



# NEUTRON NEET 3.0

**DURATION: 200 MINUTES**

**Syllabus**

**Full Length Test -02**

Physics	:	Motion in Straight Line, NLM, WPE
Chemistry	:	Chemical Bonding Upto MOT, GOC and Hydrocarbon (Alkane and Alkene)
Botany	:	Biomolecules
Zoology	:	Locomotion and Movement

## General Instructions

1. Immediately fill in the particulars on this page of the test booklet.
2. The test is of 3 hours 20 min. duration.
3. The test booklet consists of 200 questions. The maximum marks are 720.
4. There are four Section in the Question Paper, Section I, II, III & IV consisting of Section-1 (Physics), Section-II (Chemistry), Section-III (Botany) & Section-IV (Zoology) and having 50 Questions in each Subject and each subject is divided in two Section, Section A consisting 35 questions (all questions all compulsory) and Section B consisting 15 Questions (Any 10 questions are compulsory).
5. There is only one correct response for each question.
6. Each correct answer will give 4 marks while 1 Mark will be deducted for a wrong MCQ response.
7. No student is allowed to carry any textual material, printed or written, bits of papers, pager, mobile phone, any electronic device, etc. inside the examination room/hall.
8. On completion of the test, the candidate must hand over the Answer Sheet to the Invigilator on duty in the Room/Hall. However, the candidates are allowed to take away this Test Booklet with them.

## OMR - Instructions

1. Use blue/black dark ballpoint pens.
2. Darken the bubbles completely. Don't put a tick mark or a cross mark where it is specified that you fill the bubbles completely. Half-filled or over-filled bubbles will not be read by the software.
3. Never use pencils to mark your answers.
4. Never use whiteners to rectify filling errors as they may disrupt the scanning and evaluation process.
5. Writing on the OMR Sheet is permitted on the specified area only and even small marks other than the specified area may create problems during the evaluation.
6. Multiple markings will be treated as invalid responses.
7. Do not fold or make any stray mark on the Answer Sheet (OMR).

## Student Details

Name of the Student (In CAPITALS)

\_\_\_\_\_

Roll Number: \_\_\_\_\_

OMR Bar Code Number: \_\_\_\_\_

Candidate's Signature

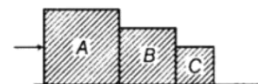
Invigilator's Signature

# Physics

- A bullet emerges from a barrel of length 1.2 m with a speed of  $640 \text{ ms}^{-1}$ . Assuming constant acceleration, the approximate time that it spends in the barrel after the gun is fired is
  - 4 ms
  - 40 ms
  - 400  $\mu\text{s}$
  - 1 s
- Two boys are standing at the ends A and B of a ground where  $AB = a$ . The boy at B starts running in a direction perpendicular to AB with velocity  $v_1$ . The boy at A starts running simultaneously with velocity  $v$  and catches the other boy in a time  $t$ , where  $t$  is
  - $a/\sqrt{v^2 + v_1^2}$
  - $\sqrt{a^2/(v^2 - v_1^2)}$
  - $a/(v - v_1)$
  - $a/(v + v_1)$
- A car starts from rest and accelerates uniformly to a speed of  $180 \text{ kmh}^{-1}$  in 10 seconds. The distance covered by the car in this time interval is
  - 500 m
  - 250 m
  - 100 m
  - 200 m
- A person throws ball into air vertically upward in regular intervals of time of one second. The next ball is thrown when the velocity of the ball thrown earlier becomes zero. The height to which the balls rise is (Assume,  $g = 10 \text{ ms}^{-2}$ )
  - 5 m
  - 10 m
  - 7.5 m
  - 20 m
- The motion of a particle along a straight line is described by equation:
$$x = 8 + 12t - t^3$$
Where  $x$  is in meter and  $t$  in second. The retardation of the particle when its velocity becomes zero, is
  - $24 \text{ ms}^{-2}$
  - Zero
  - $6 \text{ ms}^{-2}$
  - $12 \text{ ms}^{-2}$
- Two trains A and B each of length 400 m are moving on two parallel tracks in the same direction (with A ahead of B) with same speed  $72 \text{ km/h}$ . The driver of B decides to overtake A and accelerates by  $1 \text{ m/s}^2$ . If after 50 s, B just brushed past A, calculate the original distance between A and B
  - 750 m
  - 1000 m
  - 1250 m
  - 2250 m
- A body A starts from rest with an acceleration  $a_1$ . After 2 seconds, another body B starts from rest with an acceleration  $a_2$ . If they travel equal distances in the 5<sup>th</sup> second, after the start of A, then the ratio  $a_1 : a_2$  is equal to
  - 5:9
  - 5:7
  - 9:5
  - 9:7
- The position  $x$  of a particle with respect to time  $t$  along  $x$ -axis is given by  $x = 9t^2 - t^3$  where  $x$  is in meters and  $t$  in second. What will be the position of this particle when it achieves maximum speed along the  $+x$  direction
  - 32 m
  - 54 m
  - 81 m
  - 24 m
- A particle moves a distance  $x$  in time  $t$  according to equation  $x = (t + 5)^{-1}$ . The acceleration of particle is proportional to
  - (velocity)<sup>2/3</sup>
  - (velocity)<sup>3/2</sup>
  - (distance)<sup>2</sup>
  - (distance)<sup>-2</sup>
- The engine of a motorcycle can produces a maximum acceleration  $5 \text{ m/s}^2$ . Its brakes can produce a maximum retardation  $10 \text{ m/s}^2$ . What is the minimum time in which it can cover a distance of 1.5 km
  - 30 sec
  - 15 sec
  - 10 sec
  - 5 sec

11. A car starts from rest and moves with uniform acceleration  $a$  on a straight road from time  $t = 0$  to  $t = T$ . After that, a constant deceleration brings it to rest. In this process the average speed of the car is
- $\frac{aT}{4}$
  - $\frac{3aT}{2}$
  - $\frac{aT}{2}$
  - $aT$
12. A particle starts from rest, accelerates at  $2\text{ m/s}^2$  for 10s and then goes with constant speed for 30s and then decelerates at  $4\text{ m/s}^2$  till it stops. What is the distance travelled by it
- 750 m
  - 800 m
  - 700 m
  - 850 m
13. The motion of a particle is described by the equation  $x = a + bt^2$  where  $a = 15\text{ cm/s}^{-1}$  and  $b = 3\text{ cm/s}^2$ . Its instantaneous velocity at time 3 sec will be
- 36 cm/sec
  - 18 cm/sec
  - 16 cm/sec
  - 33 cm/sec
14. Two trains, each 50m long are travelling in opposite direction with velocity 10 m/s and 15m/s. The time of crossing is
- 2 s
  - 4 s
  - $2\sqrt{3}\text{ s}$
  - $4\sqrt{3}\text{ s}$
15. A ball A is thrown up vertically with a speed  $u$  and at the same instant another ball B is released from a height  $h$ . At time  $t$ , the speed of A relative to B is
- $u$
  - $2u$
  - $u - gt$
  - $\sqrt{(u^2 - gt)}$
16. From a balloon rising vertically upwards at  $5\text{ m/s}$  a stone is thrown up at  $10\text{ m/s}$  relative to the balloon. Its velocity with respect to ground after 2 s is (Assume  $g = 10\text{ m/s}^2$ )
- 0
  - 20 m/s
  - 10 m/s
  - 5 m/s
17. A ball of mass  $m$  moves with speed  $v$  and it strikes normally with a wall and reflected back normally. If its time of contact with wall is  $t$  then find force exerted by ball on wall
- $\frac{2mv}{t}$
  - $\frac{mv}{t}$
  - $\frac{mvt}{t}$
  - $\frac{mv}{2t}$
18. A block of mass  $m$  is resting on a smooth horizontal surface. One end of a uniform rope of mass  $(m/3)$  is fixed to the block, which is pulled in the horizontal direction by applying a force  $\vec{F}$  at the other end. The tension in the middle of the rope is
- $\frac{8}{7}F$
  - $\frac{1}{7}F$
  - $\frac{7}{8}F$
  - $\frac{1}{5}F$
19. A reference frame attached to the earth
- Is an inertial frame by definition
  - Cannot be an inertial frame because earth is revolving round the sun
  - Is an inertial frame because Newton's laws are applicable
  - Is an inertial frame because the earth is rotating about its own axis
20.  $n$  small balls each of mass  $m$  impinge elastically each second on a surface with velocity  $u$ . The force experienced by the surface will be
- $mnu$
  - $2mnu$
  - $4mnu$
  - $\frac{1}{2}mnu$
21. Same force acts on two bodies of different masses 3kg and 5kg initially at rest. The ratio of times required to acquire same final velocity is

