20

70. How many times would the rate of a hypothetical reaction, having activation energy as 7 kJ, becomes if the temperature is increased by 100°C from the initial temperature of 27°C:-
(1) 2 time (2) 2¹⁰ time (3) 2⁹ time (4) 10 time

71. Which is incorrect statement :-
(1) The monomer unit in natural rubber is isoprene
(2) Artificial silk is derived from cellulose
(3) Nylon-6 is a copolymer
(4) Starch is polymer of glucose

72. In an experiment; A + 2B → C + 20,
The initial rate, \( \frac{-d[A]}{dt} \) at t = 0 is 4.8×10⁻²MS⁻¹
What is the value of \( \frac{-d[B]}{dt} \) at t = 0 in MS⁻¹:-
(1) +2.4 × 10⁻² MS⁻¹ (2) -2.4 × 10⁻² MS⁻¹
(3) +5.6 × 10⁻² MS⁻¹ (4) -5.6 × 10⁻² MS⁻¹

73. Which of the following is not a condensation polymer :-
(1) Terylene (2) Glyptal
(3) Nylon-6,6 (4) Buna-S

74. For 3 reactions (I) A → B + C (Iⁿ order)
(II) 2X → Y +2Z (IIⁿ order)
(III) 3R → P + 3Q (IIIⁿ order)
The specific rate of reactions are numerically the same. If the initial concentrations of each [A],[X],[R] is less than 1M then, the correct order of their rates r₁, r₂, & r₃ is :-
(1) r₁ = r₂ = r₃ (2) r₁ > r₂ > r₃
(3) r₁ < r₂ < r₃ (4) r₂ < r₁ < r₃

67. कौन सा कथन गलत है?
(1) फाइबर प्रोटीन धूल में अविलंबी हैं
(2) मलाटीज दही में जूस के लू और जब जो प्रसंस्करण करता
(3) भिंड A और C से चित की हैं
(4) भिंड B और C से में संग्रह चित कर सकते हैं

68. एक-एक क्रिया के लिए
2A(g) + B(g) → C(g) + 4D(g) पर विचारें।
एक वेग में A के प्रारंभिक अंश में विभिन्न धातु A के वाले atm प्राप्त P_A = 0.3 atm है। जब C = 0.1 atm है, तब की ऑक्सीजन की दर, प्रारंभिक क्रिया की दर के स्वतंत्र बनी हैं

(1) \( \frac{1}{6} \) (2) \( \frac{8}{27} \) (3) \( \frac{1}{2} \) (4) \( \frac{1}{7} \)

69. मानने के लिए चूंकि प्रोटीन की संख्या हैं
(1) 10 (2) 16 (3) 14 (4) 20

70. संक्रमण के \( E_A \) = 7 kJ वाले एक वेग पर अभी क्रिया की दर दर्शाने गु ए नाम केवल क्रिया \( A \) का ताप 200°C और बाद 1 दिन:-
(1) 2 गु ए (2) 2¹⁰ गु ए (3) 2⁹ गु ए (4) 10 गु ए
वे कौन सा कथन गलत है?
(1) प्रौढ़ केवल क्रिया में क्रिया है इसे गहरी है
(2) प्रौढ़ केवल के में चूंकि नया नया नया क्रिया जा
(3) तभी कम होता है
(4) सेवा न क्या क्या तथा बिना है

72. एक और क्रिया: A + 2B → C + 20 में ,
प्रारंभिक क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रिया क्रि
75. Which statement regarding photochemical smog is not correct?
   (1) Photochemical smog is formed through photochemical reaction involving solar energy
   (2) Carbon monoxide does not play any role in photochemical smog formation
   (3) Photochemical smog does not cause irritation in eyes and throat
   (4) Photochemical smog is an oxidising agent in character

76. The first order decomposition of nitramide can be written as
    \[ \text{O}_2 \text{NNH}_2 \rightarrow \text{N}_2\text{O} + \text{H}_2\text{O}, \text{ rate } = K[\text{O}_2\text{NNH}_2] \]
    \[ 2\text{O}_2 \text{NNH}_2 \rightarrow 2\text{N}_2\text{O} + 2\text{H}_2\text{O}, \text{ rate } = K[\text{O}_2\text{NNH}_2] \]
    then :-
    (1) \( K = K \)
    (2) \( K = K^2 \)
    (3) \( K = 2K \)
    (4) \( 2K = K \)

77. Which of the following sets of monoseccharides forms sucrose?
   (1) B-D-Glucopyranose and \( \alpha\)-D-fructofuranose
   (2) \( \alpha\)-D-Glucopyranose and \( \beta\)-D-fructopyranose
   (3) \( \alpha\)-D-Galactopyranose and \( \alpha\)-D-Glucopyranose
   (4) \( \alpha\)-D-Glucopyranose and \( \beta\)-D-fructofuranose

78. Which one of the following is not a surfactant?
   \[ \text{CH}_3 \left(\text{CH}_2\right)_{15}\text{N}^+\text{CH}_3\text{Br}^- \]
   (1) \( \text{CH}_3 \left(\text{CH}_2\right)_{14}\text{CH}_2\text{NH}_2 \)
   (2) \( \text{CH}_3 \left(\text{CH}_2\right)_{16}\text{CH}_2\text{OSO}_2\text{Na}^+ \)
   (3) \( \text{OHC}-(\text{CH}_2)_{15}\text{CH}_2\text{COO}^-\text{Na}^+ \)

