CLASSROOM CONTACT PROGRAMME
(ACADEMIC SESSION 2012-2013)

ENTHUSIAST COURSE
TARGET : PRE-MEDICAL 2013

MAJOR TEST # 09
ALLEN NEET-UG (Full Syllabus) DATE : 18 – 02 – 2013

INSTRUCTIONS (निर्देश)

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.
1. A particle is moving along a circular path. The angular velocity, linear velocity, angular acceleration and centripetal acceleration of the particle at any instant respectively are \( \dot{\omega}, \dot{V}, \ddot{\alpha}, \) and \( C_{\alpha} \). Which of the following relations is not correct?

1. \( \dot{\omega} \perp \dot{V} \)
2. \( C_{\omega} \perp \dot{\alpha} \)
3. \( \dot{\omega} \perp \ddot{\alpha} \)
4. \( \dot{V} \perp \ddot{\alpha} \)

2. An engine blowing a whistle of 256 vibration/second if approaching you with \( \frac{1}{20} \) th the velocity of sound. The frequency before and after crossing of engine as heard by you would be :-

1. 256 Hz, 256 Hz
2. 269.5 Hz, 243.8 Hz
3. 256 Hz, 243.8 Hz
4. 243.8 Hz, 256 Hz

3. The potential energy \( U \) of a particle is given by \( U = 2.5x^2 + 100 \) joule. Is the motion simple harmonic. If the mass of the particle is 0.2 Kg, what is its time period :-

1. Yes, 2.5 sec.
2. Yes, 1.26 sec.
3. Yes, 5.2 sec.
4. No

4. An organ pipe produces a fundamental frequency of 320 Hz at 47°C. At 27°C the fundamental frequency of pipe would be :-

1. 310 Hz
2. 320 Hz
3. 330 Hz
4. 340 Hz

5. The MI of disc is minimum about an axis :-

1. (1) coinciding with the diameter
2. (2) Tangential to the rim and lying in the plane of disc
3. (3) Passing through centre of mass and perpendicular to the plane of disc
4. (4) Any axis passing through centre of mass

6. According to the graph point 3 of the curve is located in :-

1. Active region
2. Saturation region
3. Cut off region
4. None of the above
7. A solid sphere of mass M is rolling with a speed \( V \) on a horizontal surface and strikes a massless spring of force constant \( K \). Then the maximum compression of spring is:

\[
(1) \sqrt{\frac{5MV^2}{3K}} \\
(2) \sqrt{\frac{7MV^2}{5K}} \\
(3) \frac{MV^2}{K} \\
(4) \text{None of the above}
\]

8. For a transistor connected in CE configuration \( \beta = 40 \) voltage drop across 2K\( \Omega \) collector resistance is 2V. Calculates emitter current.

\[
(1) \text{1mA} \\
(2) \frac{40}{41} \text{mA} \\
(3) 1.025 \text{mA} \\
(4) 2 \text{mA}
\]

9. A central charge particle +q is surrounded by a square array of charged particles separated by either distance \( r \) or \( r/2 \) along the perimeter of the square. Find magnitude of net electrostatic force on the central particle:

\[
(1) \frac{q^2}{8\pi\varepsilon_0 r^2} \\
(2) \frac{q^2}{16\pi\varepsilon_0 r^2} \\
(3) \frac{3q^2}{4\pi\varepsilon_0 r^2} \\
(4) \frac{q^2}{4\pi\varepsilon_0 r^2}
\]

10. For a CE transistor amplifier which of following parameter governs the operating point of the amplifier.

(1) Operating value of \( V_{CE} \) and \( I_B \) \\
(2) Biasing of transistor \\
(3) Both (1) and (2) \\
(4) None of the above

11. There is a uniformly charge sphere with total charge \( +Q \) and radius \( R \) what will be value of electric flux passing through a imaginary concentric sphere of radius \( R/2 \):

\[
(1) \frac{Q}{2\varepsilon_0} \\
(2) \frac{Q}{4\varepsilon_0} \\
(3) \frac{Q}{8\varepsilon_0} \\
(4) \text{Zero}
\]

12. A force \( \vec{F} = (3\hat{i} + 4\hat{j}) \text{N} \) displaces a particle by \( \vec{S} = (3\hat{j} + 4\hat{k}) \text{m} \) in 3 sec. find the power:

\[
(1) 4 \text{ W} \\
(2) 2 \text{ W} \\
(3) 1 \text{ W} \\
(4) \text{None}
\]
13. When sliding contact is connected, at \( x = 0 \) then \( i = 10 \text{ A} \) and at \( x = 10 \text{ cm} \) it is \( i = 20 \text{ A} \). For what value of \( x \), \( i \) will be 12 A:
   (1) \( x = 2 \text{ cm} \)  
   (2) \( x = 5 \text{ cm} \)  
   (3) \( x = 7.5 \text{ cm} \)  
   (4) \( x = 4 \text{ cm} \)

14. The binding energy of a deuterium nucleus is about 1.115 MeV per nucleon. Then the mass defect of the nucleus is about -
   (1) 2.23 amu  
   (2) 0.0024 amu  
   (3) 2077 amu  
   (4) none of the above

15. Space between plates of a capacitor is filled two dielectric slab of dielectric constant \( k_1 \) and \( k_2 \). Its equivalent dielectric constant will be:
   (1) \( \frac{k_1 + k_2}{2} \)  
   (2) \( \frac{2k_1k_2}{k_1 + k_2} \)  
   (3) \( \frac{k_1k_2(d_1 + d_2)}{k_1d_2 + k_2d_1} \)  
   (4) \( \frac{k_1k_2}{k_1d_2 + k_2d_1} \)

16. The ratio of \( C^{14} \) and \( C^{12} \) in a fossil wood is \( \frac{1}{16} \) relative to living wood. The half life of \( C^{14} \) is 5700 years. The age of fossil wood is-
   (1) \( 1.14 \times 10^4 \text{ years} \)  
   (2) \( 2.28 \times 10^4 \text{ years} \)  
   (3) \( 9.12 \times 10^4 \text{ years} \)  
   (4) \( 18.24 \times 10^4 \text{ years} \)

17. In the circuit \( V_B - V_A \) is:
   (1) 3V  
   (2) 1.5 V  
   (3) 7 V  
   (4) 13 V
18. The rate of flow of a liquid through a capillary tube under a constant pressure head is \( Q \). If the diameter of the tube is reduced to half and its length is doubled, then the new rate of flow of liquid will be

\[
(1) \frac{Q}{4} \quad (2) \frac{Q}{8} \quad (3) 16Q \quad (4) \frac{Q}{32}
\]

19. Find ratio of value of \( i \) before and after connecting the switch :-

\[
(1) \frac{5}{4} \quad (2) \frac{5}{6} \quad (3) \frac{5}{12} \quad (4) \frac{5}{3}
\]

20. What is excess pressure inside the drop of mercury of radius 6.0 mm at room temp. [surface tension = \( 4.65 \times 10^{-1} \text{ Nm}^{-1} \)]

1atm = 1.01 \times 10^5 Pa

(1) 155 Pa \quad (2) 310 Pa \quad (3) 460 Pa \quad (4) None of these

21. A transparent cube of 0.21 m edge contains a small air bubble. Its apparent distance when viewed through one face of the cube is 0.10 m and when viewed from the opposite face is 0.04 m. The actual distance of the bubble from the second face of the cube is :-

(1) 0.06m \quad (2) 0.17m \quad (3) 0.05m \quad (4) 0.04m

22. The volume of a solid at 1 atmosphere pressure is \( 10^4 \text{ cm}^3 \). If the pressure is increased to 51 atmosphere then percentage change in its volume will be \( K = 10^{12} \text{ dyn/cm}^2 \) -

(1) 0.001% \quad (2) 0.003% \quad (3) 0.005% \quad (4) 0.05%

23. An unpolarized beam of light is incident on a glass surface at an angle of incidence equal to the polarizing angle of the glass. Read the following statements :-

(i) The reflected beam is completely polarized
(ii) The refracted beam is partially polarized
(iii) The angle between the reflected and the refracted beam is 90°.