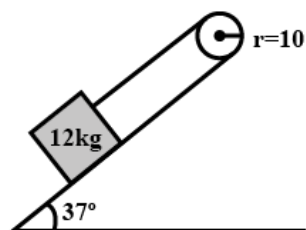
- (a) 5:3  
 (b) 25:9  
 (c) 9:25  
 (d) 3:5
22. A particle of mass 0.3 kg is subjected to a force  $F = -kx$  with  $k = 15 \text{ N/m}$ . What will be its initial acceleration if it is released from a point 20cm away from the origin  
 (a)  $5 \text{ m/s}^2$   
 (b)  $10 \text{ m/s}^2$   
 (c)  $3 \text{ m/s}^2$   
 (d)  $15 \text{ m/s}^2$
23. Human heart is pumping blood with constant velocity  $v \text{ ms}^{-1}$  at the rate of  $M \text{ kg s}^{-1}$ . The force required for this is (in N)  
 (a)  $M$   
 (b)  $Mv$   
 (c)  $\frac{M}{v}$   
 (d)  $v \frac{dM}{dt}$
24. A force vector applied on a mass is represented as  $\vec{F} = 6\hat{i} - 8\hat{j} + 10\hat{k}$  and accelerated with  $1 \text{ m/s}^2$ . What will be the mass of the body  
 (a)  $10\sqrt{2} \text{ kg}$   
 (b)  $2\sqrt{10} \text{ kg}$   
 (c)  $10 \text{ kg}$   
 (d)  $20 \text{ kg}$
25. When a bullet is fired at a target, its velocity decreases by half after penetrating 30 cm into it. The additional thickness it will penetrate before coming to rest is  
 (a) 30 cm  
 (b) 40 cm  
 (c) 10 cm  
 (d) 50 cm
26. A man is standing at the center of frictionless pond of ice. How can he get himself to the shore  
 (a) By thrown his shirt in vertically upward direction  
 (b) By spitting horizontally  
 (c) He will wait for the ice to melt in pond  
 (d) Unable to get at the shore
27. A book is lying on the table. What is the angle between the action of the book on the table and the reaction of the table on the book  
 (a)  $0^\circ$   
 (b)  $30^\circ$   
 (c)  $45^\circ$   
 (d)  $180^\circ$
28. A batsman hits back a ball straight in the direction of the bowler without changing its initial speed of 12 m/s. If the mass of the ball is 0.15 kg, determine the change in momentum of the ball (Assume linear motion of ball)  
 (a)  $3.6 \text{ kgm/s}$   
 (b)  $2 \text{ kgm/s}$   
 (c)  $4.6 \text{ kgm/s}$   
 (d)  $1.9 \text{ kgm/s}$
29. A gun of mass 10kg fires 4 bullets per second. The mass of each bullet is 20g and the velocity of the bullet when it leaves the gun is  $300 \text{ ms}^{-1}$ . The force required to hold gun while firing is  
 (a) 6 N  
 (b) 8 N  
 (c) 24 N  
 (d) 240 N
30. A bullet of mass 10g moving with 300 m/s hits a block of ice of mass 5kg and drops dead. The velocity of ice is  
 (a) 50 cm/s  
 (b) 60 cm/s  
 (c) 40 cm/s  
 (d) 30 cm/s
31. Three blocks A, B and C of masses 4 kg, 2 kg and 1kg respectively, are in contact on a frictionless surface, as shown. If a force of 14N is applied on the 4kg block then the contact force between A and B is



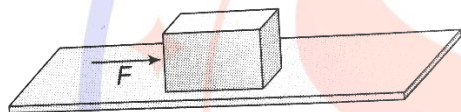
- (a) 6 N  
 (b) 8 N  
 (c) 18 N  
 (d) 2 N



32. A body shown in figure is accelerating downward with acceleration  $2 \text{ m/s}^2$ . The tension in the string is



- (a) 48 N  
 (b) 50 N  
 (c) 30 N  
 (d) 42 N
33. A block of mass 2kg is kept on the floor. The coefficient of static friction is 0.4. If a force  $F$  of 2.5 Newtons is applied on the block as shown in the figure, the frictional force between the block and the floor will be

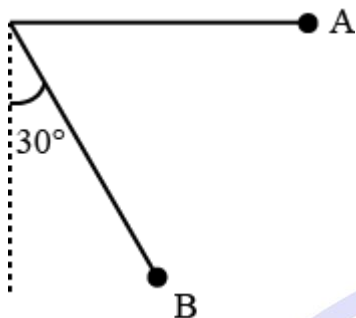


- (a) 2.5 N  
 (b) 5 N  
 (c) 7.84 N  
 (d) 10 N
34. An object placed on an inclined plane starts sliding when the angle of incline becomes  $30^\circ$ . The coefficient of static friction between the object and the plane is
- (a)  $\frac{1}{\sqrt{3}}$   
 (b)  $\sqrt{3}$   
 (c)  $\frac{1}{2}$   
 (d)  $\frac{\sqrt{3}}{2}$
35. A man pushes a wall and fails to displace it. He does
- (a) Negative work  
 (b) Positive but not maximum work  
 (c) No work at all  
 (d) Maximum work
36. A 50kg man with 20kg load on his head climbs up 20 steps of 0.25 m height each. The work done in climbing is
- (a) 5 J

- (b) 350 J  
 (c) 100 J  
 (d) 3430 J

37. Two springs of spring constants 1500 N/m and 3000 N/m respectively are stretched with the same force. They will have potential energy in the ratio
- (a) 4:1  
 (b) 1:4  
 (c) 2:1  
 (d) 1:2
38. If we throw a body upwards with velocity of 4m/s, at what height does its kinetic energy reduce to half of the initial value (Taking  $g = 10 \text{ ms}^{-1}$ )
- (a) 4 m  
 (b) 2 m  
 (c) 1 m  
 (d) 0.4 m
39. A rifle bullet loses  $1/20^{\text{th}}$  of its velocity in passing through a plank. The least number of such planks required just to stop the bullet is
- (a) 5  
 (b) 10  
 (c) 11  
 (d) 20
40. A block of mass 10kg moving in  $x$  direction with a constant speed of  $10 \text{ ms}^{-1}$ , is subject to a retarding force  $F = 0.1x \text{ J/m}$  during its travel from  $x = 20\text{m}$  to  $30\text{m}$ . Its final KE will be
- (a) 450 J  
 (b) 275 J  
 (c) 250 J  
 (d) 475 J
41. If the K.E. of a particle is doubled, then its momentum will
- (a) Remain unchanged  
 (b) Be doubled  
 (c) Be quadrupled  
 (d) Increase  $\sqrt{2}$  times
42. Two bodies of masses  $2m$  and  $m$  have their K.E. in the ratio 8:1, then their ratio of momenta is
- (a) 1:1  
 (b) 2:1  
 (c) 4:1  
 (d) 8:1

43. A simple pendulum is released from A as shown. If  $m$  and  $l$  represent the mass of the bob and length of the pendulum, the gain in kinetic energy at B is