79. Ignition mixture contain :-
   (1) \( \text{BaO}_2 + \text{H}_2\text{O} \)
   (2) \( \text{K}_2\text{CO}_3 + \text{Na}_2\text{CO}_3 \)
   (3) \( \text{H}_2\text{O}_2 + \text{BaO}_2 \)
   (4) Mg-Powder + BaO_2

80. The gold number of some colloidal solutions are given below :-
    Colloidal solution | Gold number
    --- | ---
    A | 0.01
    B | 2.5
    C | 20

The protective nature of these colloidal solutions follow the order
   (1) \( C > B > A \)
   (2) \( A > B > C \)
   (3) \( A = B = C \)
   (4) \( B > A > C \)
81. Which of the following can be reduced by heating with air:
(1) Cinnebar  (2) Galena  
(3) Copper pyrites  (4) Siderite

82. Which is the correct statement case of milk.
(1) milk is an emulsion of protein in water 
(2) milk is an emulsion of fat in water 
(3) milk is stabilised by gluten protein 
(4) milk is stabilised by fat

83. Step not used during extraction of zinc from sphalerite:
(1) Roasting  (2) Smelting  
(3) Calcination  (4) Froth floatation

84. If 50% chloride get precipitated by AgNO₃ Solution from CuCl₂. xNH₃ Then value of 'x' is:
(1) 6  (2) 2  (3) 4  (4) 3

85. During leaching of alumina from bauxite the seeding agent used is:
(1) NaOH  (2) Hydrated Al₂O₃  
(3) Hydrated SiO₂  (4) TiO₂

86. The number of stereo isomer possible of [Co(en)₂Cl₂]⁺ are:
(1) 2  (2) 3  (3) 4  (4) 0

87. Magnetic moment of Iron in Brown ring complex is:
(1) 5.92 BM  (2) 4.90 BM  
(3) 3.90 BM  (4) 2.87 BM

88. Which of the following can shows optical isomerism:
(1) [Zn(H₂O)(NH₃)(Br)(Cl)]  
(2) [Pt(H₂O)(Py)(OH)(I)]  
(3) [Pd(en)₂]²⁺  
(4) Both (1) and (2)

89. Hybridization and magnetic moment of K₃[Co(C₂O₄)₂]⁻:
(1) d²sp³ 4.9 BM  (2) sp³d², 4.9 BM  
(3) d²sp³ zero BM  (4) sp³d² 0 BM

90. The tetrahedral crystal field splitting is only ...... of the octahedral splitting:
(1) \frac{5}{9}  (2) \frac{2}{9}  (3) \frac{4}{9}  (4) \frac{9}{4}
91. 'Trichoderma' which are used as biological control agent for different plant disease are :-
   (1) Virus
   (2) Free living fungi
   (3) Free living bacteria
   (4) Symbiotic bacteria

92. Problems that have come in the wake of the green revolution :-
   (1) Soil erosion and Acidity
   (2) Lack of CO₂ in Atmosphere
   (3) Water logging and salinity
   (4) Excessive growth of crop plant

93. Insect resistance present in host crop plants may be due to :-
   (1) Morphological characteristics
   (2) Biochemical characteristics
   (3) Physiological characteristics
   (4) All of the above

94. Which agreement was signed by over 100 nations banning the transfer of hazardous waste to developing nations :-
   (1) Montreal protocol
   (2) Kyoto protocol
   (3) Rio earth summit
   (4) Basel conventions

95. Jaya and Ratna are high yielding varieties of:-
   (1) Sugarcane  (2) Wheat
   (3) Jowar  (4) Rice

96. Production of biomass for energy requires in sufficient area of land and water is known as:-
   (1) Social forestry  (2) Agro forestry
   (3) Energy plantation  (4) Jhum cultivation

97. Which variety of bhindi is resistant to shoot borer and fruit borer insect ?
   (1) Pusa sawani  (2) Pusa A-4
   (3) Pusa Komal  (4) Both (1) and (2)

98. Ozone, chlorine and U.V. are used in :-
   (1) Physical treatment of water
   (2) Biological treatment of water
   (3) Physiochemical treatment of water
   (4) For removal of gaseous pollutants

99. 'Atlas-66' in improved variety of which plant, with high protein content ?
   (1) Wheat  (2) Rice
   (3) Maize  (4) Sugar cane

91. 'Zeaxanthin' is a pigment :-
   (1)Which are used as biological control agent for different plant disease are :-
   (2) Free living fungi
   (3) Free living bacteria
   (4) Symbiotic bacteria

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99. 'Atlas-66' in improved variety of which plant, with high protein content ?
   (1) Wheat  (2) Rice
   (3) Maize  (4) Sugar cane
100. Conventional energy resource is/are :-
   (a) Hydropower  (b) Nuclear power
   (c) Solar energy  (d) Coal and wood
   (1) Only a  (2) Only c  (3) a, c  (4) a, d

101. The method of producing thousands of clone of a plants through tissue culture is called :-
   (1) Totipotency
   (2) Micropropagation
   (3) Somatic hybridisation
   (4) Biofortification

102. Match the column-I with column-II

<table>
<thead>
<tr>
<th>Column-I</th>
<th>Column-II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) DDT</td>
<td>(i) global warming</td>
</tr>
<tr>
<td>(B) Nutrients</td>
<td>(ii) water treatment</td>
</tr>
<tr>
<td>(C) Chlorine</td>
<td>(iii) Biomagnification</td>
</tr>
<tr>
<td>(D) Hydrocarbon</td>
<td>(iv) Eutrophication</td>
</tr>
</tbody>
</table>