Which of the above statements is/are true ?

(1) (i) only
(2) (ii) only
(3) (i) and (iii)
(4) All the statements are true

18. फ्लैईजीरी एक दिन की दैर्घ्य 4-5 है। इसे दो बॉर्ड से बढ़ाने के लिए नीचे के संबंध में से दो व्यक्ति बदल देंगे।

19. कूंजे बंद करते से फ्लैईजीरी का अनुपात होगा या नहीं?

20. एक पारी का बूढ़ा दिया है। इसे कैसे दिखाता है?

21. एक विद्युत पदार्थ के नीचे एक दिशा है। इसे कैसे दिखाता है?

22. एक अनुपाल्य वाल्पारी की दैर्घ्य (Unpolarized beam of light) का चंद्रधार की सही पूरे तथा विभिन्न दिशा के बारे में आपके के बारे में कहना चाहेगा?

(1) (i) केवल
(2) (ii) केवल
(3) (i) और (iii)
(4) सभी कथन सही हैं।
24. Let \( V \) and \( E \) be the potential and the field respectively at a point. Which of the following assertions are correct?

(1) If \( V = 0 \), \( E \) must be zero.
(2) If \( V \neq 0 \), \( E \) cannot be zero.
(3) If \( E \neq 0 \), \( V \) cannot be zero.
(4) None of these

25. A prism of a certain angle deviates the red and blue rays by 8° and 12° respectively. Another prism of the same angle deviates the red and blue rays by 10° and 14° respectively. The prisms are small angled and made of different materials. The dispersive powers of the materials of the prisms are in the ratio:

(1) \( 5 : 6 \)  
(2) \( 9 : 11 \)  
(3) \( 6 : 5 \)  
(4) \( 11 : 9 \)

26. One kilowatt hour is a unit of:

(1) Energy  
(2) Power  
(3) Electric charge  
(4) Electric current

27. The aperture of the largest telescope in the world is 5m. If the separation between the moon and the earth is \( 4\times10^5 \) km and the wavelength of visible light is 5000 Å, then the minimum separation between the objects on the surface of the moon which can be just resolved is approximately:

(1) 1m  
(2) 10m  
(3) 50m  
(4) 200m

28. The potential difference \( V \) and the current \( I \) flowing through an instrument in an ac circuit of frequency \( f \) are given by \( V = 5 \cos \omega t \) volts and \( I = 2 \sin \omega t \) amperes (where \( \omega = 2\pi f \)). The power dissipated in the instrument is:

(1) Zero  
(2) 10W  
(3) 5W  
(4) 2.5 W

29. A force \( \mathbf{F} = -K(y\hat{i} + x\hat{j}) \) (where \( K \) is a positive constant) acts on a particle moving in the xy plane. Starting from the origin, the particle is taken along the positive x-axis to the point \((a, 0)\) and then parallel to the y-axis to the point \((a, a)\). The total work done by the force \( F \) on the particle is:

(1) \(-2Ka^2\)  
(2) \(2 Ka^2\)  
(3) \(-Ka^2\)  
(4) \(Ka^2\)

30. The period of oscillation of a bar magnet in a vibration magnetometer is 2 sec. The period of oscillation of a bar magnet whose magnetic moment is 4 times that of 1st magnet is:

(1) 4 sec.  
(2) 1 sec.  
(3) 2 sec.  
(4) 0.5 sec.
31. A uniform chain of length \( \ell \) and mass \( m \) overhangs from a smooth table so that \( \frac{2}{3} \) rd part of it is on the table then velocity of chain when it completely slips off the table :-

1. \( \sqrt{2g\ell} \)
2. \( \frac{2}{3}\sqrt{2g\ell} \)
3. \( \frac{2}{3}g\ell \)
4. None

32. Identify the paramagnetic substance :-
1. Iron
2. Aluminium
3. Nickel
4. Hydrogen

33. In a children's park, there is a slide which has a total length of 10 m and a height of 8 m. A vertical ladder is provided to reach the top. A boy weighing 200 N climbs up the ladder to the top of the slide and slides down to the ground. The average friction offered by the slide is three tenth of his weight. The work done by the friction on th boy as he comes down is :-

1. 0 J
2. +600 J
3. –600 J
4. +1600 J

34. Lenz's law is consistent with law of conservation of :-
1. Current
2. emf
3. Energy
4. All of the above

35. Amount of work done to carry a block from \( A \) to \( B \) will be (Assume friction coefficient \( \mu \))

1. \( mgh \)
2. \( \mu mg \sqrt{\ell^2 + h^2} \)
3. \( \mu mg(\ell + h) \)
4. \( mg(h + \mu \ell) \)

36. A flux of 1 mWb passes through a strip having an area \( A = 0.02 \) m\(^2\). The plane of the strip is at an angle of 60\(^\circ\) to the direction of a uniform field \( B \). The value of \( B \) is :-

1. 0.1 T
2. 0.058 T
3. 4.0 mT
4. None of the above
37. For the position (x) - time (t) graph shown of particle in one dimensional motion. Choose the incorrect alternatives from below:

(1) Particle was released from rest at \( t = 0 \)
(2) At C particle will reverse its direction of motion.
(3) Average velocity for motion between B and D is positive
(4) At E, velocity = 0 and acceleration > 0

38. There is a black spot on a body. If the body is heated and carried in dark room then it glows more. This can be explained on the basis of:

(1) Newton’s law of cooling
(2) Wein’s law
(3) Kirchhoff’s law
(4) Stefan’s law

39. Which of the following statement is incorrect about friction?

(1) Limiting static friction is independent of area of contact.
(2) Kinetic friction is independent of area of contact.
(3) Kinetic friction is nearly independent of velocity of bodies.
(4) Kinetic friction is self-adjusting

40. PV versus T graph of equal masses of \( \text{H}_2 \), He and \( \text{O}_2 \) is shown in fig. Choose the correct alternative:

(1) C corresponds to He, B to \( \text{H}_2 \) and A to \( \text{O}_2 \)
(2) A corresponds to He, B to \( \text{H}_2 \) and C to \( \text{O}_2 \)
(3) A corresponds to He, B to \( \text{O}_2 \) and C to \( \text{H}_2 \)
(4) A corresponds to \( \text{O}_2 \), B to He and C to \( \text{H}_2 \)
41. If the given graph is possible in realistic situations, then y and x variables may represent respectively:
   (1) acceleration and time
   (2) velocity and time
   (3) velocity and displacement
   (4) displacement and time