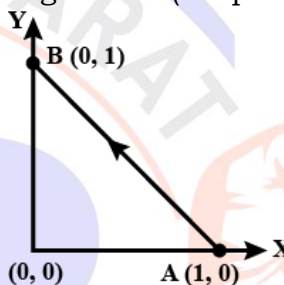


- (a)  $\frac{mgl}{2}$   
 (b)  $\frac{mgl}{\sqrt{2}}$   
 (c)  $\frac{\sqrt{3}}{2}mgl$   
 (d)  $\frac{2}{\sqrt{3}}mgl$
44. A force of  $50\text{ N}$  acts on a body of mass  $5\text{ kg}$  for  $2\text{ s}$ . The impulse on the body is  
 (a)  $100\text{ N-s}$   
 (b)  $50\text{ N-s}$   
 (c)  $20\text{ N-s}$   
 (d)  $60\text{ N-s}$
45. A motor of power  $p_0$  is used to deliver water at a certain rate through a given horizontal pipe. To increase the rate of flow of water through the same pipe  $n$  times, the power of the motor is increased to  $p_1$ . The ratio of  $p_1$  to  $p_0$  is  
 (a)  $n:1$   
 (b)  $n^2:1$   
 (c)  $n^3:1$   
 (d)  $n^4:1$
46. A body is initially at rest. It undergoes one-dimensional motion with constant acceleration. The power delivered to it at time  $t$  is proportional to  
 (a)  $t^{1/2}$   
 (b)  $t$   
 (c)  $t^{3/2}$   
 (d)  $t^2$
47. A lorry and a car moving with the same K.E. are brought to rest by applying the same retarding force, then  
 (a) Lorry will come to rest in a shorter distance

- (b) Car will come to rest in a shorter distance  
 (c) Both come to rest in a same distance  
 (d) None of the above

48. A force acts on a  $2\text{ kg}$  object so that its position is given as a function of time as  $x = 3t^2 + 5$ . What is the work done by this force in first  $5$  seconds  
 (a)  $850\text{ J}$   
 (b)  $900\text{ J}$   
 (c)  $950\text{ J}$   
 (d)  $875\text{ J}$

49. Consider a force  $\vec{F} = -x\hat{i} + y\hat{j}$ . The work done by this force in moving a particle from point  $A(1,0)$  to  $B(0,1)$  along the line segment is (all quantities are in SI units)



- (a)  $3/2$   
 (b)  $1$   
 (c)  $2$   
 (d)  $1/2$

50. A body of mass ' $m$ ' dropped from a height ' $h$ ' reaches the ground with a speed of  $0.8\sqrt{gh}$ . The value of work done by the air - friction is  
 (a)  $-0.68 mgh$   
 (b)  $0.64 mgh$   
 (c)  $mgh$   
 (d)  $1.64 mgh$

51. Choose the correct order of bond strength by overlapping of atomic orbitals
- $1s - 1s > 1s - 2s > 1s - 2p$
  - $2s - 2s > 2s - 2p > 2p - 2p$
  - $2s - 2p > 2s - 2s > 2p - 2p$
  - $1s - 1s > 1s - 2p > 1s - 2s$
52. How many bond angles of  $90^\circ$  are present in trigonal bipyramidal shape of  $\text{PCl}_5$ ?
- 9
  - 6
  - 4
  - None of these
53. The number of  $\pi$  bonds and  $\sigma$ -bonds in case of Lewis structure of  $\text{SO}_4^{2-}$
- $4\sigma, 2\pi$
  - $4\sigma, 2\pi$
  - $4\sigma, 0\pi$
  - $4\sigma, 4\pi$
54. Which of the following is T-shaped?
- $\text{PCl}_3$
  - $\text{BCl}_3$
  - $\text{NH}_3$
  - $\text{ClF}_3$
55. Select the correct order of bond angle of the following species.
- $\text{ClO}_3^-, \text{BrO}_3^-, \text{IO}_3^-$
- $\text{BrO}_3^- > \text{IO}_3^- > \text{ClO}_3^-$
  - $\text{ClO}_3^- > \text{BrO}_3^- > \text{IO}_3^-$
  - $\text{IO}_3^- > \text{BrO}_3^- > \text{ClO}_3^-$
  - $\text{IO}_3^- > \text{BrO}_3^- > \text{ClO}_3^-$
56. Which of the following is correct Lewis Dot structure for  $\text{N}_3^-$ .
- $:\text{N} \equiv \text{N} - \ddot{\text{N}}:$
  - $:\ddot{\text{N}} = \overset{\oplus}{\text{N}} = \ddot{\text{N}}:$
  - $:\ddot{\text{N}} = \overset{\oplus}{\text{N}} = \ddot{\text{N}}:$
  - $:\ddot{\text{N}} = \overset{\oplus}{\text{N}} = \ddot{\text{N}}:^{-2}$
57. Which of the following pair(s) represent(s) the isoelectronic species?
- $\text{CH}_4$  and  $\text{NH}_4^+$
  - $\text{SO}_2$  and  $\text{NO}_3^-$
  - $\text{NO}$  and  $\text{CN}^-$
  - $\text{SO}_2$  and  $\text{NH}_3$
- I & II
  - II, III, IV
  - I, II, III, IV
  - II & III
58. Which of the following does not exist?
- $\text{SF}_4$
  - $\text{OF}_6$
  - $\text{OF}_2$
  - $\text{SF}_6$
59. Which one of the following bonds has the highest bond energy:
- C - C
  - Si - Si
  - Ge - Ge
  - Sn - Sn
60.  $d_{z^2}$  orbital is present in which of the following hybridisation.
- $sp^3d$  (Square pyramidal)
  - $sp^3$
  - $sp^3d^2$
  - $sp^3d^{14}$  (square anti prismatic)
61. Which of following molecule can show Lewis's acidity
- $\text{CO}_2$
  - $\text{Br}_2$
  - $\text{SnCl}_2$
  - HF
  - $\text{NMe}_3$
- III, IV
  - I, II, III
  - I, III, IV
  - II, III, V
62.  $\text{F}_3\text{B}^+ \cdot \text{NH}_3 \rightarrow \text{F}_3\text{B} \leftarrow \cdot \text{NH}_3$   
What will be the hybridization of B and N respectively?
- $sp^3, sp^3$
  - $sp^2, sp^3$
  - $sp^2, sp^2$
  - $sp^2, sp^2$
63. For which of the following molecule s-character is found to be maximum in lone pair present at central atom.
- $\text{NH}_3$
  - $\text{H}_2\text{O}$
  - $\text{SF}_2$
  - $\text{AsH}_3$
64. Which is incorrect according to MOT ?
- $\text{H}_2^+$  and  $\text{He}_2^+$  have same stability
  - $\text{H}_2$  is stabler than  $\text{H}_2^+$
  - $\text{He}_2^+$  may exist while  $\text{He}_2$  cannot
  - same bond order of two species do

not mean they have same bond energy

65. In which of the following ionization processes, the bond order has increased and the magnetic behaviour has changed?

- (a)  $C_2 \rightarrow C_2^+$
- (b)  $NO \rightarrow NO^+$
- (c)  $O_2 \rightarrow O_2^+$
- (d)  $N_2 \rightarrow N_2^+$

66. Select the correct order of bond length.

- (a)  $Li_2 > B_2 > F_2 > H_2$
- (b)  $Li_2 > F_2 > B_2 > H_2$
- (c)  $Li_2 > F_2 > H_2 > B_2$
- (d)  $F_2 > Li_2 > B_2 > H_2$

67. Which of the following is true?

- (a) Bond order  $\propto \frac{1}{\text{bond length}} \propto$  bond energy
- (b) Bond energy  $\propto$  bond length  $\propto \frac{1}{\text{bond energy}}$
- (c) Bond order  $\propto \frac{1}{\text{bond length}} \propto \frac{1}{\text{bond energy}}$
- (d) Bond order  $\propto$  bond length  $\propto$  bond energy

68. Choose the correct statement:

- (a)  $Na^+_{(g)} > Mg^{2+}_{(g)} > Al^{3+}_{(g)}$  (Hydration energy)
- (b)  $Li^+_{(aq)} < Na^+_{(aq)} < K^+_{(aq)}$  (Ionic Mobility)
- (c)  $F^-_{(aq)} < Cl^-_{(aq)} < Br^-_{(aq)}$  (Hydrated radius)
- (d)  $CaF_2 > CaO$  (Lattice energy)

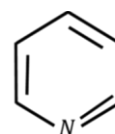
69. In which of the following processes magnetic moment and Bond order, both are changed.