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

103. How many fishes in the list given below are marine ?
   Catla, Pomfret, Common carp, Silver carp, Hilsa, Rohu, Mackerel, Salmon, Mrigal
   (1) Six  (2) Three  (3) Four  (4) Five

104. Intergovernmental panel on climate change (IPCC) periodically makes an assesment of the atmospheric abundance of :-
   (1) Only O.D.S.  (2) Only S.P.M.  (3) Only VOCs  (4) Green house gases

105. How many of honey bees in the list given below are diploid ?
   Queen, Soldier, Drone, Fanner, Nurse, Scout
   (1) Five  (2) Four  (3) Two  (4) One

106. Relatively high dissolved oxygen content in the hypolimnion is a condition common to :-
   (1) Shallow, eutrophic lakes
   (2) Deep, eutrophic lakes
   (3) Shallow, oligotrophic lakes
   (4) Shallow, dystrophic lakes

107. The agricultural practice of breeding and raising livestock is termed as.
   (1) Animal husbandry
   (2) Dairy farm Management
   (3) Dairying
   (4) Fishery
108. Detritus bacteria

(A) Humus
(B) CO₂, H₂O, minerals Nutrients

in above chart A is :-
(1) Decomposition
(2) Humification
(3) Fragmentation
(4) Mineralisation

109. Which of the following statements is correct with regards to Artificial insemination?
(1) The semen is collected from male and injected into the reproductive tract of the selected female.
(2) The semen can be used immediately or can be frozen and used at later date.
(3) Semen can be transported in frozen form.
(4) All the above

110. Resource partitioning is required for :-
(a) Niche overlapping
(b) Reduce competition
(c) Utilisation of same resources in same habitat
(d) to maintain ecological balance
(1) Only a
(2) Only b
(3) Only d
(4) a, b, c

111. Which of the following is the best breeding method for animals that are below average in productivity?
(1) Cross-breeding
(2) Out-crossing
(3) Inbreeding
(4) All the above

112. Mark the correct one w.r.t. Los Angeles smog:-
(1) It contains H₂S and SO₂
(2) There is no role of secondary pollutant
(3) Formed at low temperature
(4) Its components can inhibit ETS

113. Which of the following statement is incorrect with regards to MOET?
(1) MOET has been demonstrated for cattle, sheep, rabbits, buffaloes, mares etc.
(2) MOET is used to increase herd size in short time
(3) The fertilised eggs are recovered and transferred in surrogate mother.
(4) All the above
114. Mark the incorrect one w.r.t. Exotic species:-
(1) *Eupatorium* has invaded forests in the northeast replacing Teak
(2) Nile perch, a predator fish introduced in lake Victoria of America
(3) *Water hyacinth* was introduced in India for its beautiful flowers and shape of leaves
(4) *Lantana camara* has replaced native species in many forests of UP and MP

115. Correct about given diagram is :-

(1) *Datura*
(2) Source of Coca alkaloids
(3) Source of marijuana
(4) All of these

116. Consider the given facts w.r.t. biosphere reserves and find the correct one:-
a. 14 in India
b. Tribal settlements are allowed in core zone
c. Meant to conserve a specific animal species
d. High species diversity with high degree of habitat loss
(1) Only a   (2) Both a & b   (3) Both a & d   (4) All, except a

117. Mark the incorrectly matched pair?

(1) HOH : Skeletal structure of morphine
(2) : Source of Diacetyl morphine
(3) Cocaine : Interferes with transport of dopamine
(4) Heroin : Smack
118. The most widely used device to remove particulate matter is :-
   (1) Electrostatic precipitator
   (2) Catalytic converter
   (3) Incinerator
   (4) Scrubber

119. Diseases are broadly grouped into infectious and non-infectious diseases. In the list given below identify the infectious diseases.
   (i) AIDS
   (ii) Cancer
   (iii) Common cold
   (iv) Allergy
   (1) and (iii)
   (2) and (iv)
   (3) (i), (ii), (iii)
   (4) (i), (ii), (iii), (iv)

120. Ecologically the most relevant environmental factor that directly affects the rate of metabolism of a species and decides its distribution is:-
   (1) Temperature
   (2) Rainfall
   (3) Water
   (4) Light

121. Smack is obtained from ................. and natural cannabinoids are obtained from ............... .
   (1) Leaves of Datura, roots of Cannabis
   (2) Latex of Papaver, Atropa
   (3) Latex of Papaver, inflorescences of Cannabis
   (4) Leaves of Cannabis, flower tips of Datura

122. The most widely used device to remove particulate matter is :-
   (1) Electrostatic precipitator
   (2) Catalytic converter
   (3) Incinerator
   (4) Scrubber

123. Haemoglobin is a :-
   (1) Precursor of Hb
   (2) Toxin released from Plasmodium infected cells
   (3) Toxin of human
   (4) Toxin transferred from mosquito

124. Choose the correct statement :-
   (a) Atmospheric input of phosphorus through rainfall is much smaller than carbon.
   (b) Phosphorus shows high absorption or fixation capacity in strongly acidic as well as alkaline soil.
   (c) Gaseous exchanges of phosphorus between organism and environment are negligible
   (d) Atmospheric only contains about 71 percent of total global carbon.
   (1) a, b and c are correct
   (2) only a and b are correct
   (3) only b and d are correct
   (4) only a and c are correct

118. कहीं मिलता न का चमक की जितः
   (1) चौथी शि. खरस में लग 1997
   (2) वह टे ची टे बा। 2002
   (3) विश्व शि. खरस में लग 1992
   (4) मात्र-टु कारो तर 1988 ल