42. A Carnot's engine used first an ideal monoatomic gas then an ideal diatomic gas. If the source and sink temperature are 411°C and 69°C respectively and the engine extracts 1000 J of heat in each cycle, then area enclosed by the PV diagram is
   (1) 100 J (2) 300 J (3) 500 J (4) 700 J

43. If the coefficient of kinetic friction between the trolley and surface is 0.1, then tension in the string connecting masses is:
   [Take g = 10 m/s^2 ]?
   (1) 48 N (2) 51 N (3) 53 N (4) 55 N

44. A perfect gas goes from state A to another state B by absorbing $8 \times 10^5$ J of heat and doing $6.5 \times 10^5$ J of external work. It is now transferred between the same two states in another process in which it absorbs $10^5$ J of heat. Then in the second process
   (1) Work done on the gas is $0.5 \times 10^5$ J
   (2) Work done by gas is $0.5 \times 10^5$ J
   (3) Work done on gas is $10^5$ J
   (4) Work done by gas is $10^5$ J

45. Position-time graph of a body of mass 0.5 kg is shown. Time interval between two consecutive impulses and the magnitude of that impulse is?
   (1) 5 s, 4 N-s
   (2) 10 s, 4 N-s
   (3) 10 s, 2 N-s
   (4) 5 s, 2 N-s
46. Which is incorrect statement:—
   (1) Formic acid gives fehling’s test but acetic acid does not give.
   (2) Chloral reacts with water but acetone does not react.
   (3) Ethyl alcohol gives iodoform test but does not give DNP test.
   (4) Nitrobenzene is meta-directing towards sodamide.

47. The correct order of the O–O bond length in $\text{O}_2$, $\text{H}_2\text{O}_2$, and $\text{O}_3$ is:
   (1) $\text{O}_2 > \text{O}_3 > \text{H}_2\text{O}_2$
   (2) $\text{O}_3 > \text{H}_2\text{O}_2 > \text{O}_2$
   (3) $\text{O}_2 > \text{H}_2\text{O}_2 > \text{O}_3$
   (4) $\text{H}_2\text{O}_2 > \text{O}_3 > \text{O}_2$

48. Which is correct statement:—
   (1) Benzyl amine is more basic than acetanilide
   (2) Nitrobenzene is purified by steam-distillation method
   (3) Aniline does not prepare from Gabriel phthalimide reaction but it gives Hoffmann’s isocyanide test
   (4) All the above

49. Match list-I with list-II and select the correct answer:

<table>
<thead>
<tr>
<th>List-I (species)</th>
<th>List-II (O–N–O angle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) $\text{NO}_2^+$</td>
<td>(i) 180°</td>
</tr>
<tr>
<td>(B) $\text{NO}_2^-$</td>
<td>(ii) 132°</td>
</tr>
<tr>
<td>(C) $\text{NO}_2^-$</td>
<td>(iii) 120°</td>
</tr>
<tr>
<td>(D) $\text{NO}_3^-$</td>
<td>(iv) 115°</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) v</td>
<td>iv</td>
<td>iii</td>
<td>ii</td>
</tr>
<tr>
<td>(2) v</td>
<td>ii</td>
<td>iv</td>
<td>iii</td>
</tr>
<tr>
<td>(3) i</td>
<td>ii</td>
<td>iv</td>
<td>iii</td>
</tr>
<tr>
<td>(4) i</td>
<td>iv</td>
<td>iii</td>
<td>ii</td>
</tr>
</tbody>
</table>

50. Which of the following reaction shows incorrect product:

(1) \[\text{C≡N} \rightarrow \text{H}_2\text{C} \rightarrow \text{CO} \rightarrow \text{C} \rightarrow \text{OCH}_3\]
(2) \[\text{MgBr} \rightarrow \text{Cl} \rightarrow \text{Ph} \rightarrow \text{OH} \rightarrow \text{OCH}_3\]
(3) \[\text{CH}_3\text{CH} \rightarrow \text{CH} \rightarrow \text{Br} \rightarrow \text{CH} \rightarrow \text{CH} \rightarrow \text{Br} + \text{CH} \rightarrow \text{CH} \rightarrow \text{OH}\]
51. Correct order of dipole moment is:

(I) \( \text{NO}_2 \text{OH} \)  
(II) \( \text{Cl}_2 \text{Cl} \)  
(III) \( \text{CH}_3 \text{CH} = \text{CH}_3 \)

1. \( I = II = III \)
2. \( I < II < III \)
3. \( I > II > III \)
4. \( II < III < I \)

52. \( (\text{CH}_3)_2\text{CH} \equiv \text{C} \equiv \text{NH} \text{H}_2 \) \( \xrightarrow{\text{NaOH} \text{Br}_2} \text{A} \xrightarrow{\text{COCl}_2} \text{B} \)

\( B \) is:
1. \( (\text{CH}_3)_2\text{CH} \equiv \text{N} = \text{C} = \text{O} \)
2. \( \text{CH}_3 \text{CH} \equiv \text{CH} \text{CH}_3 \text{NH}_2 \)
3. \( (\text{CH}_3)_2\text{CH} \equiv \text{NH} \text{COCH}_3 \)
4. \( \text{CH}_3 \text{CH} \equiv \text{N} \text{HOCOCH}_3 \)

53. Which of the following molecules or ions is not linear?
1. \( \text{BeCl}_2 \)
2. \( \text{ICl}_2^- \)
3. \( \text{CS}_2 \)
4. \( \text{ICl}_2^+ \)

54. Which of the following is Borodine Hunsdieker reaction?
1. \( \text{C}_2\text{H}_5\text{Br} + \text{KI} \xrightarrow{\text{Acetone}} \text{C}_2\text{H}_5\text{I} + \text{KBr} \)
2. \( 2\text{C}_2\text{H}_5\text{Cl} + \text{HgF}_2 \rightarrow 2\text{C}_2\text{H}_5\text{F} + \text{HgCl}_2 \)
3. \( \text{C}_2\text{H}_3\text{ONa} + \text{CH}_3\text{I} \rightarrow \text{C}_2\text{H}_5\text{OCH}_3 + \text{NaI} \)
4. \( \text{CH}_3\text{COOAg} + \text{Br}_2 \xrightarrow{\text{CCl}_4} \text{CH}_3\text{Br} + \text{CO}_2 + \text{AgBr} \)

55. General electronic configuration of lanthanides is:
1. \( (n - 2) f^{14} (n - 1) s^2 p^6 d^{10} n s^2 \)
2. \( (n - 2) f^{14} (n - 1) d^{10} n s^2 \)
3. \( (n - 2) f^{14} (n - 1) d^{10} n s^2 \)
4. \( (n - 2) d^{10} (n - 1) f^{14} n s^2 \)

56. An example of antipyretic is:
1. Luminal
2. Paracetamol
3. Terpineol
4. Iodoform
57. For the process
\[ \text{X(g)} + e^- \rightarrow \text{X}^-(g), \quad \Delta H = x \]
and \[ \text{X}^-(g) \rightarrow \text{X(g)} + e^-, \quad \Delta H = y \]
Select correct alternate :-
(1) ionisation energy of \( \text{X}^-(g) \) is \( y \)
(2) electron affinity of \( \text{X(g)} \) is \( x \)
(3) electron affinity of \( \text{X(g)} \) is \( -y \)
(4) all are correct statements