- (a)  $NO \rightarrow NO^+$
- (b)  $O_2^+ \rightarrow O_2$
- (c)  $N_2 \rightarrow N_2^-$
- (d) All of the above

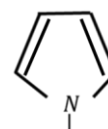
70. Which of following species will have highest bond length?

- (a)  $O_2^-$
- (b)  $O_2^{2-}$
- (c)  $F_2$
- (d)  $O_2^+$

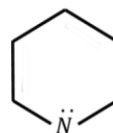
71. Rank the following compounds in order from most basic to least basic.



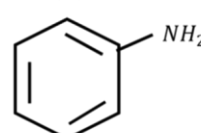
(I)



(II)



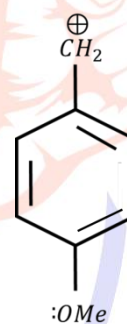
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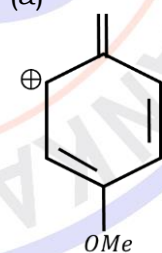
(IV)

- (a) (III) > (I) > (IV) > (II)
- (b) (I) > (III) > (IV) > (II)
- (c) (III) > (II) > (I) > (IV)
- (d) (III) > (IV) > (I) > (II)

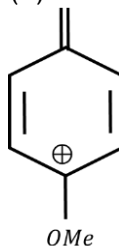
72. Most stable resonating structure of the given cation is.



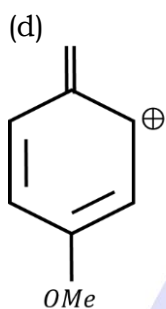
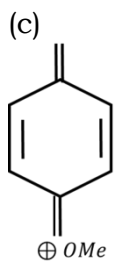
(a)



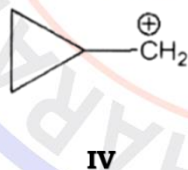
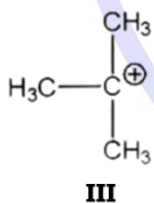
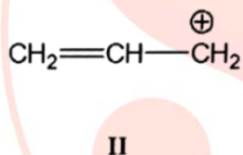
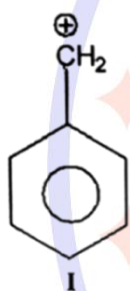
(b)





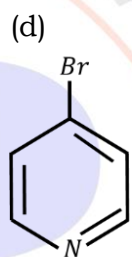
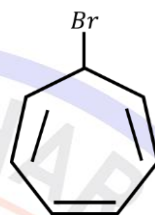
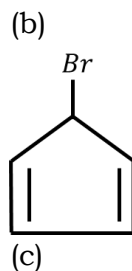
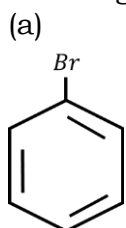


73. Rate of increasing order of stability.

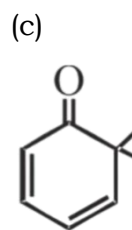


- (a) IV > I > II > III  
 (b) I > II > III > IV  
 (c) III > II > IV > I  
 (d) I > III > IV > II

74. The compound that gives precipitate on warming with aqueous  $AgNO_3$  is.

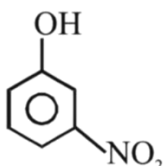


75. Which of the following show keto-enol isomerism?

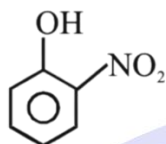




76. Arrange the following phenols in order of  $pK_a$  value:



(i)



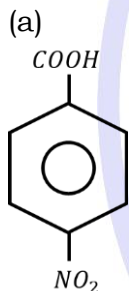
(ii)



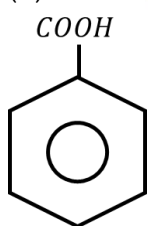
(iii)

- (a)  $i < ii < iii$   
 (b)  $iii < i < ii$   
 (c)  $iii < ii < i$   
 (d)  $i < iii < ii$

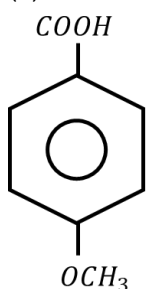
77. Which is most acidic?



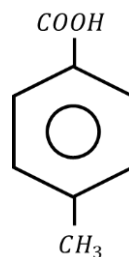
(b)



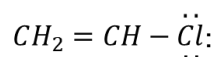
(c)



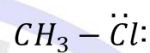
(d)



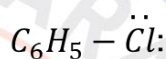
78. The  $C - Cl$  bond length is shortest in:-  
 (a)



(b)



(c)



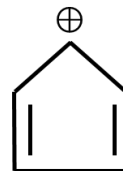
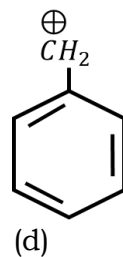
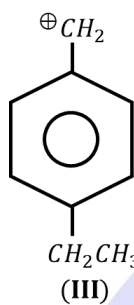
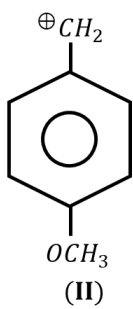
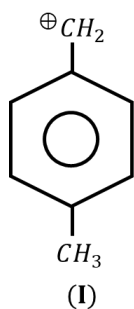
(d)



79. Choose the correct statement?

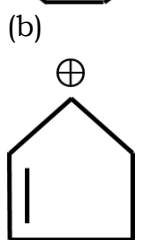
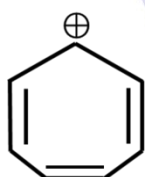
- (a) Resonance is distance dependent effect.  
 (b) Resonance hybrid is hypothetical structure.  
 (c) Canonical structure are real in nature.  
 (d) Resonance hybrid is always more stable than canonical structure's.

80. Arrange the following carbocation in their correct order of stability: -



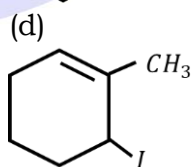
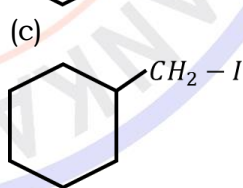
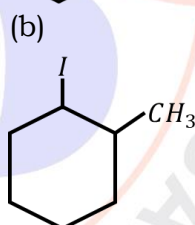
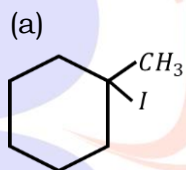
81. The oxygen atom in phenol.
- Exhibits only inductive effect.
  - Exhibits only resonance effect.
  - Has more dominating resonance effect than inductive effect.
  - Has more dominating inductive effect than resonance effect.

82. Most stable carbocation is:-

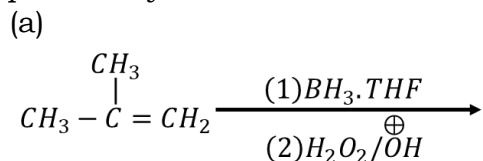


(c)

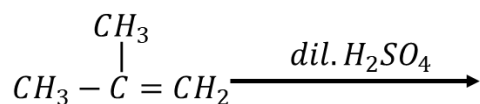
83. +HI → major product is.



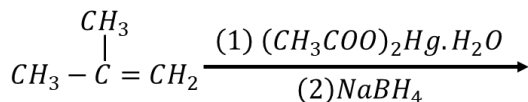
84. Primary alcohol can be formed as major product by.