119. गो गाय के सब सरकार का। अन्तर्गत मकर या गाय में विरुद्ध में बांटा गया है। नीचे दिए गए 'गूगों से सरकार मकर या गाय का प्रश्न ठहराये
   (i) ब्रह्म (ii) के या (iii) वास वे 'गूग में (iv) उपयोग
   (1) (i) और (iii) नहीं
   (2) (i) और (ii) नहीं
   (3) (iii) (i), (ii), (iii) (iv) (i), (ii), (iii), (iv)

120. परिवारों शास्त्र समस्या विकास के विषय में वर्ष 2011 लिखित के ने बिना हड़ताल की जाने समाप्त करी जाने में लिखित है:\
   (1) यह जो पर्यावरणकर्ता, जो जीव नूतन में वर्ष 1987 वर्ष 1992 के बीच तक तक के प्रारंभिक वर्ष 1987 वर्ष 1992 किताब है। उसे इसे वित्त के निकाय के वर्ष 1987 वर्ष 1992 की निपटान करता है:
   (1) तल पत्रि न (2) तल पत्रि
   (3) जन (4) प्रवाह

121. राम की प्राचीनता के से का तितलिक के ने बिना हड़ताल की जाने समाप्त करी जाने में लिखित है:\
   (1) यह जो पर्यावरणकर्ता, जो जीव नूतन में वर्ष 1987 वर्ष 1992 के बीच तक तक के प्रारंभिक वर्ष 1987 वर्ष 1992 किताब है। उसे इसे वित्त के निकाय के वर्ष 1987 वर्ष 1992 की निपटान करता है:
   (1) तल पत्रि न (2) तल पत्रि
   (3) जन (4) प्रवाह

122. गूगों के लेटर फ्रांस थों को हटने के से लिखी सहाय दिन का चलावा उठाने है:\
   (1) इले जटा रेटी टेक्टोर से स्पिनेटर न (2) के टे लिटिट कलंटर (3) इन से निपर टर (4) प्रमाण

123. ही माँ जा तुरंत है:
   (1) Hb का पूरा बंधते हैं
   (2) रेड ग्रैंड क्रांतिकार के विषा वो से मुक तब विपण बनते हैं
   (3) मा नव विपण
   (4) मुक्त रेड से रेड ना - निर्मित विपण

124. कहा कहा का चुनिए:\
   (a) जन और न का चुनिए
   (b) जिनके शिक्षक का विषा और से मुक तब विपण
   (c) मा नव विपण
   (d) मुक्त रेड से रेड ना - निर्मित विपण

125. बाज न का चुनिए:\
   (a) जन और न का चुनिए
   (b) जिनके शिक्षक का विषा और से मुक तब विपण
   (c) मा नव विपण
   (d) मुक्त रेड से रेड ना - निर्मित विपण
125. Which of the following is lymphoid organ :-
(a) Spleen  (b) Tonsils  
(c) Appendix  (d) MALT
(1) a, b  (2) c  
(3) a, b, d  (4) a, b, c, d

126. Which of the following is not a method of physiological adaptation :-
(1) Internal fat oxidation for water in kangaroo rat  
(2) Reduction of leaf in tospines in Opuntia  
(3) Urine concentration in kangaroo rat  
(4) Anti freezing protein in fish to tolerate cold

127. Lysergic acid diethylamide is most powerful .............., which is obtained from ergot (extract of Clevicpes purpurea that is parasite on Rye plant). LSD is always smoked and brings about chromosomal and foetal abnormalities. An LSD addict can be easily recognised in incoherence in writing and drawing. :-
(1) Psychedelic  
(2) Psychotropic  
(3) Hallucinogen  
(4) Both (1) and (3)

128. A man is travelling in a car during summer he can accomplish homeostasis through :-
(1) Physiological mean  
(2) Artificial mean  
(3) both (1) & (2)  
(4) None

129. Mark the incorrect statements :-
(a) Opioid receptors are present in PNS and GIT  
(b) Heroin is smack, white, odourless but not bitter crystalline compound  
(c) Artificial cannabinoids are obtained from inflorescences of plant Cannabis sativa  
(d) Coca alkaloid is obtained from Erythroxylum Coca, native to South-America. It interferes with the transport of neuro transmitter acetylcholine  
(e) These days opioids are also being abused by some sportpersons
(1) a, d  
(2) b, c, e  
(3) a, d, e  
(4) a, b, c, d, e
130. Which one is correct?

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Eurythermal</td>
<td>(i) Can tolerate high range of salt</td>
</tr>
<tr>
<td>(b) Stenohaline</td>
<td>(ii) Organism live at high range of temperature</td>
</tr>
<tr>
<td>(c) Euryhaline</td>
<td>(iii) Organism can not tolerate high range salinity</td>
</tr>
<tr>
<td>(d) Stenothermal</td>
<td>(iv) Organism can not tolerate high range of temperature</td>
</tr>
</tbody>
</table>

(1) Only a (2) ab (3) Only d (4) bc

131. Which group is not of infectious diseases?

(1) Polio, Tetanus, Diphtheria
(2) Small pox, Pneumonia
(3) AIDS, Common cold, Typhoid
(4) Cancer, Allergy

