CLASSROOM CONTACT PROGRAMME
(ACADEMIC SESSION 2012-2013)

ACHIEVER & ENTHUSIAST COURSE
(Phase: MAX, MAY, MAZ, MEF, MEG & MEH)
TARGET: PRE-MEDICAL 2013

MAJOR TEST # 04

ALLEN NEET-UG

DATE: 08 - 04 - 2013

SYLLABUS # 04

INSTRUCTIONS (भिन्नधर्म)

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 Your Form No. & Complete Test Details.

Do not open this Test Booklet until you are asked to do so / इस प्रश्न पत्र में कोई Correction हो तो कृपया आपने Form No. एवं पूर्ण Test Details के साथ 2 दिन के अंदर dlpcorrections@allen.ac.in पर mail करें।

ALLEN CAREER INSTITUTE
KOTA (RAJASTHAN)
1. At a certain point two waves from two coherent monochromatic sources of light are superimposing. The amplitude of each wave is $a_0$ and the phase difference between the waves at that point is $\phi$. Then the amplitude of the resultant wave is—
   (1) $2a_0$
   (2) $2a_0 \cos \phi$
   (3) $2a_0 \cos \left(\frac{\phi}{2}\right)$
   (4) $4a_0 \cos^2 \frac{\phi}{2}$

2. In a semiconductor the concentration of electron is $8 \times 10^{14}$ per cubic cm. & that of hole is $5 \times 10^{12}$ per cubic cm. The semiconductor is—
   (1) P type
   (2) N type
   (3) Intrinsic type
   (4) PNP type

3. The correct curve between fringe width ($\beta$) and distance between the slits ($d$) in YDSE is—
   (1)
   (2)
   (3)
   (4)

4. The amplifiers X, Y and Z are connected in series. If the voltage gains of X, Y and Z are 10, 20 and 30 respectively and the input signal is 1 mV peak value, then what is the output signal voltage (peak value). If dc supply voltage is 10V.
   (1) 1V
   (2) 2V
   (3) 6mV
   (4) 6V

1. एक निस्तंब से दो फाइबर पर चित्र का सप्रेक्षण हो रहा है। फाइबर A का स्रोत बिंदु $a_0$ तथा दूसरे फाइबर B के स्रोत बिंदु के $\phi$ के दौरान ध्वनि चित्र का सप्रेक्षण हो रहा है।
   (1) $2a_0$
   (2) $2a_0 \cos \phi$
   (3) $2a_0 \cos \left(\frac{\phi}{2}\right)$
   (4) $4a_0 \cos^2 \frac{\phi}{2}$

2. एक अंडा चालक में 'डीजीएस' आ के 10 के अंडे 10 के अंडे सिमिटी तथा 11 के होने वाले के आ 10 के अंडे सिमिटी हैं। अंडा चालक है—
   (1) P-अंडा चालक
   (2) N-अंडा चालक
   (3) जलाशय अंडा चालक
   (4) PNP अंडा चालक

3. पौर्णिमा चालक में 'डीजीएस' में 'डीजीएस' के मध्य अंडे के मध्य 11 वाले है—
   (1)
   (2)
   (3)
   (4)

4. उस नदी के वृक्ष का शंख रंग में बड़ा जंदा जहाँ है। वृक्ष X, Y और Z के बीच दर्ता लाल हो जाता है। यदि X, Y और Z के बीच दर्ता लाल हो जाता है और वृक्ष निचे संदे वंदन तक फूल कर रही है तो वृक्ष का शंखार नहीं होगा। वृक्ष का शंखार कब आ जाता है—
   (1) 1V
   (2) 2V
   (3) 6mV
   (4) 6V
5. The correct formula for fringe visibility is –

- (1) \[ V = \frac{I_{\text{max}} - I_{\text{min}}}{I_{\text{max}} + I_{\text{min}}} \]
- (2) \[ V = \frac{I_{\text{max}} + I_{\text{min}}}{I_{\text{max}} - I_{\text{min}}} \]
- (3) \[ V = \frac{I_{\text{max}}}{I_{\text{min}}} \]
- (4) \[ V = \frac{I_{\text{min}}}{I_{\text{max}}} \]

6. Ge and Si diodes conduct at 0.3V and 0.7V respectively. In the following figure if Ge diode connection is reversed, the value of \( V_0 \) changes by:

- (1) 0.2V
- (2) 0.4V
- (3) 0.6V
- (4) 0.8V

7. The equations of two interferring waves are

\[ Y_1 = b \cos \omega t \]
\[ Y_2 = b \cos (\omega t + \phi) \]

Destructive interference will take place at the point of observation for the following value of \( \phi \):

- (1) 0°
- (2) 360°
- (3) 180°
- (4) 720°

8. The contribution in the total current flowing through a semiconductor due to electrons and holes are \( \frac{3}{4} \) and \( \frac{1}{4} \) respectively. If the drift velocity of electrons is \( \frac{5}{2} \) times that of holes at this temperature, then the ratio of concentration of electrons and holes is:

- (1) 6 : 5
- (2) 5 : 6
- (3) 3 : 2
- (4) 2 : 3

9. Intensities of two waves, which produces interference are 9:4. The ratio of maximum and minimum intensity is:

- (1) 9 : 4
- (2) 3 : 2
- (3) 25 : 1
- (4) 5 : 1
10. Which of the following statements concerning the depletion zone of an unbiased PN junction is (are) true: -

(1) The width of the zone is independent of densities of the dopants (impurities)
(2) The width of the zone is dependent on the densities of the dopants
(3) The electric field in the zone is produced by the ionized dopant atoms
(4) Both 2 & 3

11. When \( \omega = \frac{1}{\sqrt{LC}} \), the ammeter:

\[
\begin{align*}
V &= V_0 \sin t \\
A_1 &
\end{align*}
\]

(1) \( A_1 \) has zero reading
(2) \( A_2 \) has very large reading
(3) \( A_3 \) has zero reading
(4) \( A_2 \) has maximum reading

12. If no external voltage is applied across P-N junction, there would be:

(1) No electric field across the junction
(2) An electric field pointing from N-type to P-type side across the junction
(3) An electric field pointing from P-type to N-type side across the junction
(4) A temporary electric field during formation of P-N junction that would subsequently disappear

13. A plane electromagnetic wave travelling along the x-axis. The equations for electric and magnetic fields as a function of position \( x \) and time \( t \) will be:

\[
B_0 \quad \text{and} \quad E_0 \quad \text{have positive value}
\]

(1) \( E_y = E_0 \sin(kx - \omega t) \), \( B_z = B_0 \cos(kx - \omega t) \)
(2) \( E_z = E_0 \cos(kx - \omega t) \), \( B_y = B_0 \sin(kx - \omega t) \)
(3) \( E_y = E_0 \cos(kx - \omega t) \), \( B_z = B_0 \cos(kx - \omega t) \)
(4) \( E_z = E_0 \sin(kx + \omega t) \), \( B_y = B_0 \sin(kx + \omega t) \)
14. A potential barrier of 0.50 V exists across a P-N junction. If the depletion region is $5.0 \times 10^{-7}$ m wide, the intensity of the electric field in this region is:
   - (1) $1.0 \times 10^6$ V/m
   - (2) $1.0 \times 10^5$ V/m
   - (3) $2.0 \times 10^5$ V/m
   - (4) $2.0 \times 10^6$ V/m

15. A free electron is placed in the path of a plane electromagnetic wave. The electron will start moving:
   - (1) along the direction of propagation of the wave.
   - (2) along the electric field vector.
   - (3) along the magnetic field vector.
   - (4) can’t say anything.

16. An n-p-n transistor in a common emitter mode is used as a simple voltage amplifier with a collector current of 4mA. The positive terminal of an 8.6 V battery is connected to the collector through a load resistance $R_L$ and to the base through a resistance $R_B$. The base-emitter voltage $V_{BE} = 0.6$ V and current amplification factor $B = 100$. Calculate the value $R_B$.