(b)



(c)



(d) (c) and (d) both

85. Correct reactivity order for EAR of following compounds.



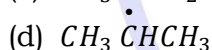
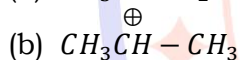
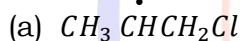
(a) IV > I > II > III

(b) III > II > I > IV

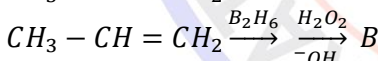
(c) II > III > I > IV

(d) II > III > IV > I

86. The intermediate during the addition of HCl to propene in the presence of peroxide is.



87.  $\text{CH}_3 - \text{CH} = \text{CH}_2 \xrightarrow{\text{dil/H}_2\text{SO}_4} \text{A}$



Wrong statement about the product is.

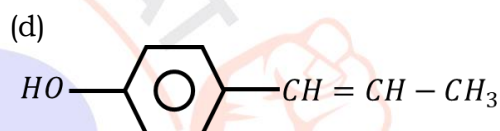
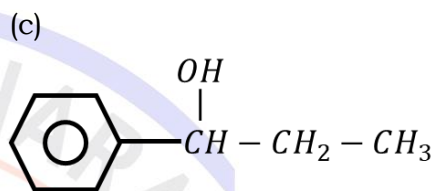
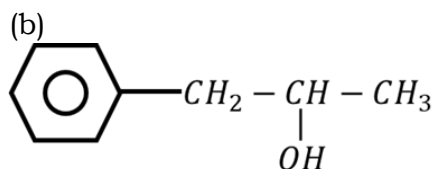
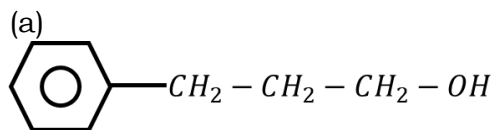
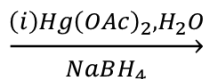
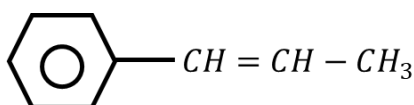
(a) A and B have the same functional group

(b) A and B are position isomers.

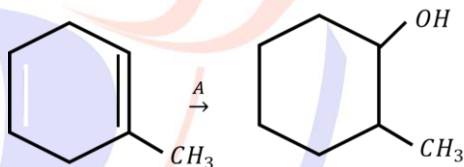
(c) A and B show chain isomerism

(d) Mixed ether is the isomer of both A and B

88. The major product of the following reaction is.



89.



; Reagent 'A' is.

(a)  $\text{BH}_3/\text{H}_2\text{O}_2/\text{OH}^\ominus$

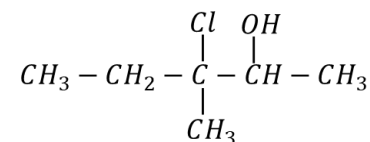
(b)  $\text{H}_2\text{O}/\text{H}^\oplus$

(c)  $\text{Hg}(\text{OCOCH}_3)_2/\text{NaBH}_4$

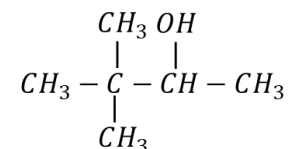
(d)  $\text{Cl}_2/\text{aq. NaOH}$

90. The predominant product formed when 3-methyl-2-pentene reacts with HOCl is.

(a)

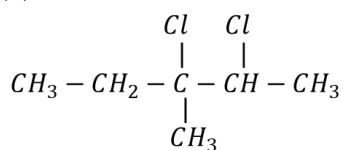


(b)

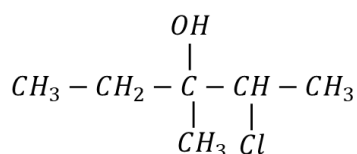




(c)



(d)



91. Propene on addition with HI, gives.

- (a)  $\text{CH}_3 - \text{CHI} - \text{CH}_3$   
(b)  $\text{CH}_3 - \text{CH}_2 - \text{CH}_2\text{I}$   
(c)  $\text{CH}_3 - \text{CHI} - \text{CH}_2\text{I}$   
(d) None of the above

92. Isobutene  $\xrightarrow[\text{H}_2\text{O}_2]{\text{HBr}}$  "product". The product is.

- (a) Isobutyl bromide  
(b) Tert. Butyl bromide  
(c) Tert. Butyl alcohol  
(d) Isobutyl alcohol

93. The order of reactivity of alkyl halides in Wurtz reaction is.

- (a)  $R - I > R - Br > R - Cl$   
(b)  $R - I < R - Br < R - Cl$   
(c)  $R - Br > R - I < R - Cl$   
(d)  $R - I > R - Cl > R - Br$

94. Which of the following acids on decarboxylation gives isobutane.

- (a) 2,2-Dimethyl butanoic acid  
(b) 2,2-dimethyl propanoic acid  
(c) 3-Methyl pentanoic acid  
(d) 2-Methyl butanoic acid

95. When ethyl chloride and n-propyl chloride undergoes wurtz which is not obtained.

- (a) n-butane  
(b) n-pentane  
(c) n-hexane  
(d) Isobutane

96. **Assertion:** Enol form of cyclohexane-1,3,5-trione is more stable than its keto form.

**Reason:** Enol form contains  $\alpha$ -hydrogen atoms.

- (a) If both assertion and reason are true and the reason is a correct explanation of the assertion.

(b) If both assertion and reason are but reason is not a correct explanation of the assertion.

(c) If assertion is true but the reason is false.

(d) If both assertion and reason are false.

97. **Assertion:** Cycloheptatrienyl cation is aromatic.

**Reason:** Aromatic molecules have high degree of thermodynamic stability.

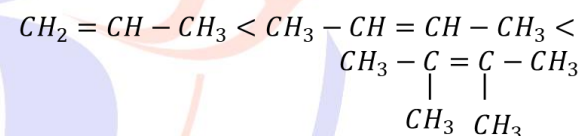
(a) If both assertion and reason are true and the reason is a correct explanation of the assertion.

(b) If both assertion and reason are but reason is not a correct explanation of the assertion.

(c) If assertion is true but the reason is false.

(d) If both assertion and reason are false.

98. **Assertion:** Increasing order of heat of hydrogenation is.



**Reason:** Highly substituted alkenes have less stability.

(a) If both assertion and reason are true and the reason is a correct explanation of the assertion.

(b) If both assertion and reason are but reason is not a correct explanation of the assertion.

(c) If assertion is true but the reason is false.

(d) If both assertion and reason are false.

99. **Assertion:** Baeyer's reagent can be used to distinguish cyclopentane from propene.