132. Which one is correct?

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Polar area</td>
<td>(i) &lt; 0ºC</td>
</tr>
<tr>
<td>(2) Tropical desert</td>
<td>(ii) &gt; 100ºC</td>
</tr>
<tr>
<td>(3) Thermal spring</td>
<td>(iii) &gt; 50ºC</td>
</tr>
<tr>
<td>(4) High attitude</td>
<td>(iv) &gt; 35ºC</td>
</tr>
</tbody>
</table>

133. In which organ immature lymphocytes are differentiated into antigen-sensitive lymphocytes?

(1) Bone marrow (2) Spleen (3) Thymus (4) Both (1) and (3)

134. Major biome of India: -

(a) Tropical rain forest
(b) Deciduous forest
(c) Desert
(d) Sea coast

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

135. Most common problem of almost all adolescents of both the sexes is: -

(1) Acne
(2) Anxiety
(3) Hypochondria
(4) Psychosomatic disorder
136. Which adaptation of parasite do not help to sustain their life in host body?
(1) loss of unnecessary sense organ
(2) presence of adhesive organ or suckers to cling a the host
(3) loss of digestive system
(4) low reproductive capacity

137. Mark the incorrect match:

<table>
<thead>
<tr>
<th>Type of Drug</th>
<th>Example</th>
<th>Effects</th>
<th>Clinical Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Halocinogen</td>
<td>LSD</td>
<td>Alter thoughts and feelings</td>
<td>None</td>
</tr>
<tr>
<td>Opiate narcotic</td>
<td>Morphine</td>
<td>Produces temporary euphoria</td>
<td>analgesic</td>
</tr>
<tr>
<td>Stimulant</td>
<td>Amphetamine</td>
<td>produce excitement</td>
<td>Narcolepsy</td>
</tr>
<tr>
<td>Sedative</td>
<td>Heroin</td>
<td>decrease calmness</td>
<td>anxiety</td>
</tr>
</tbody>
</table>

138. Which statement is/are true:
(a) The green house effect is a naturally occurring phenomenon
(b) It is responsible for heating of earth surface and atmosphere
(c) Without green house effect the average temperature at surface at earth would have been a chilling upto -18ºC
(d) Clouds and gases reflect about one fourth of the incoming solar radiation

139. Genetic defect in which adenosine deaminase deficiency occurs:
(1) Rheumatoid arthritis  (2) SCID
(3) AIDS  (4) Cystis fibrosis

140. What will happen when sewage gets mixed in river water:
(a) First BOD will increases but further along the river it decreases
(b) First DO will increase but further along the river it decreases
(c) First DO will decrease but further along the river it increases
(d) First BOD will decrease but future along the river it increases

<table>
<thead>
<tr>
<th>Type of Drug</th>
<th>Example</th>
<th>Effects</th>
<th>Clinical Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug</td>
<td>Use</td>
<td>Effects</td>
<td>Clinical Use</td>
</tr>
<tr>
<td>(1) LSD</td>
<td>Alter thoughts and feelings</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>(2) Morphine</td>
<td>Produces temporary euphoria</td>
<td>analgesic</td>
<td></td>
</tr>
<tr>
<td>(3) Amphetamine</td>
<td>produce excitement</td>
<td>Narcolepsy</td>
<td></td>
</tr>
<tr>
<td>(4) Heroin</td>
<td>decrease calmness</td>
<td>anxiety</td>
<td></td>
</tr>
</tbody>
</table>

136. परिवर्तनों का वर्तन अनु प्रत्यय अन्त कु ल लन उ नको प्र श करे श टी ज फ न य फ म ए उ स क फ न ह द ह र न ह द ह ।
(1) अग्रो वार्त प संय द अं ग ग च थ ा स र (2) अ ज क ल म च च बा कां ग ए क ट त प ण क न ल च य के लए
(3) प च त त ब थ ा स र (4) ए जन द र स कमी

137. अग्र गत ग र म ख ड ड भ ट ने

<table>
<thead>
<tr>
<th>द ग क म</th>
<th>उ द द ह प</th>
<th>प्र भ</th>
<th>उ प न ग</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) ह ल य न</td>
<td>जब</td>
<td>श</td>
<td>प्र</td>
</tr>
<tr>
<td>(2) अं फिट</td>
<td>मा फा</td>
<td>श</td>
<td>प्र क</td>
</tr>
<tr>
<td>(3) उ फ क</td>
<td>ए फ ट</td>
<td>मा इ</td>
<td>उ ट</td>
</tr>
<tr>
<td>(4) प मक</td>
<td>ह ग इन</td>
<td>सु ख</td>
<td>पर काट त</td>
</tr>
</tbody>
</table>

138. निधन में से वे नए काना स य ह र न को न करी -
(1) ac (2) abc (3) ab (4) abcd

139. अनु बा च विच त क जिस्म प ग द न पिस डिस के जन य ज न ज ते हें:-
(1) र आ म टां इड और स्वीडेंट स ट र (2) SCID
(3) AIDS (4) सिरेट सफा इब्रे सिस

140. ज नदी के प नी के व अस हिज मिलता ह , तो ब य हो गा:
(a) फहले BOD बढ़ गा फिर नदी में आ गे ज कर घट जाये गा
(b) फहले DO बढ़ गा फिर नदी में आ गे ज कर घट जाये गा
(c) फहले DO घट गा फिर नदी में आ गे ज कर बढ़ जाये गा
(d) फहले BOD घट गा फिर नदी में आ गे ज कर बढ़ जाये गा

(1) b, c (2) a, c (3) b, d (4) a, d
141. In DPT-Hib vaccine, 'Hib' stands for :-
   (1) Hepatitis virus
   (2) *Haemophilus influenzae* type-B
   (3) Herceptin monoclonal antibody
   (4) Haemolytic disease of new born