58. When compound \( \text{X} \) is oxidised by acidified potassium dichromate, compound \( \text{Y} \) is formed. Compound \( \text{Y} \) on reduction with LiAlH\(_4\), gives \( \text{X} \). (X) and (Y) respectively are :-
(1) \( \text{C}_2\text{H}_5\text{OH}, \text{CH}_3\text{COOH} \)
(2) \( \text{CH}_3\text{COCH}_3, \text{CH}_3\text{COOH} \)
(3) \( \text{C}_2\text{H}_5\text{OH}, \text{CH}_3\text{COCH}_3 \)
(4) \( \text{CH}_3\text{CHO}, \text{CH}_3\text{COCH}_3 \)

59. Which is largest in size in aqueous solution ?
(1) \( \text{Li}^+ \)
(2) \( \text{Na}^+ \)
(3) \( \text{Cs}^+ \)
(4) \( \text{Rb}^+ \)

60. In the following sequence of reactions –
\[ \text{CH}_3\text{CH}_2\text{OH} \overset{\text{P+I}}{\rightarrow} \text{A} \overset{\text{Mg, Ether}}{\rightarrow} \text{B} \overset{\text{HCHO}}{\rightarrow} \text{C} \overset{\text{H}_2\text{O}}{\rightarrow} \text{D}, \]
the compound \( \text{D} \) is :-
(1) Butanal
(2) n-Butyl alcohol
(3) n-Propyl alcohol
(4) Propanal

61. Carbogen is :-
(1) mixture of \( \text{CO} + \text{CO}_2 \)
(2) mixture of \( \text{O}_2+\text{CO}_2 \)
(3) Pure form of carbon
(4) unsaturated organic compound

62. Glucose \( \text{CH}_2\text{OH}-(\text{CHOH})_4-\text{CHO} \), on oxidation with \( \text{HIO}_4 \) gives :-
(1) Six moles of \( \text{HCOOH} \)
(2) Five moles of \( \text{HCOOH} \) + one mole of \( \text{HCHO} \)
(3) Four moles of \( \text{HCOOH} \) + two moles of \( \text{HCHO} \)
(4) Six moles of \( \text{HCHO} \)
63. Which one of the following arrangement does not truly represent the property indicated against it?
(1) Br₂ < Cl₂ < F₂ : Oxidising power
(2) Br < Cl < F : Electronegativity
(3) Br < F < Cl : Electron affinity
(4) Br₂ < Cl₂ < F₂ : Bond energy

64. Which among the following is biodegradable pollutant:
(1) Lead compounds
(2) Pesticides
(3) Domestic wastes
(4) Mercuric salts

65. A solution of sodium metal in liquid NH₃ is:
(1) strongly reducing
(2) blue in colour
(3) good conductor
(4) all of the above

66. \[ \text{CH₃NH₂ + CHCl₃ + KOH \rightarrow Pungent smell compound + KCl + H₂O.} \]
Pungent smelling compound is:
(1) \( \text{CH₃−C≡N} \)
(2) \( \text{CH₃−NH−CH₃} \)
(3) \( \text{CH₃−N≡C} \)
(4) \( \text{CH₃−N≡C} \)

67. When orthoboric acid is heated to red heat the residue is:
(1) boron
(2) boron sesquioxide
(3) metabolic acid
(4) pyroboric acid

68. Which of following gives effervescences of CO₂ with NaHCO₃ solution:
(1) HCOOH
(2) 2, 4, 6–Trinitrophenol
(3) Both (1) & (2)
(4) None of these

69. Which is not obtained when metal carbides react with H₂O:
(1) \( \text{Al₄C₃ + H₂O \rightarrow CH₃−CH₂−CH₃} \)
(2) \( \text{CaC₂ + H₂O \rightarrow CH≡CH} \)
(3) \( \text{Mg₄C₃ + H₂O \rightarrow CH₃C≡CH} \)
(4) \( \text{Be₂C + H₂O \rightarrow CH₄} \)
**70.** Match list-I and list-II and then select the correct answer from the codes given below the lists:

<table>
<thead>
<tr>
<th>List-I</th>
<th>List-II</th>
</tr>
</thead>
<tbody>
<tr>
<td>[A] C₆H₅CHO</td>
<td>[a] Mesitylene</td>
</tr>
<tr>
<td>[B] CH₃COCHO</td>
<td>[b] Paraldehyde</td>
</tr>
<tr>
<td>[C] CH₃COCH₃</td>
<td>[c] Iodoform reaction</td>
</tr>
<tr>
<td>[D] CH₃CHO</td>
<td>[d] Cannizzaro reaction</td>
</tr>
</tbody>
</table>

Codes:  
A B C D  A B C D  
(1) d c b a  (2) d b c a  
(3) a c b d  (4) d c a b

**71.** Which cannot be used to generate H₂?  
(1) Al + NaOH  (2) Zn + NaOH  
(3) Mg + NaOH  (4) LiH + H₂O

**72.** Formaldehyde reacts with ammonia to give urotropine. The formula of urotropine is:  
(1) (CH₂)₆N₄  (2) (CH₂)₄N₃  
(3) (CH₂)₆N₆  (4) (CH₂)₃N₃

**73.** Which does not exist in solid state:  
(1) NaHCO₃  (2) NaHSO₃  
(3) LiHCO₃  (4) CaCO₃

**74.** Formaldehyde and acetaldehyde are readily distinguished by reaction with:  
(1) A solution of 2,4-dinitrophenylhydrazine  
(2) Fehling’s solution  
(3) Tollen’s reagent  
(4) Iodine and alkali

**75.** For the reversible reaction,  
\[ \text{N}_2(g) + 3\text{H}_2(g) \rightleftharpoons 2\text{NH}_3(g) \]  
at 500°C, the value of \( K_p \) is \( 1.44 \times 10^{-5} \) when partial pressure is measured in atmosphere. The corresponding value of \( K_c \) with concentration in mol/L is:  
(1) \( \frac{1.44 \times 10^{-5}}{(0.082 \times 500)^2} \)  
(2) \( \frac{1.44 \times 10^{-5}}{(8.314 \times 773)^2} \)  
(3) \( \frac{1.44 \times 10^{-5}}{(0.082 \times 773)^2} \)  
(4) \( \frac{1.44 \times 10^{-5}}{(0.082 \times 773)^2} \)  
(5) \( \frac{1.44 \times 10^{-5}}{(8.314 \times 773)^2} \)  
(6) \( \frac{1.44 \times 10^{-5}}{(0.082 \times 500)^2} \)  
(7) \( \frac{1.44 \times 10^{-5}}{(0.082 \times 500)^2} \)  
(8) \( \frac{1.44 \times 10^{-5}}{(8.314 \times 773)^2} \)
76. The entropy change during an isothermal expansion of an ideal gas from \( V_1 \) to \( V_2 \) at temperature \( T \) is given by:

1. \( \Delta S = 0 \)
2. \( \Delta S = 2.303 \, R \log_{10} \frac{V_2}{V_1} \)
3. \( \Delta S = 2.303 \, R \log_{10} \frac{V_f}{V_1} \)
4. \( \Delta S = 2.303 \, R \log_{10} \frac{V_1}{V_2} \)