**Reason:** Baeyer's reagent is decolourised by propene but not by cyclopentane.

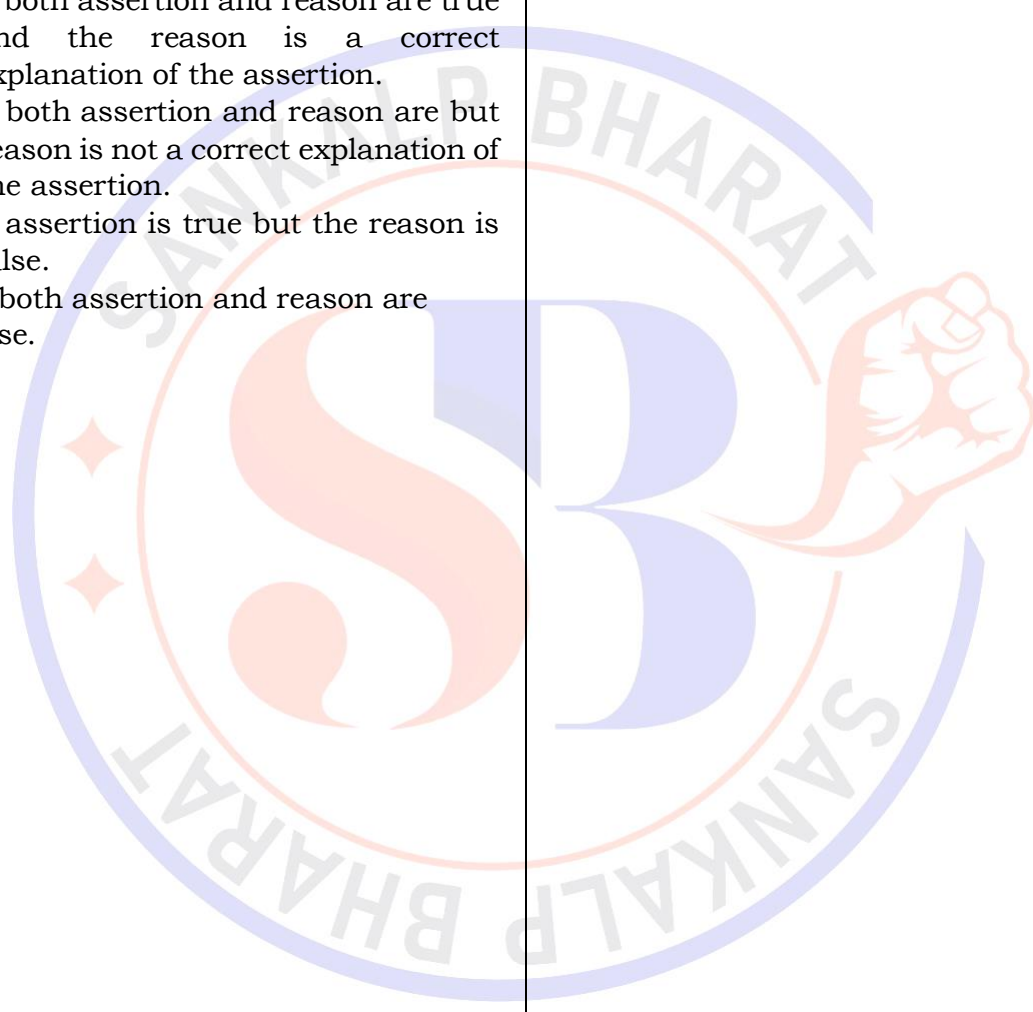
(a) If both assertion and reason are true and the reason is a correct explanation of the assertion.

- (b) If both assertion and reason are true but reason is not a correct explanation of the assertion.
- (c) If assertion is true but the reason is false.
- (d) If both assertion and reason are false.

100. **Assertion:** Excess Chlorination of methane give a mixture of products.

**Reason:** Chlorination proceeds through the formation of carbanion.

- (a) If both assertion and reason are true and the reason is a correct explanation of the assertion.
- (b) If both assertion and reason are true but reason is not a correct explanation of the assertion.
- (c) If assertion is true but the reason is false.
- (d) If both assertion and reason are false.



101. Glucose and galactose are two isomeric monosaccharides. These are known as-
- Anomers
  - Epimers
  - Amino sugars
  - Sugars
102. Sum of reactions that take place in cells are called as
- Redox reaction
  - Catabolism
  - Anabolism
  - Metabolism
103. Example of acid soluble pool are-
- Lipid
  - Glycogen
  - Nucleic acid
  - ATP
104. Example of amino acid with hydroxyl methyl group is-
- Glycine
  - Alanine
  - Serine
  - Adenylic acid
105. Trihydroxy propane is -
- Glycerol
  - Simple fatty acid
  - Monoglyceride
  - Oil
106. **Statement I:** Fructose polymer is Inulin.  
**Statement II:** Fructose is present as glycogen storage structure in animals.
- Statement I is correct and statement II is incorrect.
  - Statement I is incorrect and statement II is correct.
  - Statement I and statement II are correct.
  - Statement I and statement II are incorrect.
107. Phospholipid is a
- Phosphorylated organic compound
  - Compound of cell membrane
  - Lecithin
  - All of them
108. Nucleoside is -
- Adenylic acid
  - Thymidine
  - Thymidylic acid
  - Both a and c
109. Bonds present in tertiary structure of proteins are-
- Ionic bond
  - Peptide bond
  - Hydrogen bond
  - All of them
110. Most abundant lipids present in eukaryotic cell membrane is-
- Glycolipid
  - Phospholipid
  - Cholesterol
  - Lipopolysaccharide
111. **Statement I:** Chitin is complex polysaccharide.  
**Statement II:** Chitin can be found in exoskeleton of arthropod.
- Statement I is correct and statement II is incorrect.
  - Statement I is incorrect and statement II is correct.
  - Statement I and statement II are correct.
  - Statement I and statement II are incorrect.
112. Guanine is a
- Purine
  - Pyrimidine
  - Nitrogenous base
  - Both a and c
113. Mark the incorrect one-
- |     |                      |   |   |
|-----|----------------------|---|---|
| (a) | Primary metabolite   | - | Identifiable function                         |
| (b) | Secondary metabolite | - | Nonidentifiable function                      |
| (c) | Primary metabolite   | - | Play roles in normal physiological processes. |

- (d) Secondary metabolite - Can be analysed in animal cell
114. An alpha helix represent-  
 (a) Primary structure of protein  
 (b) Secondary structure of protein  
 (c) Tertiary structure of protein  
 (d) Aggregation of protein
115. Mark the odd one-  
 (a) Wax - Lipid  
 (b) Pectin - protein  
 (c) Steroid - Lipid  
 (d) Chitin - Polysaccharide
116. Mark the correct one -  
 (a) Morphine - Alkaloid  
 (b) Ricin - Toxins  
 (c) Gums - Lectins  
 (d) Anthocyanins - Pigment
117. Carbonic anhydrase catalyse the reaction of  
 (a) Formation of carbonic acid  
 (b) Formation of carbohydrate  
 (c) Breakdown of carbonic acid  
 (d) Breakdown of carbohydrate
118. **Assertion:** Nucleic acid is macromolecule in the form of polynucleotides.  
**Reason:** nucleic acid is made up of heterocyclic compound nucleotide.  
 (a) If assertion and reason is true and reason is correct explanation of assertion.  
 (b) If assertion and reason is true and reason is not correct explanation of assertion.  
 (c) If assertion is true and reason is false.  
 (d) If assertion and reason is false.
119. Which one of the following is most abundant protein in animal world?  
 (a) Collagen  
 (b) Albumin  
 (c) Haemoglobin  
 (d) RuBisCO
120. Zinc is -  
 (a) Cofactor  
 (b) Prosthetic group  
 (c) Coenzyme  
 (d) Either b or c
121. What is correct for Co-enzyme?  
 (a) Shows transient association with apoenzyme  
 (b) These are organic compound  
 (c) These can serve as co-factors in different enzyme catalysed reactions.  
 (d) All of them
122. Amino acids that are not synthesized in body are -  
 (a) Essential amino acids  
 (b) non-essential amino acids  
 (c) Both of them  
 (d) Deaminated amino acids
123. Extra sugar in plants is stored as  
 (a) Glycogen  
 (b) Galactose  
 (c) Starch  
 (d) Chitin
124. **Statement I:** Nucleic acids are of two types in living organism.  
**Statement II:** Nucleic acids are differentiated on the basis of sugar type.  
 (a) Statement I is correct and statement II is incorrect.  
 (b) Statement I is incorrect and statement II is correct.  
 (c) Statement I and statement II are correct.  
 (d) Statement I and statement II are incorrect.
125. Name the element that is negligible in human body-  
 (a) Magnesium  
 (b) Silicon  
 (c) Hydrogen  
 (d) Sulphur
126. Compounds having ring structure are-  
 (a) Nitrogen bases  
 (b) Protein  
 (c) Ring structure of monosaccharide.  
 (d) Both a and c

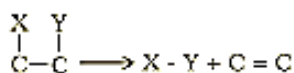


127. From given following biomolecules, which does not have nitrogen in structure-

- I. Nucleic acid
- II. Proteins
- III. Lipids
- IV. Polysaccharide

- (a) Only IV
- (b) I and II
- (c) I and III
- (d) III and IV

128. The given reaction is catalysed by .....enzyme.



- (a) Lyases
- (b) Ligases
- (c) Oxidoreductase
- (d) Hydrolases

129. Oils remain in liquid form in winter because

- (a) They have lower melting point.
- (b) They contain single C-C bond.
- (c) They have unsaturated hydrocarbons
- (d) Both a and c

130. **Assertion:** Most biomolecules that are found in the acid insoluble fractions are macromolecules.