142. United nation conference on climate change 2011 and 2012 was conducted in ?
   (1) Durban (South Africa) & Doha (qatar)
   (2) Copenhagen (Denmark) & Sydney (Australia)
   (3) Delhi (India), Bali (Indonesia)
   (4) Rio (Brazil), Montreal (Canada)

143. Koch postulates are applicable on :-
   (1) Viral diseases
   (2) *Vibrio cholerae* and *Mycobacterium tuberculosis*
   (3) *Mycobacterium leprae*
   (4) Both (1) and (3)

144. Which are of the following is/are is correct statement :-
   (a) Green house effect is a natural phenomenon
   (b) Ageing of lake is called eutrophication
   (c) During eutrophication lake become warmer and shallow
   (d) Stomatal conductance will decreases and stomatal density will increased in plants during green house effect
   (1) ab (2) abc (3) only d (4) abcd

145. Vaccines group which is not safe during pregnancy :-
   (1) Tetanus + Influenza
   (2) Cholera + Hepatitis-B
   (3) Rubella + Small pox
   (4) Inactivated poliomyelitis

146. Which is/are correct ?
   (a) Inorganic matter → organic matter : producer
   (b) Complex organic matter → simple organic : decomposer
   (c) Plant material → Animal material → herbvores
   (d) Chemical energy → Heat energy : Consumers
   (1) only a (2) ab (3) abc (4) abcd

147. Hodkin's disease is a malignant disease of :-
   (1) Bone
   (2) Lymphatic tissue
   (3) Cartilage
   (4) Skin
148. Which combination is not cannabinoids:
   (1) Marijuana + Hashish
   (2) Hashish + Charas
   (3) Charas + Ganja
   (4) Cocain + LSD

149. Which drug is not normally used as medicine to improve the function of dopamine?
   (1) bc
   (2) cd
   (3) bcd
   (4) only d

150. The animals which can stand with high range of temperature are principally present in:
   (1) abcd
   (2) abc
   (3) ab
   (4) only a

151. Which drug is not normally used as medicine to help patients suffering from mental illness like depression and insomnia?
   (1) Barbiturates and Benzodiazepines
   (2) Lysergic acid diethylamides (LSD)
   (3) Amphetamines
   (4) Morphine

152. In present time which country released maximum greenhouse gas?
   (1) China
   (2) India
   (3) America
   (4) Britain

153. Which combination is not cannabinoids:
   (1) Marijuana + Hashish
   (2) Hashish + Charas
   (3) Charas + Ganja
   (4) Cocain + LSD

154. Beside CH₄ and CO₂ other greenhouse gas from agriculture area are
   (a) CFCs
   (b) NH₃
   (c) SO₂
   (d) N₂O
   (1) bc
   (2) cd
   (3) bcd
   (4) only d

155. Which drug principally interferes with transport of dopamine?
   (1) Morphine
   (2) Cocaine
   (3) Herion
   (4) All of these

156. Kyoto protocol aims at:
   (a) control of CO₂ emission
   (b) Reduction of ozone depleting substances
   (c) Conserve biodiversity
   (d) Control over global warming
   (1) ab
   (2) abc
   (3) cd
   (4) ad
157. During life cycle of *Plasmodium*, fertilization and development takes place in the mosquito's

(1) Mouth (2) RBCs (3) Stomach (4) Liver

158. Relative contribution of various greenhouse gases to total global warming is given in circle. Identify correct option.

(i) C-major product by burning of biomass
(ii) D-main responsible gas for ozone depletion
(iii) A-most abundant natural hydrocarbon
(iv) B-Released from fertilizer industries

(1) i, ii, iii, iv (2) i, iv (3) iii, iv (4) i, ii

159. Use of which of the following drug quickly reduce the symptoms of allergy.

(1) Antihistamine (2) Adrenalin (3) Steroid (cortisol) (4) All of these

160. Increase in concentration of toxicant at successive trophic level in food chain shows:

(a) Non bio degradable substance present in water
(b) That number of organism is also increased at successive trophic level
(c) Biomagnification
(d) That BOD of water is increased and D.O. is decreased

(1) abc (2) ac (3) bc (4) abcd

161. Mark the correct statement:

(1) IgM, IgE and IgA account for more than 95% of the circulating immunoglobulins
(2) CD-4 is related with helper T-cells, whereas CD-8 is related with killer or cytotoxic T-cells
(3) Dendritic and Langerhans cells, have only large amounts of class I HLA antigens on their cell surfaces
(4) NK cells are considered to provide the first line of defense against tumours and virus infections

(i) C-जब बाहर को जा ने पर मुख उठाते तो पर
(ii) D-आंक न आकटन के लिएजी में दार मुख खारे स
(iii) A-अ कृतिमे से प्रचुर रेत से मिलने वाला हैडे। रो बन
(iv) बो वर रक बनाने के का रहा न उसे मु बत

(1) i, ii, iii, iv (2) i, iv (3) iii, iv (4) i, ii

157. प्रति न ग्राम पर मक्के चन वन रान, निजी चन तक। परिवार्ध न क्रिया मच्छर, के अर्थ आपके में पूरी होती है।

(1) मु हव (2) RBCs (3) आ मा व य (4) पक्ष

158. हरियाण है खेल पर मिल जुला - ये गदा न दिये गये चिक में गाव है -

(i) C-जब बाहर को जा ने पर मुख उठाते तो पर
(ii) D-आंक न आकटन के लिएजी में दार मुख खारे स
(iii) A-अ कृतिमे से प्रचुर रेत से मिलने वाला हैडे। रो बन
(iv) बो वर रक बनाने के का रहा न उसे मु बत