77. \( Ag^+ + NH_3 \rightleftharpoons [Ag(NH_3)]^+; \quad k_1 = 3.5 \times 10^{-3} \)

\( [Ag(NH_3)]^+ + NH_3 \rightleftharpoons [Ag(NH_3)_2]^+; \quad k_2 = 1.7 \times 10^{-3} \)

Then the formation constant of \( [Ag(NH_3)_2]^+ \) is:

1. \( 6.08 \times 10^{-6} \)
2. \( 6.08 \times 10^6 \)
3. \( 6.08 \times 10^{-9} \)
4. None of these

78. Entropy of universe, in the case of adiabatic expansion of a gas is:

1. \( \Delta S_{\text{univ}} = 0 \)
2. \( \Delta S_{\text{univ}} > 0 \)
3. \( \Delta S_{\text{univ}} < 0 \)
4. \( \Delta S_{\text{univ}} \geq 0 \)

79. A certain weak acid has a dissociation constant of \( 1.0 \times 10^{-4} \). The equilibrium constant for its reaction with a strong base is:

1. \( 1.0 \times 10^{-4} \)
2. \( 1.0 \times 10^{-10} \)
3. \( 1.0 \times 10^{10} \)
4. \( 1.0 \times 10^{14} \)

80. Which of the following arrangements of electrons is mostly likely to be stable? \((z \leq 30 \text{ for this atom})\):

1. \( \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \downarrow \downarrow \)
2. \( \uparrow \downarrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \)
3. \( \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \downarrow \downarrow \)
4. \( \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \)

81. Which of the following is the strongest acid:

1. \( HClO_4 \)
2. \( HClO_3 \)
3. \( H_2SO_4 \)
4. \( H_2SO_3 \)

82. Which orbital gives an electron the greatest probability of being found close to the nucleus:

1. \( 3p \)
2. \( 3d \)
3. \( 3s \)
4. Equal
83. The value of van der Waals’ constant ‘a’ for the gases O₂, N₂, NH₃ and CH₄ are 1.360, 1.390, 4.170 and 2.253 L² atm mol⁻² respectively. The gas which can most easily be liquified is:
(1) O₂  (2) N₂  (3) NH₃  (4) CH₄

84. How many unpaired electrons are in gaseous Fe²⁺ ion in the ground state?
(1) 0  (2) 2  (3) 4  (4) 6

85. In the standardization of Na₂S₂O₃ using K₂Cr₂O₇ by iodometry, the equivalent weight of K₂Cr₂O₇ is:
(1) (Molecular weight)/2  (2) (Molecular weight)/6  (3) (Molecular weight)/3  (4) Same as molecular weight

86. All of these sets of quantum numbers are permissible except:
\[ n \quad l \quad m \quad m_s \]
(1) 1 0 0 +1/2  (2) 2 2 0 –1/2  (3) 3 1 1 –1/2  (4) 3 2 –1 +1/2

87. The oxidation number of iron in magnetite (Fe₃O₄) is:
(1) +2  (2) +3  (3) Both of the above  (4) +4/3

88. According to Schrödinger model nature of electron in an atom is as:
(1) Particles only  (2) Wave only  (3) Both simultaneously  (4) Sometimes waves and sometimes particles

89. The largest number of molecules is in:
(1) 8g of hydrogen  (2) 28 g of CO  (3) 92 g of C₂H₅OH  (4) 56 g of N₂

90. When the same amount of zinc is treated separately with excess of sulphuric acid and excess of sodium hydroxide, the ratio of volumes of hydrogen evolved is:
(1) 1 : 1  (2) 1 : 2  (3) 2 : 1  (4) 9 : 4
91. During evolution see weeds existed probably before how many years? -
(1) 320 million years  (2) 200 million years
(3) 100 million years  (4) 350 million years

92. Progressive degeneration of skeletal muscles mostly due to genetic disorder is called -
(1) Myasthenia gravis  (2) Muscular dystrophy
(3) Tetany  (4) Gout

93. During evolution the animal which evolved into the first amphibian that lived on both land and water were:-
(1) Sauropsids  (2) Synapsids
(3) Lobefins  (4) Therapsids

94. Match column-I with column-II:

<table>
<thead>
<tr>
<th>Column-I</th>
<th>Column-II (number of bones)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Cranial bones</td>
<td>(i) 24</td>
</tr>
<tr>
<td>B. Ribs</td>
<td>(ii) 26</td>
</tr>
<tr>
<td>C. Vertebral column</td>
<td>(iii) 8, (iv) 12</td>
</tr>
</tbody>
</table>

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

95. During evolution which organism deposits and convert in to present days coal:-
(1) Angiosperms  (2) Dicotyledons
(3) Bryophytes  (4) Pteridophytes

96. Ringworm is .......... disease:-
(1) helminth  (2) fungal
(3) bacterial  (4) viral

97. Before how many year dinosaur suddenly disappeared from the earth? -
(1) 100 million year
(2) 65 million year
(3) 200 million year
(4) 165 million year
98. Enters via contaminated food + water
   - cytotoxins, Slough villus cells
   - enterotoxin stimulates Adenylate cyclase
   - Induction of diarrhoea due to loss of Cl + water
   - Sustain high fever → diagnosed by widal test

   above chart is related with :-
   (1) Common cold
   (2) Typhoid
   (3) Haemophilus influenzae
   (4) Trichophyton

99. Modern farmer's can increase the yield of Paddy upto 50% by the use of :-
   (1) Cyanobacteria
   (2) Rhizobium
   (3) Cyanobacteria in *Azolla pinnata*
   (4) Farm yard manure

100. In which phase of meiosis, the chromosomes do undergoes some dispersion, but they do not reach the extremely extended state of the interphase nucleus ?
   (1) Prophase-I
   (2) Metaphase-I
   (3) Telophase-I
   (4) Prophase-II

101. First transgenic plant :-
   (1) Potato
   (2) Tomato
   (3) Tobacco
   (4) Maize

102. Which one of the following cellular parts is correctly described ?
   (1) Ribosomes - Those on chloroplasts are larger (80s) while in the cytoplasm are smaller (70s)
   (2) Centrioles - Site for active RNA synthesis
   (3) Thylakoids - Flatted membranous sacs forming the grana of chloroplasts
   (4) Golgi body - Not surrounded by membrane

103. Which fish selectively feed on larva of mosquito:-
   (1) Gambusia
   (2) Rohu
   (3) Clarias
   (4) Exocoetus
104. Identify the A, B, C and D select the correct statements regarding to A, B, C and D.