   - (1) 100 kΩ
   - (2) 200 kΩ
   - (3) 400 kΩ
   - (4) 800 kΩ

17. The amplitude of oscillating magnetic field in a plane sinusoidal electromagnetic wave is given by $B_0$, then intensity of electromagnetic wave will be:
   - (1) $\frac{cB_0^2}{2\mu_0}$
   - (2) $\frac{cB_0^2}{\mu_0}$
   - (3) $\frac{B_0^2}{\mu_0}$
   - (4) $\frac{B_0^2}{2\mu_0}$

18. The combination of logic gates shown below is equivalent to:
   - (1) AND gate
   - (2) XOR gate
   - (3) NOR gate
   - (4) NAND gate
19. An inductor L, a resistance R and two identical bulbs B₁ and B₂ are connected to a battery through a key K as shown in the figure. Consider the following two statement A and B.

(A) When the key K is closed the bulb B₂ lights up earlier than and finally B₁ shines brighter than B₂

(B) When the key K is opened the B₂ dies out promptly but bulb B₁ with same delay.

(1) Both A and B are true
(2) Both A and B are false
(3) A is true but B is false
(4) A is false but B is true

20. The dependence of density [d] of nuclear matter on the mass number A is -

(1) \( d \propto A \)
(2) \( d \propto \sqrt{A} \)
(3) \( d \propto \sqrt[3]{A} \)
(4) \( d \propto \frac{1}{A} \)

21. If the reading of the voltmeters vary with time as: \( V_1 = 20\sin(\omega t) \) and \( V_2 = 20\sin(\omega t + \pi/6) \) then the unknown circuit element x is a :-

(1) Pure (or ideal) inductor
(2) Practical inductor
(3) Pure (or ideal) capacitor
(4) Practical capacitor

22. A nuclear reaction \( n \rightarrow p + e^{-1} + \nu \), if masses of proton, neutron and electron are respectively \( 1.6725 \times 10^{-27} \), \( 1.6747 \times 10^{-27} \) and \( 9 \times 10^{-31} \) kg then emitted energy will be-

(1) 0.51 MeV
(2) 0.73 MeV
(3) 1.02 MeV
(4) 4.21 MeV
23. When a coil (with resistance) is connected to an alternating source of 200 V(rms) and \( \frac{100}{\pi} \, \text{Hz} \) frequency, a \( 2\sqrt{2} \) Amp(rms) flows in the circuit and a 400 W power dissipates. A capacitor is connected in the series with coil to get maximum current. Then capacitance of this capacitor will be:
   (1) 50 \( \mu \text{F} \)  
   (2) 100 \( \mu \text{F} \)  
   (3) 200 \( \mu \text{F} \)  
   (4) 400 \( \mu \text{F} \)  

24. Bombardment of a neutron \( {}_0^1\text{n} + {}_5^{10}\text{B} \to {}_2^4\text{He}^4 + x \) on boron, forms a nucleus \( x \) with emission of \( \alpha \) particle. Nuclear \( x \) is:
   (1) \( {}_6^{12}\text{C} \)  
   (2) \( {}_3^{6}\text{Li} \)  
   (3) \( {}_3^{7}\text{Li} \)  
   (4) \( {}_4^{9}\text{Be} \)  

25. Magnet flux linked with a coil is \( \phi \) and induced emf in coil is \( e \) then possible situations are:
   (a) \( \phi = 0, e = 0 \)  
   (b) \( \phi = 0, e \neq 0 \)  
   (c) \( \phi \neq 0, e = 0 \)  
   (d) \( \phi \neq 0, e \neq 0 \)  
   (1) a, d  
   (2) b, c  
   (3) a, c, d  
   (4) a, b, c, d  

26. An artificial radioactive decay series begins with unstable \( {}^{241}_{94}\text{Pu} \). The stable nuclide obtained after eight \( \alpha \)-decays and five \( \beta \)-decays is:
   (1) \( {}^{209}_{83}\text{Bi} \)  
   (2) \( {}^{209}_{82}\text{Pb} \)  
   (3) \( {}^{205}_{82}\text{Se} \)  
   (4) \( {}^{201}_{82}\text{Mg} \)  

27. The primary winding of a transformer has 200 turns and its secondary winding has 2000 turns. Potential difference on one turn of primary winding is 1 V then potential difference on 1 turn of secondary coil will be:
   (1) 1 V  
   (2) 10 V  
   (3) \( \frac{1}{10} \) V  
   (4) 100 V  

28. The number of atoms in a radioactive sample reduces from 1000 to 100 in two days. Then the number of atoms remaining at the end of 4 days:
   (1) 50  
   (2) 25  
   (3) 20  
   (4) 10
29. A vessel consists of two plane mirrors at right angles as shown in figure. The vessel is filled with water, the total deviation in incident ray is: -
   (1) 0°
   (2) 90°
   (3) 180°
   (4) None of these

30. If $\frac{3}{4}$ of nuclei disintegrate in $\frac{3}{4}$ sec. Then the half-life of radioactive element will be:
   (1) $\frac{3}{4}$ sec
   (2) $\frac{3}{8}$ sec
   (3) $\frac{3}{16}$ sec
   (4) None of these

31. A concave mirror is placed on a horizontal table with its axis directed vertically upwards. Let O be the pole of the mirror and C, its centre of curvature. A point object is placed at C. It has a real image, also located at C. If the mirror is now filled with water, the image will be:
   (1) Real, and will remain at C
   (2) Real, and located at a point between c and $\infty$
   (3) Virtual and located at a point between C and O
   (4) Real and located at a point between C and O

32. The wavelength of last line of Lyman series in the spectrum of hydrogen is 911 Å. The atomic number of that element which emits characteristic X-rays of minimum wavelength of 0.7 Å, will be:
   (1) 30
   (2) 33
   (3) 35
   (4) 37

33. A thin rod of length $\frac{f}{3}$ lies along the axis of a concave mirror of focal length f. One end of its magnified real image touches an end of the rod. The length of the image is:
   (1) f
   (2) $\frac{1}{2}$f
   (3) 2f
   (4) $\frac{1}{4}$f

34. A nucleus of mass number A emits an $\alpha$ particle. If Q is the released energy then kinetic energy of $\alpha$ is:
   (1) $\frac{(A-4)}{A}$Q
   (2) $\frac{A+4}{4}$Q
   (3) $\frac{A+Q}{A}$
   (4) None of these

30. The vessel consists of two plane mirrors at right angles as shown in figure.

31. If $H$ of 0.7 Å, will be-
   (1) 0º
   (2) 90º
   (3) 180º
   (4) None of these

32. The wavelength of the last line of Lyman series in the spectrum of hydrogen is 911 Å. The atomic number of that element which emits characteristic X-rays of minimum wavelength of 0.7 Å, will be:
   (1) 30
   (2) 33
   (3) 35
   (4) 37

33. A thin rod of length $\frac{f}{3}$ lies along the axis of a concave mirror of focal length f. One end of its magnified real image touches an end of the rod. The length of the image is:
   (1) f
   (2) $\frac{1}{2}$f
   (3) 2f
   (4) $\frac{1}{4}$f

34. A nucleus of mass number A emits an $\alpha$ particle. If Q is the released energy then kinetic energy of $\alpha$ is:
   (1) $\frac{(A-4)}{A}$Q
   (2) $\frac{A+4}{4}$Q
   (3) $\frac{A+Q}{A}$
   (4) None of these
35. In a concave mirror, an object is placed at a distance \(d_1\) from the focus and the real image is formed at a distance \(d_2\) from the focus. Then the focal length of the mirror is : -

(1) \(\sqrt{d_1d_2}\)  
(2) \(d_1d_2\)  
(3) \(\frac{d_1 + d_2}{2}\)  
(4) \(\frac{d_1}{\sqrt{d_2}}\)

36. In Davisson-Germer experiment an electron beam of wavelength 1.5 Å is incident normally on a crystal having atomic spacing of 3Å. The scattering angle at which the first maximum if formed is -

(1) 30°  
(2) 60°  
(3) 90°  
(4) 180°

37. The refractive index of the material of a prism is \(\sqrt{2}\) and its refracting angle is 30°. one of the refracting surfaces of the prism is made a mirror inwards. A beam of monochromatic light entering the prism from the one face retraces its path, after reflection from mirrored surface, its angle of incidence on prism is : -