(1) i, ii, iii, iv (2) i, iv (3) iii, iv (4) i, ii

159. फिग्न ने से किसाओं ण ध का उ पो गव ते जे से फुड़े के लाज के घाटा देता है।

(a) जू टर हासाट शिक (2) बाण, नलो न
(b) स्टो य (कक्षों) से सा) उ शो द ता ता

160. चन के के पर श कर ल जरिये चना था की स- दत व व बढ़ता ता है -

(a) जू नो में जे व अन अक्षित पदा था को उ पर था को ल का घोड़ा है।
(b) बढ़ ते हु ये पेश कर लते प्रेयर वो के संख्या बात है।
(c) जू व अव ध गान
(d) जू बो BOD बढ़ा है, DO अक्षित है, रहता है।

(1) abc (2) ac (3) bc (4) abcd

161. सलका न छाई दिये

(1) IgM, IgE तथा IgA परिमो चा विकास हो सकता है।
(2) CD-4 चा कस्ट तक वा अंदाने जो जड़ी, बने से सीधे व था है।
(3) लह टिंडो तिक करा। ते गरहें सो किता अंदा को वैश्चिक क बना ता में केल्कल HLA ऐटा ज र द प डे जा ते है।
(4) NK के लिए मूल कृतिमा सीट, यू मर ता विदा पु वे त्रस त व बना ते है।
162. How many statements are correct?
(a) Biomagnification is natural aging of a lake by nutrient enrichment of its water
(b) After CFC methane is major cause of green house effect
(c) Ozone is secondary pollutant in troposphere
(d) Thickness of ozone is measured in dobson unit
(1) ab (2) only d (3) cd (4) abc

163. Given below is typical agarose gel block in which electrophoresis has been done.

Select the correct statement:
(1) Lane-1 shows digested DNA fragments
(2) Lane-2 to 4 shows undigested set of DNA fragments.
(3) Sample was loaded in the wells which is placed towards negative electrode.
(4) Sample was loaded in the wells which is placed towards positive electrode.

164. How many statements are correct?
(a) Automobiles are major cause for atmospheric pollution atleast in metrosities
(b) Water which contain 0.1% of impurities is harmful for drinking
(c) as organic matter increases BOD decreases
(d) High concentration of DDT affect ca-metabolism in birds
(1) abc (2) bc (3) cd (4) abd

165. Read the following statement having two blanks (A & B):
"A drug used as ......(A)...... is obtained from species of ......(B)........."
The one correct options for the two blanks is:-

<table>
<thead>
<tr>
<th>Blank-A</th>
<th>Blank-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Antibiotic</td>
<td>Plasmodium</td>
</tr>
<tr>
<td>(2) Cholesterol</td>
<td>Trichoderma</td>
</tr>
<tr>
<td>(3) Immunosuppressive</td>
<td>Yeast</td>
</tr>
<tr>
<td>(4) Clot buster</td>
<td>Streptococcus</td>
</tr>
</tbody>
</table>

166. How many statements are correct?
(a) स यक्ष का वापर किया जाता है?
(b) ज्यूस का दुष्कतातन जानामत है?
(c) अंककी जंतु के लिए 
(d) सगल के लिए 
(1) ab (2) bc (3) cd (4) abd

167. निम्न में में से किसने का नमूना है?
(a) औंटो मे बहाल होने से बढ़ता है?
(b) ज्यूस का 0.1% अभिक्रिया नहीं है?
(c) का जीन औजियाँ की 
(d) फूल और ज्यूस को अधिक कर सकता है?
(1) abc (2) bc (3) cd (4) abd

168. निम्न नलिंद्र का नगर वह है?
(1) धक्का जानकी जुड़े है?
(2) धक्का जानकी जुड़े है?
(3) धक्का जानकी जुड़े है?
(4) धक्का जानकी जुड़े है?

169. निम्नलिखित तकनीक के पैदा करने का उपकरण है?
(1) पैदा करने का उपकरण है?
(2) पैदा करने का उपकरण है?
(3) पैदा करने का उपकरण है?
(4) पैदा करने का उपकरण है?
166. Which statement is incorrect ?

(1) Trophic level represent functional level not a species as such
(2) A same species may occupy more than one trophic level in same ecosystem at same time
(3) In most ecosystem, all pyramids of number, of energy and biomass are upright
(4) Energy at higher trophic level is more as compared to lower levels as they are physically strong

167. Microinjection is suitable for :-

(1) Constructing recombinant DNA by joining with vectors
(2) DNA fingerprinting
(3) Disarming pathogen vectors
(4) Transformation of animal cells

168. Match the column :-

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Leads to accumulation of a dark coloured substance</td>
</tr>
<tr>
<td>B</td>
<td>Water-soluble inorganic nutrients undergo in soil</td>
</tr>
<tr>
<td>C</td>
<td>Bacterial and fungal enzymes degrade detritus into simple organic and inorganic substance</td>
</tr>
<tr>
<td>D</td>
<td>Detritivores break down detritus in small pieces</td>
</tr>
</tbody>
</table>

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

169. Tobacco plants resistant to a nematode have been developed by the introduction of DNA that produced (in the host cells) :-

(1) An Antifeedant
(2) A toxic protein
(3) Both sense & anti-sense RNA
(4) A particular hormone

166. निम्न ने में एस वै नख क्षण न अधी यहें?