(1) Percentage of "A" is maximum in the membrane
(2) Percentage of "B" is minimum in the membrane
(3) Lateral movement of "B" help in the measurement of fluidity of membrane
(4) The fluidity of membrane is due to "D"

105. Which of the following method is most commonly used for creation of genetic variation–

(1) Polyploidy
(2) Hybridisation
(3) Mutation
(4) Genetic engineering

106. Steroidal hormone are synthesised in :-

(1) Rough endoplasmic reticulum
(2) Golgi body
(3) Smooth endoplasmic or eticulum
(4) Mitochondria

107. Embryo culture is mostly used for –

(1) Establishing suspension culture
(2) Recovery of interspecific hybrids
(3) Somatic hybridisation
(4) Haploid plant production

104. A, B, C and D को पहचान नी पीछा बने B, C और D के संदर्भ में सही कहा न कहा चयन की जिस–

(1) "A" की प्रति ता स्त्रा सबसे अधिक कहाँ है जैसा है
(2) "B" की प्रति ता स्त्रा सबसे अधिक कहाँ है जैसा है
(3) "B" की पर प्रति ता स्त्रा की तलाश का माप प्रकार है
(4) बौने दोनों की तलाश के कारण होते है जैसा है

105. अनु वां शि कार्यक्रम न उतर फा करने की सबसे सही यान है–

(1) कहूं गुप्त ता
(2) संबंधित
(3) उत्तर परिवर्तन न
(4) अनु वां शि का अधिक यं त्रिवेक

106. रस्ता तीर खड़ा हाथ में न का निम्न:- प चलाये होते है जैसा है

(1) खुस सरी अंत तद धे भाली
(2) गाँ ते जा य
(3) चिकनी आंस प्रढ धे भाली
(4) मी इटे र बिड़ य

107. बौने प संचालन का अधिकतम उत्तर फो गिय जिय जहाँ है

(1) निम्न बन संचालन के राशि ले रख ने के लिये
(2) अंत ती यसंचालन के बचने के लिये
(3) अंत ती संचालन के लिये
(4) अनु वां शि देशक के उत्तर देने के लिये
108. The experiment shown in the figure has been carried out by Morgan to show the phenomenon of linkage recombination. If in Cross I, genes are tightly linked and in Cross II, genes are loosely linked then what will be percentage of recombinants produced in Cross I and Cross II respectively?

**Cross I**

<table>
<thead>
<tr>
<th>Parents</th>
<th>[yw]♀</th>
<th>[yw]♂</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yellow body</td>
<td>White eyed</td>
</tr>
<tr>
<td></td>
<td>Wild type</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F1 generation</th>
<th>[yw]♀</th>
<th>[yw]♂</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yellow body</td>
<td>White eyed</td>
</tr>
<tr>
<td></td>
<td>Wild type</td>
<td></td>
</tr>
</tbody>
</table>

**Cross II**

<table>
<thead>
<tr>
<th>Parents</th>
<th>[wm]♀</th>
<th>[wm]♂</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White body</td>
<td>Miniature wings</td>
</tr>
<tr>
<td></td>
<td>Wild type</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F1 generation</th>
<th>[wm]♀</th>
<th>[wm]♂</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White body</td>
<td>Miniature wings</td>
</tr>
<tr>
<td></td>
<td>Wild type</td>
<td></td>
</tr>
</tbody>
</table>

(1) 98.7% and 62.8%
(2) 1.3% and 37.2%
(3) 37.2 and 1.3%
(4) 62.8% and 98.7%

109. Coniferales and cycadales have respectively :-

(1) Motile and non-motile sperms
(2) Motile and motile sperms
(3) Non-motile and motile sperms
(4) Non motile sperms

109. Coniferales and cycadales have respectively :-

(1) Motile and non-motile sperms
(2) Motile and motile sperms
(3) Non-motile and motile sperms
(4) Non motile sperms

*Time Management is Life Management
Your Target is to secure Good Rank in Pre-Medical 2013

110. Possibility I
Anaphase I (Meiosis I)
Spindle fibres
Pole
Anaphase II (Meiosis II)
Germ cells

Possibility II
Two pair of homologous chromosomes
Anaphase I (Meiosis I)
Anaphase II (Meiosis II)
Germ cells

The above figure shows:
(1) Independent assortment of chromosome
(2) Law of dominance
(3) Linkage
(4) Equational division

111. The chromosome number of an embryo cell of fern is 6, the chromosome number of its leaf will be:
(1) 6 (2) 12 (3) 18 (4) 3
112. Read the following statements:
(a) It produces disorder in females more often than in males
(b) All female offsprings will exhibit disorder, if father possesses the same
(c) Do not transmitted to son if mother does not exhibit disorder.
Which of the following gene will have the above stated features?
(1) Sex-linked recessive gene
(2) Sex-linked dominant gene
(3) Autosomal dominant gene
(4) Autosomal recessive gene

113. The unique feature of bryophytes being member of kingdom plantae:
(1) They lack roots
(2) The produce spores
(3) They lack vascular tissue
(4) Their sporophytes is attached to gametophyte

114. Given diagram show Morgan experiment between body colour and eye colour, what will be true for this experiment:
(1) The strength of linkage between y and w is higher
(2) Crossing over between y and w is higher
(3) The strength of linkage between y and w is low
(4) All the above
115. Read the following statements :-
(A) Bryophytes are thallus like and prostrate or erect
(B) They attached to the substratum by the help of only multicellular rhizoids
(C) They usually occur in damp, humid and shaded localities
(D) The sporophyte of bryophytes is free living
How many above statements are correct and incorrect regarding bryophytes :-
(1) 2–correct ; 2–incorrect
(2) 1–correct ; 3–incorrect
(3) 3–correct ; 1–incorrect
(4) 4–correct ; 0–incorrect

116. Which of the following tissue is not found in the skin of man ?
(1) Epithelial tissue
(2) Areolar tissue
(3) Dense fibrous connective tissue
(4) Both (1) and (3)

117. The incorrect match for chlorophyll type is
(1) Chlorophyll a – Green algae
(2) Chlorophyll d – Diatoms
(3) Chlorophyll c – Diatoms & Brown Algae
(4) Chlorophyll d – Red Algae

118. Most abundant formed elements with nucleus in blood of human are :-
(1) Erythrocytes
(2) Leucocytes
(3) Thrombocytes
(4) Platelets

119. The stored food in rhodophycea is floridean starch which is very similar in structure to :-
(1) Glycogen
(2) Amylopectin
(3) Both (1) & (2)
(4) Lipids

120. Cockroach is :-
(1) Ureotelic
(2) Uricotelic
(3) Ammonotelic
(4) Aminotelic

121. Find out the incorrect statement in the following :-
(1) Heterotrophic bacteria are most abundant in nature
(2) Bacterial structure is very complex & they have very simple behaviour
(3) Bacteria reproduce mainly by fission
(4) Archaea bacteria differ from other bacteria in having different cell wall structure
122. Which of the following function is not influenced by pineal gland?
   (1) Defense capability
   (2) Body temperature
   (3) Sleep wake cycle and metabolism
   (4) Electrolytic balance

123. The thalloid body of a slime mould (Myxomycetes) is known as:
   (1) Fruiting body
   (2) Mycelium
   (3) Protonema
   (4) Plasmodium

124. Retinal blood vessels enter into eye ball from which part:
   (1) Cornea
   (2) Fovea
   (3) Blind spot
   (4) Pupil

125. In the following diagrams which one is provide peat that have long been used as fuel:

126. Limbic system of brain does not includes or related with:
   (1) Amygdala
   (2) Excitement and pleasure
   (3) Motivation
   (4) Motor signaling

127. AB–blood group is an example of:
   (1) Multiple allele
   (2) Incomplete dominance
   (3) Co-dominance
   (4) Lethal gene
128. Regulation of kidney function of Juxtaglomerular Apparatus (JGA) involves certain steps given below. Arrange them in the correct order :-
(a) Release of enzyme renin
(b) Release of aldosterone from adrenal gland
(c) Reabsorption of Na\(^+\) and water at DCT
(d) Decrease in blood pressure and blood volume
(e) Conversion of angiotensinogen to angiotensin II

128. (a, e, b, c, d) (b, c, a, e, d) (c, d, a, e, b) (d, a, e, b, c)

129. The height of a plant is under control of polygenic inheritance. The plant having genotype 'aabb' has 20 cm height and height of plant having genotype AaBb is 50 cm, what will be height of a plant having AABB genotype?