(1) 0°  
(2) 30°  
(3) 45°  
(4) 60°

38. If particles are moving with same velocity, then maximum de-Broglie wavelength is for-

(1) Proton  
(2) \(\alpha\)-particle  
(3) Neutron  
(4) \(\beta\)-particle

39. A student has drawn the following courses of rays through a glass prism, which one represents the position of minimum deviation : -

(1)  
(2)  
(3)  
(4)
40. The de-Broglie wavelength of a particle accelerated with 150 volt potential is $10^{-10}$ m. If it is accelerated by 600 volts p.d. its wavelength will be-

1. 0.25 Å
2. 0.5 Å
3. 1.5 Å
4. 2 Å

41. A thin prism of 6° angle gives a deviation of 3° what is the refractive index of the material of the prism :-

1. 1.6
2. 1.7
3. 1.5
4. 1.4

42. When a point source of light is at a distance of one meter from a photo cell, the cut off voltage is found to be $V$. If the same source is placed at 2 m distance from photon cell, the cut off voltage will be-

1. $V$
2. $\frac{V}{2}$
3. $\frac{V}{4}$
4. $\frac{V}{\sqrt{2}}$

43. The maximum velocity of an electron emitted by light of wavelength $\lambda$ incident on the surface of a metal of work function $\phi$ is-

1. $\left[\frac{2(hc + \lambda \phi)}{m\lambda}\right]^{1/2}$
2. $\left[\frac{2(hc - \lambda \phi)}{m\lambda}\right]^{1/2}$
3. $\frac{2(hc - \lambda \phi)}{m}$
4. $\left[\frac{2(h\lambda - \phi)}{m}\right]^{1/2}$

44. When light is incident on surface, photo electrons are emitted. For photoelectrons:

1. The value of kinetic energy is same
2. Kinetic energy does not depend on the wave length of incident light
3. The value of kinetic energy is equal to or less than a maximum energy
4. None of the above

45. Your Target is to secure Good Rank in Pre-Medical 2013
46. The cell in which the following reaction occurs:
\[ 2\text{Fe}^{3+}(aq) + 2\text{I}^-(aq) \rightarrow 2\text{Fe}^{2+} (aq) + \text{I}_2(s) \]
has \( E^{\circ}_{\text{cell}} = 0.236 \text{ V} \) at 298K. The equilibrium constant of the reaction is:
(1) \( 10^8 \)  (2) \( 10^4 \)  (3) \( 10^9 \)  (4) \( 10^3 \)

47. Structure of alanine at pH = 2 and pH = 10 are respectively:
(1) \( \overset{\circ}{\text{H}} \text{N–CH–COOH} \)
(2) \( \overset{\circ}{\text{H}} \text{N–CH–COO}^{} \text{CH}_3 \)
(3) \( \overset{\circ}{\text{H}} \text{N–CH–COO}^{} \text{CH}_3 \)
(4) \( \overset{\circ}{\text{H}} \text{N–CH–COOH} \)

48. Calculate \( \lambda_m \) for CaCl\(_2\) using following data:
\( \lambda^{\infty}(\text{Ca}^{2+}) = 119 \text{ Scm}^2 \text{ mol}^{-1} \), \( \lambda^{\infty}(\text{Cl}^-) = 76.3 \text{ Scm}^2 \text{ mol}^{-1} \) :-
(1) 271.6 Scm\(^2\) mol\(^{-1}\)  (2) 195.3 Scm\(^2\) mol\(^{-1}\)
(3) 135.8 Scm\(^2\) mol\(^{-1}\)  (4) 97.6 Scm\(^2\) mol\(^{-1}\)

49. Which of the following is correct:
(1) \( \overset{\circ}{\text{H}} \text{N–CH–COOH} \rightarrow \overset{\circ}{\text{CH}} \text{N–CH–COOH} \)
(2) \( \overset{\circ}{\text{H}} \text{N–CH–COO}^{} \text{CH}_3 \rightarrow \overset{\circ}{\text{CH}} \text{N–CH–COO}^{} \text{CH}_3 \)
(3) \( \overset{\circ}{\text{H}} \text{N–CH–COO}^{} \text{CH}_3 \rightarrow \overset{\circ}{\text{H}} \text{N–CH–COOH} \)
(4) All

(1 eq. of glucose reacts with 2 eq. of phenyl hydrazine to give product)
50. Calculate the emf of the following cell:
Pt(s)/Br₂(ℓ)/Br⁻(0.010M)||H⁺(0.03M)/H₂(g)
1 bar/Pt
Given E°Br₂Br⁻ = 1.09V
(1) –1.09V (2) 1.09V
(3) –1.29 V (4) +1.29 V

51. Which of the following is not a greenhouse gas:
(1) H₂O vapour (2) O₃
(3) CO (4) CH₄

52. What will happen during the electrolysis of aq. soln.
of CuSO₄ in the presence of Cu electrode:
(1) Copper will deposit at cathode
(2) Copper will dissolve at anode
(3) Oxygen will be released at anode
(4) 1 & 2 both

53. Equanil is:
(1) Artificial sweetener (2) Tranquilizer
(3) Antihistamine (4) Antifertility drug

54. Molar conductivity of ionic solution depends on:
(a) Temperature
(b) Distance between electrodes
(c) Concentration of electrolytes in solution
(d) Surface area of electrodes
Correct option is:
(1) a and c (2) b and d
(3) a, b, c, d (4) a, b and c

55. A narrow spectrum antibiotic is active against:
(1) Gram positive or gram negative bacteria
(2) Gram negative bacteria only
(3) Single organism or one disease
(4) Both gram positive and gram negative bacteria

56. The standard reduction potentials for Zn²⁺/Zn, Ni²⁺/Ni and Fe²⁺/Fe are –0.76 V, –0.23 V and –0.44 V respectively. The reaction:
X + Y²⁺ → X²⁺ + Y
will be spontaneous when:
(1) X = Ni, Y = Fe (2) X = Ni, Y = Zn
(3) X = Fe, Y = Zn (4) X = Zn, Y = Ni

57. Which of the following is the correct statement for Aspirin:
(1) It is effective in relieving pain
(2) It has anticoagulant action
(3) It is a neurologically active drug
(4) All

58. Which of the following is not a greenhouse gas:
(1) H₂O vapour (2) O₃
(3) CO (4) CH₄

59. What is the product of the following reaction:
X + Y²⁺ → X²⁺ + Y
(1) X = Ni, Y = Fe (2) X = Ni, Y = Zn
(3) X = Fe, Y = Zn (4) X = Zn, Y = Ni

60. Which of the following is not a greenhouse gas:
(1) H₂O vapour (2) O₃
(3) CO (4) CH₄

61. What is the product of the following reaction:
X + Y²⁺ → X²⁺ + Y
(1) X = Ni, Y = Fe (2) X = Ni, Y = Zn
(3) X = Fe, Y = Zn (4) X = Zn, Y = Ni

62. Which of the following is correct statement for Aspirin:
(1) It is effective in relieving pain
(2) It has anticoagulant action
(3) It is a neurologically active drug
(4) All
58. In which triplet each species can act as oxidant and reductant:

(1) $\text{H}_2\text{O}_2$, HNO$_2$, HClO$_4$
(2) HNO$_3$, SO$_2$, H$_2$O$_2$
(3) HNO$_3$, SO$_2$, H$_2$SO$_4$
(4) KMnO$_4$, SO$_3$, O$_3$

59. Match the Column-I with Column-II:

<table>
<thead>
<tr>
<th>Column-I</th>
<th>Column-II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Acid rain</td>
<td>(p) CF$_2$Cl$_2$</td>
</tr>
<tr>
<td>(b) Photochemical smog</td>
<td>(q) CO</td>
</tr>
<tr>
<td>(c) Combination with haemoglobin</td>
<td>(r) SO$_2$</td>
</tr>
<tr>
<td>(d) Depletion of ozone layer</td>
<td>(s) Unsaturated hydrocarbon</td>
</tr>
</tbody>
</table>