**Reason:** Biomolecules having molecular weight more than 1000 Dalton are known as macromolecules.

- (a) If assertion and reason is true and reason is correct explanation of assertion.
- (b) If assertion and reason is true and reason is not correct explanation of assertion.
- (c) If assertion is true and reason is false.
- (d) If assertion and reason is false.

131. Major portion of dry weight of a plant consist of elements-

- (a) Nitrogen, phosphorus, potassium
- (b) Carbon, nitrogen, hydrogen
- (c) Carbon, hydrogen, oxygen
- (d) Calcium, magnesium, sulphur

132. When we homogenize any tissue in an acid, the acid soluble pool represents-

- (a) Cell membrane
- (b) Cell organs
- (c) Nucleus
- (d) Cytoplasm

133. Match the following-

Column I (Enzyme)		Column II (Function)	
A	Transferases	I	Catalyzing inter-conversion of positional isomers
B	Isomerases	II	Catalyzing hydrolysis of ester bond
C	Hydrolases	III	Catalyzing transfer of group other than hydrogen

- (a) A-III, B-I, C-II
- (b) A-II, B-III, C-I
- (c) A-II, B-I, C-III
- (d) A-I, B-III, C-II

134. Difference between enzyme catalysts and inorganic catalysts has-

- (a) Inorganic catalyst works efficiently at high temperature and high pressure, while enzymes get damaged at high temperature above 40 degrees.
- (b) Enzyme increases the activation energy while inorganic catalyst decreases.
- (c) Enzymes are used up in reaction while inorganic catalysts remain unchanged.
- (d) All of the above.

135. NAD stands for

- (a) Nicotine adenosine phosphate
- (b) Nicotinamide adenosine diphosphate

- (c) Nicotinamide adenine dinucleotide  
(d) None of them

136. Match the column I with column II.

Column I		Column II	
A	NAD	I	Cofactor
B	Haem	II	Coenzyme
C	Zinc	III	Prosthetic group

- (a) A-III, B-I, C-II  
(b) A-II, B-III, C-I  
(c) A-II, B-I, C-III  
(d) A-I, B-III, C-II

137. Choose the incorrect statement regarding enzyme inhibition from given statements

- (a) Competitive inhibition occurs when a substrate competes with enzyme for binding to inhibitor protein.  
(b) Competitive inhibition occurs when the substrate and the inhibitor compete for active site of the enzyme.  
(c) Non-competitive inhibition of an enzyme can be overcome by adding large amount of substrate.  
(d) Non-competitive inhibitors often bind to the enzyme irreversibly.

138. **Assertion:** Physical reactions are referred as change in shape with bond breakage.

**Reason:** In physical process old breaks are broken and new bonds forms.

- (a) If assertion and reason is true and reason is correct explanation of assertion.  
(b) If assertion and reason is true and reason is not correct explanation of assertion.  
(c) If assertion is true and reason is false.  
(d) If assertion and reason is false.

139. Match the following-

Column I (Protein)	Column II (Function)
-----------------------	-------------------------

A	GLUT	I	Hormone
B	Insulin	II	Glucose transport
C	Trypsin	III	Enzyme

- (a) A-III, B-I, C-II  
(b) A-II, B-III, C-I  
(c) A-II, B-I, C-III  
(d) A-I, B-III, C-II

140. What is incorrect about receptor?

- (a) Receptors are protein.  
(b) Receptors fight against infectious agents.  
(c) Receptors perform sensory reception of smell, taste.  
(d) None of them

141. R- group in amino acids can be

- (a) Hydrogen  
(b) Methyl group  
(c) Hydroxyl group  
(d) All a, b, c

142. Mark the incorrect one-

- (a) Primary protein - Similar to revolving staircase  
(b) Secondary protein - Plated structures  
(c) Tertiary protein - Most active functional structure of enzyme  
(d) Quaternary protein - Haemoglobin protein

143. **Statement I:** First amino acid of protein is termed as N-terminal amino acid.

**Statement II:** Last amino acid of protein is termed as C-terminal amino acid.

- (a) Statement I is correct and statement II is incorrect.  
(b) Statement I is incorrect and statement II is correct.  
(c) Statement I and statement II are correct.  
(d) Statement I and statement II are

incorrect.

(d) None of them

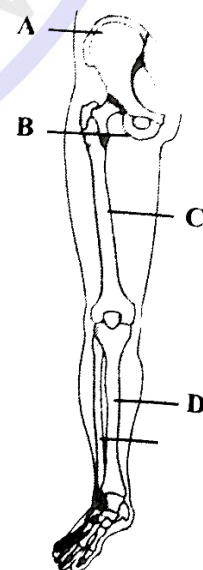
144. Choose the incorrect for monosaccharide-
- (a) Sweet in taste
  - (b) Always ketose
  - (c) Soluble in water
  - (d) Reducing nature
145. Pocket structure of an enzyme is -
- (a) Active site of enzyme
  - (b) Catalytic site in enzyme
  - (c) Cervices in enzyme
  - (d) All of them
146. Ribozyme are
- (a) Any nucleic acid as enzyme
  - (b) Ribonucleic acid as enzyme
  - (c) Deoxyribonucleic acid as enzyme
  - (d) None of them
147. **Assertion:** Cellulose cannot hold iodine in.  
**Reason:** Cellulose does not have complex helix in structure.
- (a) If assertion and reason is true and reason is correct explanation of assertion.
  - (b) If assertion and reason is true and reason is not correct explanation of assertion.
  - (c) If assertion is true and reason is false.
  - (d) If assertion and reason is false.
148. Quaternary structure of proteins is-
- (a) In helix form
  - (b) In Beta sheet form
  - (c) Spheres arranged in form of cube
  - (d) Linear form
149. Rate of reaction is called as velocity if-
- (a) Direction is specified
  - (b) Direction is not specified
  - (c) Direction does not matter
  - (d) None of them
150. Helix of proteins are observed into ..... manner.
- (a) Left-handed
  - (b) Right-handed
  - (c) Right and left both

151. Contractile unit of muscle is part of myofibril between  
 (a) Z-line and I-band  
 (b) Z-line and Z-line  
 (c) Z-line and A-band  
 (d) A-band and I-band
152. **Assertion:** Each myofibril has alternate dark and light bands on it hence striated appearance  
**Reason:** The striated appearance is due to the distribution pattern of two important proteins – Actin and Myosin  
 (a) If both assertion and reason are true and reason is the correct explanation of assertion  
 (b) If both assertion and reason are true but reason is not the correct explanation of assertion  
 (c) If assertion is true but reason is false.  
 (d) If both assertion and reason are false
153. According to sliding filament theory of muscle contraction. The filament that moves to shorten a muscle is  
 (a) Myosin  
 (b) Actin  
 (c) Collagen  
 (d) Creatine phosphate
154. The two ends of the muscles are attached to bone with the help of \_\_\_\_\_. Select the option which fills the blanks correctly.  
 (a) Ligament  
 (b) Cartilage  
 (c) Tendon  
 (d) Myosin
155. Which of the following ribs are not connected ventrally with the sternum and are called floating ribs?  
 (a) First five pairs  
 (b) 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> pairs  
 (c) 11<sup>th</sup> and 12<sup>th</sup> pair  
 (d) 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> pairs
156. Glenoid cavity is associated with  
 (a) Pelvic girdle  
 (b) Coracoid  
 (c) Clavicle  
 (d) Scapula
157. Which of the following is not a synovial joint?  
 (a) Ball and socket joint

- (b) Pivot joint  
 (c) Fibrous joint  
 (d) Saddle joint
158. Which of the following has oxygen storing capacity in muscles?  
 (a) Haemoglobin  
 (b) Myoglobin  
 (c) Rhodopsin  
 (d) Anthocyanin
159. Match the following and choose the correct option from below.