129. (1) 45 cm (2) 60 cm (3) 80 cm (4) 15 cm

130. Which one of the following statements is incorrect:-

130. (1) The medullary zone of kidney is divided into a few conical masses called medullary pyramids projecting into the calyces
(2) Inside the kidney the cortical region extends in between the medullary pyramids as renal pelvis
(3) Glomerulus alongwith Bowman's capsule is called the renal corpuscle
(4) Renal corpuscles, proximal convoluted tubule (PCT) and distal convoluted tubule (DCT) of the nephron are situated in the cortical region of kidney

131. In man gene for polydactyly shows :-

131. (1) Complete penetrance (2) Incomplete penetrance (3) Variable expressivity (4) 2 and 3 both

132. Cardiac activity could be moderated by the autonomous neural system. Tick the correct answer :-

132. (1) The parasympathetic system stimulates heart rate and stroke volume (2) The sympathetic system stimulates heart rate and stroke volume (3) The parasympathetic system decreases the heart rate but increase stroke volume (4) The sympathetic system decreases the heart rate but increase stroke volume
133. Which of the following cross is used to find out homozygosity or heterozygosity of a dominant individual?
   (1) Reciprocal cross (2) Test cross (3) Out cross (4) Monohybrid cross

134. Which among the following is correct during each cardiac cycle?
   (1) The volume of blood pumped out by the Rt and Lt ventricles is same.
   (2) The volume of blood pumped out by the Rt and Lt ventricles is different
   (3) The volume of blood received by each atrium is different
   (4) The volume of blood received by the aorta and pulmonary artery is different

135. Which part is removed at the time of emasculation in unisexual flower?
   (1) Anther (2) Carpel (3) Stamen (4) None of the above

136. Which of the following is largest organ of body?
   (1) Liver (2) Nerve (3) Stomach (4) Skin

137. Match the column–I with column–II and select the correct answer:

<table>
<thead>
<tr>
<th>Column-I</th>
<th>Column-II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Monohybrid cross</td>
<td>(i) TtRr</td>
</tr>
<tr>
<td>(B) Test cross</td>
<td>(ii) Tt × TT</td>
</tr>
<tr>
<td>(C) Out cross</td>
<td>(iii) Tt × tt</td>
</tr>
<tr>
<td>(D) True dihybrid</td>
<td>(iv) Tt × Tt</td>
</tr>
<tr>
<td>(E) Monohybrid</td>
<td>(v) Rr</td>
</tr>
</tbody>
</table>

138. The germ layers are formed during which stage of embryonic development:
   (1) Morula (2) Blastula (3) Gastrula (4) Blastocyst

139. First transgenic plant was tobacco and it contains resistant gene for –
   (1) Insect resistant (2) Herbicide resistant (3) Pest resistant (4) Frost resistant

140. In human During fertilization; a sperm firstly comes in contact with the which layer of the ovum
   (1) Zona pellucida (2) Vitelline membrane (3) Jelly coat (4) Zona radiata
141. Which of the following conclusions of Mendel can be explained by dihybrid cross?
(1) Dominance
(2) Unit factor and segregation
(3) Independent assortment
(4) All the above

142. Read the following statement:
(A) Inhibitory proteins are released by epididymis which conserve energy of sperms
(B) Epididymis provides more ATP energy to sperms
(C) The sigals of parturition originate from placenta and CNS
(D) Lactation amenorrhea is used as contraception
How many of the above statements are correct?
(1) Four (2) Three (3) Two (4) One

143. Main basis of DNA finger printing is:
(1) RFLP (2) VNTR
(3) RAPD (4) None of these

144. Which of the following contributes in the formation of seminal plasma:
(a) Sertoli cells (b) Seminal vesicle
(c) Spermatogonia (d) Leydig cells
(e) Bulbourethral gland (f) Prostate gland
(1) b, c, e, f (2) a, b, c, f
(3) b, c, d, e, f (4) only b, e, f

145. Match the column-I with column-II and select the correct answer:

<table>
<thead>
<tr>
<th>Column-I</th>
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(A) RFLP (i) Pseudomonas putida
(B) Super bug (ii) PCR-technique
(C) ECORI (iii) Exonuclease
(D) TPA (iv) Restriction endonuclease
(E) Interferon (v) Antiviral protein
| x | (vi) Blood clot dissolving agent |
|   | (vii) DNA test |
|   | (viii) Haemophilia |
|   | (ix) Albinism |
|   | (x) Agrobacterium |

(1) A–vii, B–i, C–iv, D–vi, E–v
(2) A–v, B–x, C–ii, D–i, E–iv
(3) A–vi, B–ii, C–ix, D–x, E–v
(4) A–x, B–i, C–vi, D–ix, E–x
146. Generally, the absolute amount of nutrient moving in (input) and moving out (output) of the ecosystem are ........ than the amount of nutrient cycled with in (amongst different components) the ecosystem :-
(1) Lesser        (2) More 
(3) Equal        (4) May be equal or lesser

147. When foreign DNA is inserted into any vector, it results in inactivation of any marker gene. This is used for the selection of ____?
(1) Cancerous cells
(2) Non-transformant cells
(3) Transformant cells
(4) Recombinant cells

148. Detritus $\xrightarrow{\text{bacteria}}$ Humus
$\xrightarrow{\text{(A)}}$ CO$_2$, H$_2$O, minerals
$\xrightarrow{\text{(B)}}$ Nutrients

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

149. The puffed-up appearance of dough is due to:-
(1) Growth of LAB 
(2) Production of O$_2$ & ethanol
(3) Production of CO$_2$
(4) Growth of yeast Monascus

150. Dominance, species composition, stratification and physiognomy and species diversity are :-
(1) Character of biodiversity 
(2) Character of Biotic community
(3) Character of population
(4) Character of species

151. Which one of the following match is correct ?
(1) Vitamin E – Water soluble – Sterility 
(2) Vitamin D – Fat soluble – Beri-Beri
(3) Vitamin $B_{12}$ – Water soluble – Pellagra
(4) Vitamin A – Fat soluble – Night blindness

152. Three mile island is famous for :-
(1) High species diversity 
(2) Wetlands
(3) Radioactive incident
(4) Rare species
153. Read the following four statements (A–D) :-
(A) Infection in alimentary canal can be caused by round worm
(B) Rennin enzyme found in gastric juice of infants helps in digestion of milk sugar.
(C) Principle organ for absorption of nutrients is small intestine
(D) Serosa is the outermost layer of alimentary canal
How many of the above statements are correct?
(1) Four (2) One (3) Two (4) Three