(1) (a)$\rightarrow$(r); (b)$\rightarrow$(s); (c)$\rightarrow$(q); (d)$\rightarrow$(p)
(2) (a)$\rightarrow$(q); (b)$\rightarrow$(s); (c)$\rightarrow$(r); (d)$\rightarrow$(p)
(3) (a)$\rightarrow$(s); (b)$\rightarrow$(q); (c)$\rightarrow$(r); (d)$\rightarrow$(p)
(4) (a)$\rightarrow$(p); (b)$\rightarrow$(r); (c)$\rightarrow$(s); (d)$\rightarrow$(q)

60. Which of the following is intermolecular redox change?

(1) $\text{PbO}_2 + \text{H}_2\text{O} \rightarrow \text{PbO} + \text{H}_2\text{O}_2$
(2) $\text{NH}_4\text{NO}_2 \rightarrow \text{N}_2 + 2\text{H}_2\text{O}$
(3) $2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2$
(4) $2\text{O}_3 \rightarrow 3\text{O}_2$

61. Which of the following belongs to secondary air pollutants.

(1) CO
(2) Hydrocarbon
(3) Peroxyacetyl nitrate
(4) NO

62. How many moles of electrons are needed to convert one mole of nitrate ion to hydrazine?

(1) 8
(2) 7
(3) 5
(4) 3

63. Which of the following statement is true about glucose:

(1) It gives 2,4-DNP test
(2) It exists in furanose form
(3) It is a reducing sugar
(4) It exists in two anomeric forms having difference at C$_2$ carbon

58. किसे प्राणे ते करे ते ब्रे जग के जल के फर्क की चै पर बना पक्का हाँ?

(1) $\text{H}_2\text{O}_2$, HNO$_2$, HClO$_4$
(2) HNO$_2$, SO$_2$, H$_2$O$_2$
(3) HNO$_3$, SO$_2$, H$_2$SO$_4$
(4) KMnO$_4$, SO$_3$, O$_3$

59. सूर मे लिं करे।

<table>
<thead>
<tr>
<th>Column-I</th>
<th>Column-II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Acid rain</td>
<td>(p) CF$_2$Cl$_2$</td>
</tr>
<tr>
<td>(b) Photochemical smog</td>
<td>(q) CO</td>
</tr>
<tr>
<td>(c) Combination with haemoglobin</td>
<td>(r) SO$_2$</td>
</tr>
<tr>
<td>(d) Depletion of ozone layer</td>
<td>(s) Unsaturated hydrocarbon</td>
</tr>
</tbody>
</table>

(1) (a)$\rightarrow$(r); (b)$\rightarrow$(s); (c)$\rightarrow$(q); (d)$\rightarrow$(p)
(2) (a)$\rightarrow$(q); (b)$\rightarrow$(s); (c)$\rightarrow$(r); (d)$\rightarrow$(p)
(3) (a)$\rightarrow$(s); (b)$\rightarrow$(q); (c)$\rightarrow$(r); (d)$\rightarrow$(p)
(4) (a)$\rightarrow$(p); (b)$\rightarrow$(r); (c)$\rightarrow$(s); (d)$\rightarrow$(q)

60. निष्कलिं त मे के बारे में नइ अं त अ निष्कलिं के पुराने म व परिवर्तन है?

(1) $\text{PbO}_2 + \text{H}_2\text{O} \rightarrow \text{PbO} + \text{H}_2\text{O}_2$
(2) $\text{NH}_4\text{NO}_2 \rightarrow \text{N}_2 + 2\text{H}_2\text{O}$
(3) $2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2$
(4) $2\text{O}_3 \rightarrow 3\text{O}_2$

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(1) CO
(2) Hydrocarbon
(3) Peroxyacetyl nitrate
(4) NO

62. को मे लिं त पुराने से अं त अ निष्कलिं के पुराने म व परिवर्तन है?

(1) 8
(2) 7
(3) 5
(4) 3

63. रूप मे संदेह मे के बारे में अहेम का न है?

(1) य 2,4-DNP परिवर्तन प दहा है?
(2) य पूरा ने स्म व है?
(3) य 2,4-DNP परिवर्तन प दहा है?
(4) य वर्तमान में न है?

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64. The standard reduction potential for half reactions for four different elements A, B, C and D are:

(i) \( A_2 + 2e^- \rightarrow 2A^-; E^0 = + 2.85 \text{ V} \)
(ii) \( B_2 + 2e^- \rightarrow 2B^-; E^0 = + 1.36 \text{ V} \)
(iii) \( C_2 + 2e^- \rightarrow 2C^-; E^0 = + 1.06 \text{ V} \)
(iv) \( D_2 + 2e^- \rightarrow 2D^-; E^0 = + 0.53 \text{ V} \)

Strongest oxidising and strongest reducing agents among these would be:

(1) \( A_2 \) and \( D^- \) respectively
(2) \( D_2 \) and \( A^- \) respectively
(3) \( B_2 \) and \( C^- \) respectively
(4) \( A_2 \) and \( D_2 \) respectively

65. Proteins have two different types of secondary structure: \( \alpha \)-helix and \( \beta \)-pleated sheet structure, \( \alpha \)-helix structure is stabilised by:

(1) Peptide bonds
(2) Vander waals forces
(3) Hydrogen bonds
(4) Dipole-dipole interactions

66. Select the incorrect statement for a dry cell:

(1) Mn is reduced from +4 to +3 state
(2) \( NH_3 \) gas is liberated out
(3) Zn is used as anode
(4) A paste of \( NH_4Cl \) and \( ZnCl_2 \) is used as electrolyte

67. Which of the following is an example of condensation polymer?

(1) Teflon
(2) PVC
(3) Nylon-6
(4) Orlon

68. Which of the given graphs best represents the following two step exothermic chemical process:

Step (I) \( x + y \rightarrow [xy]^* \) ..........Slow
Step (II) \( [xy] \rightarrow xy \) .............Fast

![Energy graphs for chemical reactions](image_url)
69. Given enol form is related to :-

\[
\begin{align*}
\text{CH–OH} & \quad | \quad \text{C–OH} \\
\text{HO} & \quad | \quad \text{H} \\
\text{H} & \quad | \quad \text{OH} \\
\text{H} & \quad | \quad \text{OH} \\
\text{CH}_2\text{OH} &
\end{align*}
\]

(1) D-glucose  (2) D-mannose  
(3) D-fructose  (4) All

70. For \( \text{NH}_3(g) \xrightarrow{\Delta} \frac{1}{2} \text{N}_2(g) + \frac{3}{2} \text{H}_2(g) \):

\[
\begin{align*}
\frac{-d[\text{NH}_3]}{dt} &= K_1 [\text{NH}_3]^p \\
\frac{d[N_2]}{dt} &= K_2 [\text{NH}_3]^q \\
\frac{d[H_2]}{dt} &= K_3 [\text{NH}_3]^r
\end{align*}
\]

The relation between \( K_1, K_2, K_3 \) is.

(1) \( 3K_1 = 6K_2 = 2K_3 \)  (2) \( 1K_1 = 2K_2 = 3K_3 \)  
(3) \( K_1 = K_2 = K_3 \)  (4) \( 6K_1 = 3K_2 = 2K_3 \)

71. Which of the following show different behaviour towards glucose and fructose:

(1) \( \text{Br}_2/\text{H}_2\text{O} \)  (2) Schiff's reagent  
(3) Tollen's reagent  (4) \( \text{P} + \text{HI} \)

72. For which of the following reaction the half life period does not depend on initial concentration.

(1) 0  (2) 1  (3) 2  (4) 3

73. \( \text{HC}=\text{CH} \xrightarrow{\text{CuCl} + \text{NH}_3} \text{X} \xrightarrow{\text{HCl} (1 eq.)} \text{Y} \xrightarrow{\text{Polymerisation}} \text{Z} \)

which is incorrect for \( Z :- \)

(1) Is a homopolymer  (2) Is an addition polymer  
(3) Is a thermoplastic  (4) Is a synthetic polymer

74. For a single step reaction \( aA + bB \rightarrow \text{product} \)

Which of the following is incorrect.