(1) पर ए पर रत एक जिला तक करता जाता प्र प्रतिनिधित्व व करता है न किसी जात यहा का
(2) समा न प्र जात एक ही सामग्री एक ही प्रतिनिधि तिक त तो में एक्स अधिक पर जो पीजिन में अभ फिरता हो रहा है?
(3) मु ख़ाय मध्य तट में नमक के खंड के तलाच चैव भार के साथ फिलिड सेंथ हो ते ह।
(4) टू चप घर रतिफ्यां निम्न पर पर करती अथा अधिक करती ते ह। कह ते ह ह ब चिन जिया सिरिया कट्टर हो ते ह

167. मा इक्के इक्के में निक्से लिएट एड घु बत है?

(1) औरा हकों के स इ ढ़ ड़ ड फ़ू वें झाँ ना।
(2) DNA फिं गर फिटिंग ग
(3) ये णबंक से हके बे बे निकिया करता
(4) जे तु ओ दिक आं से बा स्कट ल स्पष्ट प्रत्येक

168. निम्न रत ब्या का मिलन ने की जिया?

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
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</table>
| A खण्ड न  | i के द्वारा गहरे गले स रंग के ध्रुव लकडितका ब्रह्म निम्म यह | (1) a-iii, b-i, c-iv, d-ii
| B हूँ मौं फिके न     | ii इसके अंत तो का विलय अथवा न का रंग कभी भी मी दू य संस्कृत में प्रतिनिधि कर जाते हैं। |
| C अल्कोल | iii बे फिट री का एक अंध का व ए ज द्वारा अधिकरणों का सेल बं निकलतां अथवा बं निकलत व उ में बो ड़ दे ते ह। |
| D निशाल लन | iv अस्थायी री द्वारा अस्थ बो छोटे - छोटे व ड़ दे में वन | (1) a-iii, b-i, c-iv, d-ii
(2) a-iv, b-i, c-ii, d-iii
(3) a-iv, b-iii, c-i, d-ii
(4) a-iv, b-i, c-iii, d-ii

169. का कू के सू त्रकु मिनिया लिया ठी पैं डिएक्स ने में कय ग ग़र जिसें (पैं घा को श्रेणी अं के प्रति तल) किस्म कहना संभं बहु अं? 

(1) फू भु टू फो डे रट (प्रति तल जय)
(2) एक बिंग ब त प्रतितो रोडी न
(3) Sense का ड अन्तीज़न दो नें प्र वर्तमान
(4) एक बिंग डाइ हा से न
170. How many statements are incorrect?
(a) Pyramid of biomass in sea is also generally inverted
(b) Pyramid of energy is never inverted
(c) In terrestrial ecosystem, a much larger fraction of energy flows through detritus food chain
(d) Humus is highly resistant to microbial action and undergoes decomposition at an extremely slow rate
(1) One (2) Two (3) All of these (4) None

171. How many products in the list given blow are produced by yeast at large scale?
Bread, Cheese, Butter, Beer, Citric acid, pectinase, Lactic acid, Lipase, Toddy
(1) Six (2) Three (3) Four (4) Five

172. What type of ecological succession would operate after a volcanic eruption and forest fire?
(1) Primary (2) Primary and secondary respectively (3) Secondary and secondary respectively (4) Secondary and primary respectively

173. Restriction enzyme EcoRI cuts the DNA between bases G and A only, When the sequence in DNA is:-
(1) GATATC (2) GAATTC (3) GATTCC (4) GAACTT

174. Which is true for primary succession?
(a) Humus or organic matter is absent in early stages
(b) The area is barren from beginning
(c) Reproductivity structures of previous living beings may be present
(d) Primary succession is slower than secondary succession
(1) abd (2) abc (3) acd (4) cd

175. During the processing of the prohormone proinsulin into the mature insulin:-
(A) C-Peptide is added to proinsulin
(B) Disulphide bonds are formed in between chain A & Chain B.
(C) C-Peptide is removed from proinsulin
(D) A & B peptides are added in proinsulin
How many of above statements are correct?
(1) One (2) Two (3) Three (4) Four
176. Limitations of ecological pyramids are:
(a) It does not take into accounts the same species belonging to two or more trophic level
(b) It assures a simple food chain
(c) saprophytes are not given any place
(d) It does not accommodate a food web
(1) Two (2) One (3) Four (4) Three

177. Consumption of which one of the following foods can prevent a kind of blindness associated with vitamin 'A' deficiency?
(1) Golden rice (2) Bt-Brinjal (3) 'Flavr - Savr' tomato (4) Canolla

178. How many statements are correct?
(a) In an aquatic ecosystem grazing food chain is major conduct for energy flow
(b) Detritus food chain may be connected with grazing food chain at some level
(c) Each tropic level has a certain mass of living material at a particular time called as standing crop
(d) Species composition and stratification are two main structural features of an ecosystem
(1) Two (2) Three (3) One (4) All

179. The amount of biomass or organic matter produced per unit area over a time period by plants during photosynthesis depends on:
(1) Plant species inhabiting a particular area
(2) Availability of nutrients
(3) Photosynthetic capacity of plant
(4) More than one is correct

180. How many statements are correct?
(a) Net primary productivity is available biomass for consumption to heterotrops
(b) Secondary productivity is defined as rate of formation of new organic matter by heterotrophs
(c) The annual net primary productivity of ocean is greater than land
(d) Warm and moist environment favours decomposition
(1) abcd (2) abc (3) abd (4) ac