154. In which process of decomposition, enzymatic conversion of the decomposing detritus to simpler compound and inorganic substances occur?
(1) Fragmentation of detritus
(2) Leaching
(3) Catabolism
(4) Mineralisation

155. 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

156. How much percent of impurities make water unfit for human use?
(1) 0.1 (2) 1 (3) 10 (4) 60

157. What is the sequence of phases indicated in the growth curve?

(a) (b) (c)
(1) lag log Inflexion phase
(2) lag stationary log
(3) log lag stationary
(4) lag log stationary phase

153. निम्न चार का (A–D) को पढ़ें:-
(A) गाल कृमि के बहस अहार नाल में संक्रमण हास कता है।
(B) प्रेषू, के जरसमे पर्ये जने आल रे निन दो घा ना के के पहन में कहा कहा ता है।
(C) छोटे अंतरण कल लों के आज घा का मु है।
(D) सिसे आ हार नाल की खसें बा हरीं पत्त है।
निम्न में से कितना क्षण यह है?
(1) चार (2) एक (3) दो (4) तीन

154. अकांच ने की चिस्म फिग में अस्त्र का ए जब्रोहा वा सल ये गिये का। अक्स बैन फिल भाई में परिवर्त न है?
(1) अस्त्र के विश्व ने मे।
(2) निक्षा का लन
(3) के टा बाय८ लिम म
(4) ख निखेक कर

155. नी चे दोग धू सू जर में कितनी मछलीं लवण जन में पु खत है?
कता, पे मैकैन, का मन का पे, सिर बर पे, हिला, ये हू मे किला, सट मन, मू गल
(1) छ : (2) तीन (3) चार (4) पं च

156. कितने प्रत्वा त अब, दिव्या को या नव उफ गे के लिए हाणिका एक बचने दे ती है?
(1) 0.1 (2) 1 (3) 10 (4) 60

157. रिये गये वृ दिव्यक में दोग भेष गईं प्रा वर्त्ता आं का क्रम है?
(a) (b) (c)
(1) lag log Inflexion phase
(2) lag stationary log
(3) log lag stationary
(4) lag log stationary phase
158. Ozone hole over Antarctica develops each year between :-
   (1) Late August and early September
   (2) Late February and early April
   (3) Late August and early October
   (4) Late November and early January

159. When the resources are limited, which are the phases exhibited by an organism during growth?
   (1) Lag, Log, exponential, asymptotic, deacceleration
   (2) Lag, log asymptomatic, deacceleration, exponential
   (3) Lag, log, deacceleration, exponential, asymptomatic
   (4) Lag, acceleration, log, deacceleration, asymptomatic

160. Flowers of pea, gram & bean are :-
   (1) Actinomorphic and epigynous
   (2) Actinomorphic and hypogynous
   (3) Zygomorphic and hypogynous
   (4) Zygomorphic and epigynous

161. Which of the following sequence is incorrect?
   (1) Starch $\xrightarrow{\text{Amylase}}$ disaccharides
   (2) Fats $\xrightarrow{\text{Lipases}}$ diglycerides
   (3) Nucleic acids $\xrightarrow{\text{Nucleases}}$ nucleotides
   (4) Lactose $\xrightarrow{\text{Lactase}}$ glucose + glucose

162. In brinjal flowers are :-
   (1) Hypogynous
   (2) Epigynous
   (3) Perigynous
   (4) Both hypogynous & perigynous

163. In flowering plants diameter of pollen grains are about :-
   (1) 5–10 µm
   (2) 25–50 µm
   (3) 50–100 µm
   (4) 100–200 µm

164. In china rose the type of cohesion is :-
   (1) Monoadelphous
   (2) Diadelphous
   (3) Polyadelphous
   (4) None of the above

165. An event unique to flowering plants are :-
   (1) Endosperm formation
   (2) Seed formation
   (3) Ovule formation
   (4) Double fertilization
166. Valvate aestivation of corolla is found in :-
   (1) Pisum / Fabaceae
   (2) Tamarindus / Caesalpinioideae
   (3) Sesbania / Fabaceae
   (4) Tomato / Solanaceae

167. Caruncle is present in :-
   (1) Ricinus
   (2) Tomato
   (3) Litchi
   (4) None of the above

168. Laticiferous vessels are found in :-
   (1) Xylem tissue
   (2) Phloem tissue
   (3) Cortex
   (4) None of the above

169. A spider makes its web from the fluid that comes out of its :-
   (1) Posterior part of abdomen
   (2) legs
   (3) Mouth
   (4) Salivary glands

170. Meristematic cells have :-
   (1) Thick cell wall and large intercellular spaces
   (2) Thick cell wall and no intercellular spaces
   (3) Thin cell wall and large intercellular spaces
   (4) Thin cell wall and no intercellular spaces

171. Pearls are produced in an oyster around the :-
   (1) Tears of sea mermaids falling in to oyster.
   (2) First drops of rain falling in to oyster in a particular mouth
   (3) Some external particles becoming embedded in skin of oyster
   (4) Eggs of oyster which fail to leave its body

172. Examine the following figure, in which one of the four options given all the items P, Q and R are correct ?

   ![Diagram]

   (1) P - Symport protein  Q - Antiport protein  R - Uniport protein
   (2) P - Symport protein  Q - Antiport protein  R - Uniport protein
   (3) P - Uniport protein  Q - Symport protein  R - Antiport protein
   (4) P - Antiport protein  Q - Symport protein  R - Uniport protein
173. Rasping organ in cuttle fish is :-
(1) Pectoral fin  (2) Pelvic fin
(3) Anterior & posterior dorsal fin (4) None

174. Match the column of mineral with their functions?

<table>
<thead>
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<tr>
<td>a. Sulphur</td>
<td>Pollen germination</td>
</tr>
<tr>
<td>b. Magnesium</td>
<td>Maintain ribosome structure</td>
</tr>
<tr>
<td>c. Manganese</td>
<td>Splitting of water.</td>
</tr>
<tr>
<td>d. Boron</td>
<td>Main constituent of several coenzymes.</td>
</tr>
</tbody>
</table>

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

175. Select the peculiar character in sponges :-
(1) Marine & fresh habitat (2) Tissue level body
(3) Intracellular digestion (4) Collar cell

176. Facilitated diffusion cannot cause net transport of molecules from a low to a high concentration because ?
(1) It would require input of energy.
(2) It would require output of energy.
(3) It required proteins.
(4) It would take place only for lipophilic substances.

177. Mesenchyme is present in :-
(1) Spongilla  (2) Euplectella
(3) Both  (4) Pennatula

178. Growth can be measured in terms of ?
(1) Fresh or dry weight increase.
(2) Increase in girth of stem.
(3) Increase in surface area of leaf.
(4) All the above

179. Temperature is very high but a plant is showing photosynthesis with normal rate, probably it would be ?
(1) C_3 plant  (2) Mango plant
(3) Pea plant  (4) Sugarcane plant

180. When a molecule of pyruvic acid is subjected to anaerobic oxidation and forms lactic acid there is?
(1) Loss of 3 ATP molecules
(2) Loss of 6 ATP molecules
(3) Gain of 2 ATP molecules
(4) Gain of 4 ATP molecules

(1) अपूर्वक आच न नं त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो त हो
Your Target is to secure Good Rank in Pre-Medical 2013