(1) Rate of reaction \( r = K(b)[A]^x[B]^y \), where \( x \neq a \) and \( y \neq b \)

(2) Rate law is \( r = K(a)[A]^x[B]^y \)

(3) According to law of mass action \( r \propto [A]^x[B]^y \)

(4) It will become a reaction of order 'a' if B is in large excess.
75. Which of the following does not show mutarotation :-
   (1) Maltose  (2) Sucrose  (3) Mannose  (4) Fructose

76. A catalyst lowers the activation energy by 40 kJ at 25°C. How many times is the rate increased :
   (1) \(10^1\)  (2) \(10^3\)  (3) \(10^5\)  (4) \(10^7\)

77. Vulcanisation of rubber results in :-
   (1) Water absorption capacity increases  
     (2) It becomes brittle  
     (3) Becomes resistant to attack by oxidising agents  
     (4) All

78. In the reversible reaction a catalyst is the substance which :-
   (1) Increases the rate of forward reaction.  
     (2) Decreases the value of enthalpy change in the reaction  
     (3) Reduces the time required for reaching the equilibrium state in the reaction  
     (4) Decreases the rate of reverse reaction

79. When \(\text{MnO}_2\) is fused with KOH and \(\text{KClO}_3\), a coloured compound is formed. The product and its colour is :-
   (1) \(\text{K}_2\text{MnO}_4\), green  
     (2) \(\text{KMnO}_4\), purple  
     (3) \(\text{Mn}_2\text{O}_3\), brown  
     (4) \(\text{Mn}_3\text{O}_4\), black

80. In chemical adsorption, how many layers are adsorbed.
   (1) One  (2) Two  (3) Multi  (4) Zero

81. In the extraction of Aluminium :-
   Process X : applied for red bauxite to remove iron oxide (chief impurity).
   Process Y : (Serpeck's process) : applied for white bauxite to remove Z (chief impurity) Then, process X and impurity Z are :-
   (1) X = hall and Heroult's process and Z = \(\text{SiO}_2\)  
     (2) X = Baeyer's process and Z = \(\text{SiO}_2\)  
     (3) X = Serpeck's process and Z = iron oxide  
     (4) X = Baeyer's process and Z = iron oxide

75. The option in which the values of the variables are given (1) Maltose  (2) Sucrose  (3) Mannose  (4) Fructose

76. If \(\Delta G\) for a chemical reaction is \(-40\) kJ at 25°C. How many times is the rate increased :
   (1) \(10^1\)  (2) \(10^3\)  (3) \(10^5\)  (4) \(10^7\)

77. Which of the following does not show mutarotation :-
   (1) Maltose  (2) Sucrose  (3) Mannose  (4) Fructose

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     (2) X = Baeyer's process and Z = \(\text{SiO}_2\)  
     (3) X = Serpeck's process and Z = iron oxide  
     (4) X = Baeyer's process and Z = iron oxide
82. Gold number gives :-
(1) The amount of gold present in the colloid
(2) The amount of gold required to break the
(3) The amount of gold required to protect colloids
(4) None of these

83. Which one of the following statement is incorrect ?
(1) Tin is extracted by carbon reduction (smelting)
(2) Aluminium is extracted by Hall's process which involves carbon reduction
(3) Extraction of lead does not involve bessmerisation
(4) Silver is extracted by cyanide process

84. The C – O distances in V(CO)₆ and [V(CO)₆]⁻ are respectively (in pm) :-
(1) 200, 200 (2) 193, 200
(3) 200, 193 (4) 193, 193

85. Which of the following composition of minerals is incorrect :-
(1) Soda ash → Na₂CO₃
(2) Carnallite → KCl. MgCl₂.6H₂O
(3) Borax. → Na₂B₄O₇•7H₂O
(4) Glauber's salt → Na₂SO₄•10H₂O

86. [Pt(NH₃)₄][PtCl₃(NH₃)₂] is not the polymerization isomer of which of the following compounds?
(1) Cis-[PtCl₂(NH₃)₂]
(2) Trans-[PtCl₂(NH₃)₂]
(3) [Pt(NH₃)₂Cl₂][PtCl₄]
(4) None of these

87. The total increase in Δ₀ for Ir⁺³ with respect to Co⁺³ is :-
(1) 30% (2) 42% (3) 50% (4) 82%

88. Which of the following complexes is not square planar ?
(1) [AgF₄]⁻ (2) [AuCl₄]⁻
(3) [RhCl(PPh₃)₃] (4) [NiCl₂(PMe₃)₂]

89. Which of the following is not correctly matched
(1) [CoF₆(H₂O)₃] paramagnetic and sp³d²
(2) [Cr(C₂O₄)₃]⁻³ paramagnetic and d²sp³
(3) [AuCl₄]⁻ diamagnetic and low spin complex
(4) [Fe(CO)₄]⁻² dsp², and diamagnetic

90. The number of optically active isomers for the complex of formula [Mₐ₂b₂c₂d] is :-
(1) 3 (2) 4 (3) 5 (4) 6

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(3) [AuCl₄]⁻ diamagnetic and low spin complex
(4) [Fe(CO)₄]⁻² dsp², and diamagnetic
91. The conventional method for development of disease resistance are :-
(1) Mutation and selection
(2) Mutation and hybridisation
(3) Introduction and selection
(4) Hybridisation and selection

92. Which of the following represent first trophic level :-
(1) Insect  (2) Rabbit
(3) Mosses  (4) Both (1) & (3)

93. Variety of wheat which is resistance for leaf rust and hill bunt diseases, is developed by which method :-
(1) Mutation and selection
(2) Mutation and hybridisation
(3) Introduction and selection
(4) Hybridisation and selection

94. Identify the predator :-
(1) Sparrow eating seed
(2) Horse
(3) Wolf
(4) Both (1) & (3)

95. 'Himgiri' is a variety of :-
(1) Chilli  (2) Rice
(3) Wheat  (4) Maize

96. Northwood, Taiga forest 500-1700 mm. rain fall per year, these are the characteristics of:-
(1) Arctic desert
(2) Tropical deciduous forest
(3) Temperate deciduous forest
(4) Temperate coniferous

97. IARI, New delhi developed which variety of beans which is protein enriched :-
(1) Pusa sawni  (2) Pusa Gaurav
(3) Pusa A-4  (4) Lablab

98. Loss of species due to habitat loss and global warming are included in :-
(1) Mass extinction
(2) Natural extinction
(3) Anthropogenic extinction
(4) None of the above

99. Ladybird (Beetle with red and black marking) is used as biological control of :-
(1) Mosquitoes  (2) Aphids
(3) Dragonflies  (4) Jassids
100. The pyramid of number is upright for all ecosystem except :-
(1) Forest ecosystem (2) Pond ecosystem
(3) Tree ecosystem (4) Aquatic ecosystem

101. Dragonflies insects are used as biological control of :-
(1) Mosquitoes (2) Aphids
(3) Dragonflies (4) Jassids

102. The most unstable community in ecological succession is :-
(1) Pioneer community (2) Seral community
(3) Climax community (4) All of the above

103. Read the following four statements (a-d) :-
(a) A single out cross often helps to overcome inbreeding depression
(b) Artificial insemination helps to overcome several problems of normal matings
(c) Bee keeping is easy and require some specialised knowledge
(d) Hilsa, common carp, mackerel are edible marine fishes
How many of the above statements are correct?
(1) One (2) Two (3) Three (4) Four

104. In domestic sewage colloidal material includes:-
(1) Sand, silt, clay
(2) Fecal matter, bacteria, cloth and paper fibres
(3) nutrients like nitrate, ammonia, phosphate, sodium, calcium
(4) All of the above

105. The best breeding method for animals that are below average in productivity ?
(1) Cross breeding (2) Out Crossing
(3) Inbreeding (4) All the above

106. Match the column–I with column–II :-

<table>
<thead>
<tr>
<th>Column-I</th>
<th>Column-II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rain forest</td>
<td>Teak</td>
</tr>
<tr>
<td>Tropical deciduous</td>
<td>Saccharum</td>
</tr>
<tr>
<td>Temperate broad leaf forest</td>
<td>Epiphytes</td>
</tr>
<tr>
<td>Savanna</td>
<td>Oak</td>
</tr>
</tbody>
</table>

107. Match the column–I with column–II :-

<table>
<thead>
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</tr>
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<tbody>
<tr>
<td>A – ii, B – iii., C – i, D – iv</td>
<td>(i)</td>
</tr>
<tr>
<td>A – ii, B – i., C – iv, D – iii</td>
<td>(ii)</td>
</tr>
<tr>
<td>A – iii, B – i., C – iv, D – ii</td>
<td>(iii)</td>
</tr>
<tr>
<td>A – iii, B – i., C – ii, D – iv</td>
<td>(iv)</td>
</tr>
</tbody>
</table>

108. Your Target is to secure Good Rank in Pre-Medical 2013

MAJOR TEST
08-04-2013
107. How many of the animals in the list given below are cross breeds?
Karanswiss, Sunandani, Karanfries, Brown swiss, Sahiwal, Jersey, Holstein
(1) Five (2) Four (3) Six (4) Three

108. Out of the total cost of various ecosystem services, alone soil formation costs upto 50 percent. How much would climate regulation and habitat for wildlife cost upto?
(1) 5 percent each (2) 6 percent each (3) 4 percent each (4) 10 percent each

109. Which of the following are important components of poultry farm management?
(1) Hygiene (2) Safe farm conditions (3) Proper feed and water (4) All the above

110. Megatherms occur in:-
(1) above 66° north Latitude (2) 40-60° North Latitude (3) 20–40° North Latitude (4) 0–20° North Latitude

111. Hisardale is an example of?
(1) Out Crossing (2) Inbreeding (3) Cross – breeding (4) Interspecific hybridisation

112. Fig can maintain community structure during food scarcity in tropical rain forest. These act as:-
(1) Exotic species (2) Pioneer species (3) Edge species (4) Key stone species

113. Read the following four statement (a – d):
(a) Fisheries include rearing, catching and selling of only fishes.
(b) More than 70 percent of the world livestock population is in India and China
(c) Milk yield is primarily dependent on the quality of breeds in the farm.
(d) The feeding of cattle should be carried out in scientific manner.
How many of the above statements are right?
(1) Four (2) One (3) Two (4) Three
114. All given are included among 34 hot spots of world, except :-
   (1) Indo-Burma
   (2) Western Ghats and Sri Lanka
   (3) Himalaya
   (4) Sarguja, Chanda and Bastar

115. Labelled D is :-
   (1) Antigen binding site
   (2) Light chain
   (3) Heavy chain
   (4) Paratopes

116. Various stages of primary succession in a newly formed fresh water pond are given:-
   a. scrub stage
   b. Reed swamp stage
   c. Submerged plant stage
   d. Phytoplanktons
   e. Forest
   f. Floating plant stage
   g. Marsh meadow stage
   Arrange these according to their sequence of occurrence
   (1) d, c, f, b, a, g, e  (2) d, b, c, f, g, a, e
   (3) d, f, c, b, g, a  (4) d, c, f, g, a, e

117. PMNL neutrophils form________ barrier of innate immunity :-
   (1) Physical  (2) Physiological
   (3) Cellular  (4) Cytokine

118. 'Agenda-21' is related with :-
   (a) 'The Earth summit' held in Riode janeiro
   (b) The world summit on sustainable developments.
   (c) Biodiversity conservation
   (d) Conference on human environment, Stockholm
   (1) a, b and c are correct
   (2) a and b are correct
   (3) b and d are correct
   (4) a and c are correct

114. निम्न में से कोई सर्वाधिक दर्शिय गये के हाँ टेस्ट में सीधा माल बनें -
   (1) इण्डो-बुर्मा
   (2) पशुपतिनंदन और स्रीलंका
   (3) हिमालय
   (4) सार्गुजा, चांडा और बस्तर

115. चिह्न है :-
   (1) प्रतिबंध व घन स्थान
   (2) हल की खुली खाल
   (3) भूमि की खुली खाल
   (4) पानी के पास प्यास

116. एक नवरीतिम तत्त्वथा यह लागि यह दर्शाविलको अनुबंध के किसी न अनुबंध था। यह नीचे दो गाये हैं -
   a. क्यू जाकस था।
   b. न्यू अनुबंध था।
   c. जानिम न प दपअनुबंध था।
   d. प दपलवक
   e. बन
   f. प्ला की प दपअनुबंध था।
   g. पं कप दपअनुबंध था।
   इन अनुबंध और कई इनके प्रमेय जनने के अनुबंध के अनुसार थे।
   (1) d, c, f, b, a, g, e  (2) d, b, c, f, g, a, e
   (3) d, f, c, b, g, a  (4) d, c, f, g, a, e

117. PMNL = यूटीमोनोनिक फिल्टर सहज प्रतिभा का काम बना है।
   (1) नाइट्रा बिक्रिया / शारीरिक रूप से
   (2) तथा चिकित्सा
   (3) लस चित्र में (4) सेट तक बनाने

118. ऐंचल-21 से सीधा बताएः
   (a) अग्नि संघर्ष, रिहाई - दह - देवो देते दे
   (b) बल डे संघर्ष, टिक का जीविका संसेंज
   (c) जंगलिक व तंत्रिका पर
   (d) मानव पांडव बनें - फ्रेड स्टार्ट। कहने में
   (1) a, b और c सही हैं
   (2) a और d सही हैं
   (3) b और d सही हैं
   (4) a और c सही हैं
119. T-Lymphocytes mediate :-
  (1) AMI  (2) Humoral immunity
  (3) CMI  (4) Both 1 and 2

120. Secondary pollutants are :-
  (a) Brown air  (b) Grey air
  (c) Acid rain  (d) DDT
  (1) a, b and c are correct
  (2) a and b are correct
  (3) b and d are correct
  (4) a and c are correct

121. Which is not allergen :-
  (1) Animal dander  (2) Viruses
  (3) Pollens  (4) Mites in dust

122. Choose the correct match :-
  (a) Tropical rain – 2–3 dry month forest
  (b) Temperate broad – Autumn colouration leaf forest
  (c) Temperate needle – 500–1700 mm. leaf forest rain.
  (d) Arctic desert – Less precipitation.
  (1) a, b and c are correct
  (2) a and b are correct
  (3) b and d are correct
  (4) a and c are correct

123. Thyroid is _________ Lymphoid organ :-
  (1) Primary  (2) Secondary
  (3) Tertiary  (4) Not

124. Which of the following is not an example of in situ conservation?
  (1) National park
  (2) Wildlife safari park
  (3) Hot spots
  (4) Sanctuaries

125. Incorrect about diagram is :-
  (a) Chemical structure of morphine
  (b) Opioid
  (c) Receptors present in CNS and GIT
  (d) Extracted from latex of poppy plant
  (1) a, b  (2) All are correct
  (3) d  (4) All are incorrect
126. Which one is incorrect :-

(a) \( \text{BOD} \propto \frac{1}{\text{DO}} \)
(b) Biodiversity \( \propto \) ecosystem stability
(c) Biodiversity \( \propto \) Biomass production
(d) \( \text{BOD} \propto \frac{1}{\text{No. of trout fish}} \)
(e) \( \text{DO} \propto \text{No. of E coli} \)

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

---

127. **Hodgkin disease** is an example of human lymphoma, in which chronic enlargement of the production of lymphocytes by lymph nodes and spleen takes place. It is a type of ______ :–

(1) Carcinoma (2) Sarcoma
(3) Leukemia (4) Melanoma

---

128. National forest policy (1988) of India has recommended---------% of forest cover for the plains and -------------% for the hills.

(1) 33, 19.4 (2) 33, 67
(3) 19.4, 33 (4) 33, 100

---

129. Marijuana is obtained from the dried flowers and top leaves of the female plant of __________. It is smoked in cigarette and may cause psychosis :

(1) *Cleviceps purpurea* (2) *Cannabis sativa*
(3) *Erythroxylum coca* (4) *Papaver somniferum*

---

130. Which is potent force in organic evolution:-

(1) Predation (2) parasitism
(3) Interspecific competition (4) Intraspecific competition

---

131. *'World AIDS capital'* is :-

(1) South America (2) India
(3) Australia (4) South Africa

---

132. What is incorrect about parasite :-

(a) Parasite can be host specific
(b) Biotic potential of parasite is high
(c) Parasite does not directly kill their host
(d) Parasite and host tend to co-evolve

(1) a (2) a, b, c
(3) a, b, d (4) None
133. **Genus** | **Affected Parts**
---|---
(a) *Tinea pedis* | Foot
(b) *Tinea capitis* | Scalp
(c) *Tinea Cruris* | Groin + Perineum
(d) *Tinea barbae* | Face + Neck

Above chart is related with:-
(1) Ringworm
(2) Helminth diseases
(3) Autoimmune diseases
(4) Bacterial infections

134. In United Nation conference on climate change 2012 (Doha) (Quatar) Kyoto protocol was expanded up to :-
(1) 2020
(2) 2018
(3) 2025
(4) 2014

135. Administration of hyperimmune serum of animals provide ____ immunity :-
(1) Natural Active
(2) Natural Passive
(3) Artificial Passive
(4) Artificial Active

136. Which is/are correct :-
(a) Inorganic matter → organic matter : producer
(b) Complex organic matter → Simple organic: decomposer
(c) Plant material → Animal material → herbivores
(d) Chemical energy → Heat energy : Consumers
(1) only a
(2) a,b
(3) a,b,c
(4) a,b,c,d

137. **Primary Immune response** | **Secondary Immune response**
---|---
Antibody titre | ---
1st Exposure to Antigen | 2nd Exposure to Antigen

Labelled B is :-
(1) IgM
(2) IgG
(3) IgD
(4) IgA
138. Which one is not correct for standing crop.
   (1) dry weight of living organic matter in a particular area
   (2) Total amount of biomass at particular trophic level of food chain
   (3) Dry weight of dead organic matter in particular area
   (4) Amount of storage energy of particular trophic level of food chain

139. Binding of gp^{120} protein of HIV to a ______ of target cell induces a conformational change that promotes the binding of gp^{120} to a co-receptor (Chemokine receptors like CCR5 and CXCR4). Now this induces gp^{41} which exposes fusion peptide that inserts into target cell membrane and induces viral fusion :-
   (1) CD-3  (2) CD-8
   (3) CD-4  (4) CD-2

140. ______ is highly hazardous to animals health but on the plant this gas does not show adverse effect.
   (1) CO  (2) CO_{2}
   (3) SO_{2}  (4) NO_{2}

141. Fill in the blanks in the different columns of the table given below :

<table>
<thead>
<tr>
<th>Disease</th>
<th>Causal organism and part it inputs</th>
<th>Medium of transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Common cold</td>
<td>A</td>
<td>Droplets from sneezing of infected persons</td>
</tr>
<tr>
<td>(ii) B</td>
<td>Trichophyton skin, nails and scalp</td>
<td>Using towels of infected individuals</td>
</tr>
<tr>
<td>(iii) Pneumonia</td>
<td>C</td>
<td>Droplets/aerosols released by infected persons, sharing meals</td>
</tr>
<tr>
<td>(iv) Filariasis</td>
<td>Wuchereria, Lymphatic vessels</td>
<td>D</td>
</tr>
</tbody>
</table>

138. निम्न में से खड़े फस्से के बाबत की जाती है -
   (1) किस विश्व चंद्र ज्ये जे के ज्वलित का वर्ण निकाह था' का
     गुप न कार प्राचीन युग     
   (2) खाद्य खाते खाल के विश्व पदार्थ का कूल तरीका न कार
     प्राचीन युग     
   (3) किस विश्व चंद्र ज्ये ज्ये के मृत कार्य निकाह था' का
     गुप न कार प्राचीन युग     
   (4) खाद्य खाते खाल के विश्व पदार्थ का कूल तरीका 'समूह'
     में से गुप हिट कूल खेल की मात्रा

139. जा HIV वा gp^{120} protein, target cell के ______
   ग्राहक से जुड़ता है लेकिन तरीके है ते उसे चंक की गया है -
   (1) CO  (2) CO_{2}
   (3) SO_{2}  (4) NO_{2}

141. सर्जन के विभाजन के लाम में स्वतंत्रता न करने के लि: -

<table>
<thead>
<tr>
<th>नेशन</th>
<th>गुप कसूट कक्ष प्रभावित वस्तु</th>
<th>एक ज्या वर्ण मध्यम</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) सखा - उ ज्ञान म</td>
<td>A</td>
<td>सँग्रहालय वर्ण ज्ये के छोटे कहने से बुद्ध दों के द्वारा</td>
</tr>
<tr>
<td>(ii) B</td>
<td>टा इलाह फा इदे से सँग्रहालय वर्ण न के बाबत ना खू दों के लीला को लेकर सकते से रूपवा में ले लेने से</td>
<td></td>
</tr>
<tr>
<td>(iii) यू मान निः यू मान</td>
<td>C</td>
<td>सँग्रहालय वर्ण न के बुद्ध दों / एक सु दो से बाबत ज्या मात्रा करते तो</td>
</tr>
<tr>
<td>(iv) फा इले रिएस चे रिया लाल के वा हिंदिये</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>
(1) A Rhinovirus, Nose and respiratory passage not lungs  
B Ringworm  
C Haemophilus influenzae, Alveoli of lungs  
D Contaminated food and water

(2) A Coryza virus, Alveoli of lungs  
B Ringworm  
C Streptococcus pneumoniae, Nose and respiratory passage  
D Culex mosquito

(3) A Rhinovirus, Nose and respiratory passage not lungs  
B Ascariasis  
C Haemophilus influenzae, Lungs  
D Culex mosquito

(4) A Rhinovirus, Nose and respiratory passage not lungs  
B Ringworm  
C Haemophilus influenzae, Alveoli of lungs  
D Culex mosquito

142. Which one is not true regarding ecosystem:-  
(1) Self sustaining unit  
(2) Exchange of materials and gases between living beings and physical environment  
(3) Only requirement is input of energy  
(4) Characterized by a major vegetation type

143. Virus infected cells secrete proteins called interferons which protects non-infected cells from viral infections. They are a part of :-  
(1) Physical barriers  
(2) Physiological barriers  
(3) Cellular barriers  
(4) Cytokine barriers

144. Choose the incorrect statement(s) :-  
(a) Sunlight drive the ecological cycles  
(b) Detritus is the dead part of plant only  
(c) Chemical composition of detritus do not affect the process of decomposition  
(d) Energy pyramid in detritus food chain is upright

(1) a, d  
(2) b & c  
(3) b, c, d  
(4) only b
145. How many statements given below are the examples of ‘Naturally Acquired passive immunity’?
(a) In case of snake bites injection which is given to patients, contained preformed antibodies against snake venom
(b) The foetus receives some antibodies from their mothers through placenta during pregnancy
(c) Colostrum secreted by mother during the initial days of lactation has abundant IgA antibodies to protect the infants
(d) ATS (Anti - tetanus serum) provides temporary protection in case of injuries and burns
(1) One (2) Two (3) Three (4) Four

146. Which is not the example of link between two ecosystems:
(a) A leaf of tree falling into pond
(b) A fish is eaten by bird
(c) A fish is eaten by man
(d) Grass is eaten by goat
(1) a, b, c (2) b & d (3) c & d (4) only d

147. Smoking paves the way to: -
(1) Soft drugs (2) Hard drugs
(3) Alcohol (4) Carbon monoxide

148. Which pair is not correct:
(1) Phytoplankton-pioneer community-producer
(2) Man - Top carnivore-consumer
(3) Zooplankton-primary consumer-Herbivores
(4) Man-primary consumer - omnivore

149. Which lymphoid tissue constitutes about 50% of the lymphoid tissue in human body:
(1) Lymph nodes (2) Bone marrow
(3) MALT (4) Thymus

150. How many statements given below are the examples of the following ecosystem?
(1) Tropical sawana
(2) Tropical deciduous forest
(3) Tropical rain forest
(4) All of the above
151. Find odd group with respect to pathogen type:
   (1) Common cold, AIDS
   (2) Plague, Diphtheria
   (3) Ascariasis, Ringworm
   (4) Malaria, Amoebiasis

152. How many statement are correct :-
   (a) Biotic community is dynamic it changes with changing environment
   (b) success is a directional and predictable process
   (c) Succession is also possible in sand
   (d) In jungle plants have vertical distribution
   (1) a, b, d (2) b, c (3) a, d (4) a, b, c, d

153. Correct about colostrum is :-
   (1) Yellowish fluid
   (2) Protects to mother
   (3) Active immunity
   (4) More than one answers are correct

154. Which is the correct order of detritus food chain :-
   (1) Producer → Herbivores → microbes
   (2) Detritus → microbes → minerals, humus
   (3) Microbes → producer → Herbivores → Carnivores
   (4) Detritus → scavengers → Parasite

155. Smoking is releated with :-
   (a) Lung Cancer (b) CADs
   (c) Gastric ulcer (d) Bronchitis
   (e) Emphysema
   (f) Urinary bladder cancer
   (1) a, d, e (2) a, b, d, e
   (3) b, c, f (4) a, b, c, d, e, f

156. There is no limitation in Detritus food chain for number of trophic level :-
   (1) 10% rule is not applicable
   (2) High magnitude of energy
   (3) Slow energy transfer
   (4) Both 1 and 2

157. Which one of the followings is not food borne disease ?
   (1) Typhoid
   (2) Amoebiasis
   (3) Ascariasis
   (4) Ringworm
158. Match the column-I with column-II:

<table>
<thead>
<tr>
<th>Column-I</th>
<th>Column-II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Migration</td>
<td>(i) Polar Bear</td>
</tr>
<tr>
<td>(b) Hibernation</td>
<td>(ii) Zooplankton &amp;</td>
</tr>
<tr>
<td>(c) Aestivation</td>
<td>(iii) Blue whale</td>
</tr>
<tr>
<td>(d) Diapause</td>
<td>(iv) Fishes</td>
</tr>
</tbody>
</table>

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

159. Hepatitis is:
(1) Fungal disease
(2) Viral disease
(3) Bacterial disease
(4) Auto immune disease

160. Government of India established the national committee for environmental planning and coordinations in:-
(1) 1986  (2) 1988  (3) 1972  (4) 2000

161. Which of the following techniques is/are applied to determine cancer of internal organs like kidney and pancreas:
(a) CT Scan  (b) MRI  (c) X-rays
(1) Only b  (2) only a  (3) a and b  (4) a, b and c

162. An overwhelming majority (99 percent) of animal and nearly all plant cannot maintain their internal environment:
(1) The above statement is true
(2) The above statement is false
(3) Above statement is for conformers
(4) Both (1) & (3)

163. Read the following statements regarding DNA polymerase used in PCR:
(a) It is isolated from thermosensitive bacteria
(b) It remains active at high temperature
(c) It is used to ligate introduced DNA in recipient cells.
(d) It serves as a selectable marker

How many statements are correct?
(1) One  (2) Two  (3) Three  (4) Four
164. Choosing different time for feeding and different foraging pattern can avoid competition in the :-
(a) Closely related species found in different habitats
(b) Two species compete for same resources
(c) Species having same niche and sharing same habitat
(d) Two species having different niche in same habitat
(1) a, b (2) b, c
(3) c, d (4) d, a

165. Monascus purpureus is a yeast used commercially in the production of :-
(1) Citric acid
(2) Blood cholesterol lowering statins
(3) Ethanol
(4) Streptokinase for removing clots from the blood vessels.

166. Choose the incorrect match :-
(a) Co-evolution + endoparasite and host
(b) mutualism + relation of egret bird and cattle
(c) sexual deceit + shown by opuntia plant
(d) Connell's elegant field experiment + competition
(1) a, b (2) b, c
(3) c, d (4) abd

167. The figure given below is the diagrammatic representation of the E.coli vector pBR322. Which one of the given options correctly identifies its certain components?

(1) Hind III, ECORI-Antibiotic Resistance gene
(2) Amp<sup>r</sup>, tet<sup>r</sup>- Selectable markers
(3) Ori-Original restriction enzyme
(4) Rop - Reduced osmotic pressure
168. In the following statements choose wrong options :-
(a) Wasp laying egg in a fig fruit is an example of mutual relationship
(b) Mycorrhiza is an example of ectoparasitism
(c) Physiological ecology is ecology at organism level
(d) Competitive exclusion principle was given by connell
(1) a & c (2) a, c, d (3) b and d (4) b, c and d

169. Read the following four statements (A-D) :-
(A) The first transgenic buffalo, Roise produced milk which was human alpha lactalbumin enriched.
(B) Restriction enzymes are used in isolation of DNA from other macromolecules.
(C) Downstream processing is one of the steps of r-DNA technology
(D) Disarmed pathogen vectors are also used in transfer of r-DNA into the host.
Which are the two statements having mistakes?
(1) Statements (A) & (B)
(2) Statements (B) & (C)
(3) Statements (C) & (D)
(4) Statements (A) & (C)

170. The reason for prickly pear cactus to spread in Australia is brought by :-
(1) The availability of water
(2) Human activity
(3) Absence of cactus feeding Animals
(4) Availability of nutrients in Australia

171. Bacillus thuringiensis forms protein crystals which contain insecticidal protein. This protein:-
(1) Does not kill the carrier bacterium which is itself resistant to this toxin.
(2) Binds with epithelial cells of midgut of the insect pest ultimately killing it.
(3) Is coded by several genes including the gene 'cry'.
(4) Is activated by acidic pH of the midgut of the insect pest.

Time Management is Life Management
172. Find out the correct statements :-
(a) Heat loss & heat gain is a function of surface area
(b) Under unfavourable condition zooplanktons species enter into diapause condition
(c) Desert lizard lack the physiological ability to deal with the high temperature
(d) Mammal in colder climate always follows allan’s rule
(1) only a (2) a, b
(3) a, b, c (4) Only d

173. In genetic engineering, a DNA segment (gene) of interest, is transferred to the host cell through a vector. Consider the following four agents (A-D) in this regard & select the correct option about which one or more of these can be used as a vector/vectors :-
(A) A bacterium (B) Plasmid
(C) Plasmodium (D) Bacteriophage
Options :
(1) (A) only (2) (A) & (C) only
(3) (B) & (D) only (4) (A), (B) & (D) only

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

175. In nematode resistance by RNA interference, some specific genes were introduced which forms ds RNA. These genes were introduced in:-
(1) Nematode (2) Host plant
(3) Agrobacterium (4) All of these

176. Which of the character is changed with altitude & latitude.
(a) Temperature (b) Vegetation
(c) Species composition (d) Productivity
(1) a (2) a, b (3) a, b, c (4) a, b, c, d

177. Biogas is the mixture of gases produced by the microbial activity. The type of the gas produced depends upon :-
(1) Type of microbes
(2) Type of organic substrate/waste
(3) Size of digester
(4) (1) & (2) both
178. How many statements are correct :-
   (a) The physico-chemical component alone characterise the habitat
   (b) The most important abiotic component of habitat are temperature, water, light and soil
   (c) At high altitude temperature is subzero
   (d) Many mango tree are found in Germany
   (1) a, b (2) a, b, c (3) b, c (4) a, d

179. Biological community is sustained in ecosystem due to :-
   (1) Cycling of nutrient
   (2) Flow of energy
   (3) Both (1) and (2)
   (4) None of the above

180. Find the wrong statement :-
   (1) Physical environment contain abiotic component only
   (2) Physiological ecology is the ecology at organism level
   (3) Our intestine is unique habitat for hundreds of species
   (4) Precipitation include only rain fall
Your Target is to secure Good Rank in Pre-Medical 2013