Column I		Column II	
a.	Myasthenia gravis	I	Rapid spasms in muscles
b.	Tetany	II	Inflammation of joint and accumulation of uric acid.
c.	Gout	III	Autoimmune disorder
d.	Osteoporosis	IV	Decreased bone mass and increased chances of fractures

- (a) a-I, b-II, c-I, d-IV  
 (b) a-III, b-I, c-II, d-IV  
 (c) a-II, b-I, c-III, d-IV  
 (d) a-I, b-II, c-III, d-IV
160. Choose the option that correct identifies (a), (b), (c) and (d)





- (a) (a)–Pubis, (b)–Humerus, (c)–Patella, (d)–Tibia  
 (b) (a)–Coxal bone, (b)–Femur, (c)–Patella (d)–Fibula  
 (c) (a)–Ilium, (b)–Ischium (c)–femur,(d)–Tibia  
 (d) (a)–Ilium, (b)–Femur, (c)–Ligament, (d)–Tibia
161. Passage of ova in a specific direction along oviduct is facilitated by  
 (a) Flagellar movement  
 (b) Voluntary muscular movement  
 (c) Ciliary movement  
 (d) Amoeboid movement
162. The movement which results in change of place or location is called  
 (a) Locomotion  
 (b) Protoplasmic streaming  
 (c) Extensibility  
 (d) Elasticity
163. Amoeba shows movement with help of  
 (a) Pseudopodia  
 (b) Flagella  
 (c) Cilia  
 (d) Muscle
164. \_\_\_\_\_ Circulate blood to different parts of the body  
 (a) Peristaltic movement of oesophagus  
 (b) Pumping of heart  
 (c) Peristaltic movement of intestine  
 (d) Ciliary movement of oviduct
165. The muscle is a specialized tissue which originates from  
 (a) Endoderm  
 (b) Mesoderm  
 (c) Ectoderm  
 (d) Yolk sac
166. A single bundle of muscle fibre is called  
 (a) Fascia  
 (b) Glenoid cavity  
 (c) Myocyte  
 (d) Fasciculus
167. Ligament connect  
 (a) Muscle to bone  
 (b) Bone to vertebral column  
 (c) Bone to bone  
 (d) Bone to cartilage
168. ATP binding site is located on—  
 (a) Tropomyosin

- (b) Actin  
 (c) Myosin  
 (d) Troponin
169. Head of humerus articulates with \_\_\_\_\_ cavity  
 (a) Glenoid  
 (b) Acetabulum  
 (c) Foramen Magnum  
 (d) Obturator foramen
170. Match the following

Column I		Column II	
a.	Incus	I	Hammer shaped
b.	Malleus	II	Stirrup shaped
c.	Stapes	III	Anvil shaped

- (a) (a)–III, (b)–II, (c)–I  
 (b) (a)–II, (b)–I, (c)–III  
 (c) (a)–I, (b)–III, (c)–II  
 (d) (a)–III, (b)–I, (c)–II
171. **Statement-I:** Each coxal bone in man is formed by the fusion of three bones namely ilium, ischium and pubis  
**Statement-II:** At the point of fusion of the above listed bones is a cavity called glenoid, with which the thigh bone articulates.  
 Select the correct option.  
 (a) Statement II is correct.  
 (b) Statement I is incorrect.  
 (c) Both statement I and II are correct  
 (d) Statement I is correct while statement II is incorrect
172. Which one of the following is the correct description of the given part of human skeleton?  
 (a) The 9<sup>th</sup> and 10<sup>th</sup> pairs of ribs are called vertebrosternal ribs  
 (b) First vertebra is atlas which articulates with the occipital condyles  
 (c) Each pelvic girdle comprises one clavicle and one scapula  
 (d) The number of sacral vertebrae is five in both adults and foetus
173. Select the activity which would essentially involve movement but not result in locomotion?  
 (a) Walking  
 (b) Climbing  
 (c) Talking

- (d) Swimming
174. Sliding filament model of muscle contraction suggests that, the polymerized molecules that move to shorten a muscle are those of
- Troponin
  - Collagen
  - Actin
  - Myosin vv
175. Ions essential for muscle contraction are stored in
- Sarcoplasm
  - Sarcoplasmic reticulum
  - Sphaerosomes
  - Sarcosomes
176. The neurotransmitter usually released between a motor neuron and muscle cell is
- Serotonin
  - Dopamine
  - GABA
  - Acetylcholine
177. A single, U-shaped bone present at the base of the buccal cavity is
- Hyoid
  - Mandible
  - Sphenoid
  - Occipital
178. Some voluntary movements which result in a change of place of location are called
- Translocation
  - Transmutation
  - Transformation
  - Locomotion
179. Which of the following muscles are primarily involved in locomotory action and changes of body postures?
- Skeletal muscles
  - Visceral muscles
  - Cardiac muscles
  - Both (a) and (b)
180. How many of the following features belong to skeletal muscles?
1. Striped appearance
  2. Voluntary nature
  3. Under the voluntary control of nervous system
  4. Primarily involved in locomotory actions
- One
  - Two
  - Three
  - Four
181. Each sarcomere is formed by
- 2 A bands and 2 I bands
  - 2 A bands and 1 I bands
  - 1 A bands and 2 I bands
  - 1 A bands and 2 half I bands
182. During muscular contraction, the myosin head binds to the exposed active sites on actin to form a
- Motor unit
  - Motor end plate
  - Cross bridge
  - Cross arm
183. Which elements are involved in muscle contraction?
- $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$
  - $\text{Ca}^{2+}$  and  $\text{Na}^{+}$
  - $\text{Na}^{+}$  and  $\text{K}^{+}$
  - $\text{Mg}^{2+}$  and  $\text{K}^{+}$
184. Red muscles fibers are rich in
- Golgi bodies
  - Mitochondria
  - Lysosomes
  - Ribosomes
185. Number of bones in cranium face, hyoid and middle ear are respectively
- 14, 8, 1 and 3
  - 8, 14, 1 and 6
  - 3, 8, 14 and 1
  - 14, 8, 3 and 1
186. Shape of the bone present at the base of buccal cavity is
- J-shaped
  - U-shaped
  - L-shaped
  - S-shaped
187. Number of vertebrae in human skeleton is
- 30
  - 32
  - 26
  - 35
188. Which one of the following shows the correct sequential order of vertebrae in the vertebral column of human beings?
- Cervical — Lumbar — Thoracic — Sacral — Coccygeal

- (b) Cervical — Thoracic — Sacral — Lumbar — Coccygeal  
 (c) Cervical — Sacral — Thoracic — Lumbar — Coccygeal  
 (d) Cervical — Thoracic — Lumbar — Sacral — Coccygeal
189. Which of the following disorders affects the neuromuscular junction (NMJ) leading to fatigue, weakening and paralysis of skeletal muscle?  
 (a) Myasthenia gravis  
 (b) Muscular dystrophy  
 (c) Osteoporosis  
 (d) Tetany
190. Which one of the following pair is incorrect?  
 (a) Hinge joint -Between humerus and pectoral girdle  
 (b) Pivot joint-Between atlas and axis  
 (c) Gliding joint-Between the carpals  
 (d) Saddle joint-Between carpel and metacarpals of thumb
191. Knee joint and elbow joints are examples of  
 (a) Saddle joint  
 (b) Ball and socket joint  
 (c) Pivot joint  
 (d) Hinge joint
192. Role of a calcium ion  $\text{Ca}^{2+}$  in muscle contraction  
 (a) It opens up a binding site for a myosin head on a thin filament  
 (b) It opens up a binding site for an actin molecule on a thick filament  
 (c) It binds to a myosin head  
 (d) Its release from a myosin head initiates a power stroke
193. Match the columns:

Column I	Column II
A. Heavy Meromyosin	1. Thin filament
B. Light Meromyosin	2. Globular head of myosin
C. Actin	3. Tail of myosin

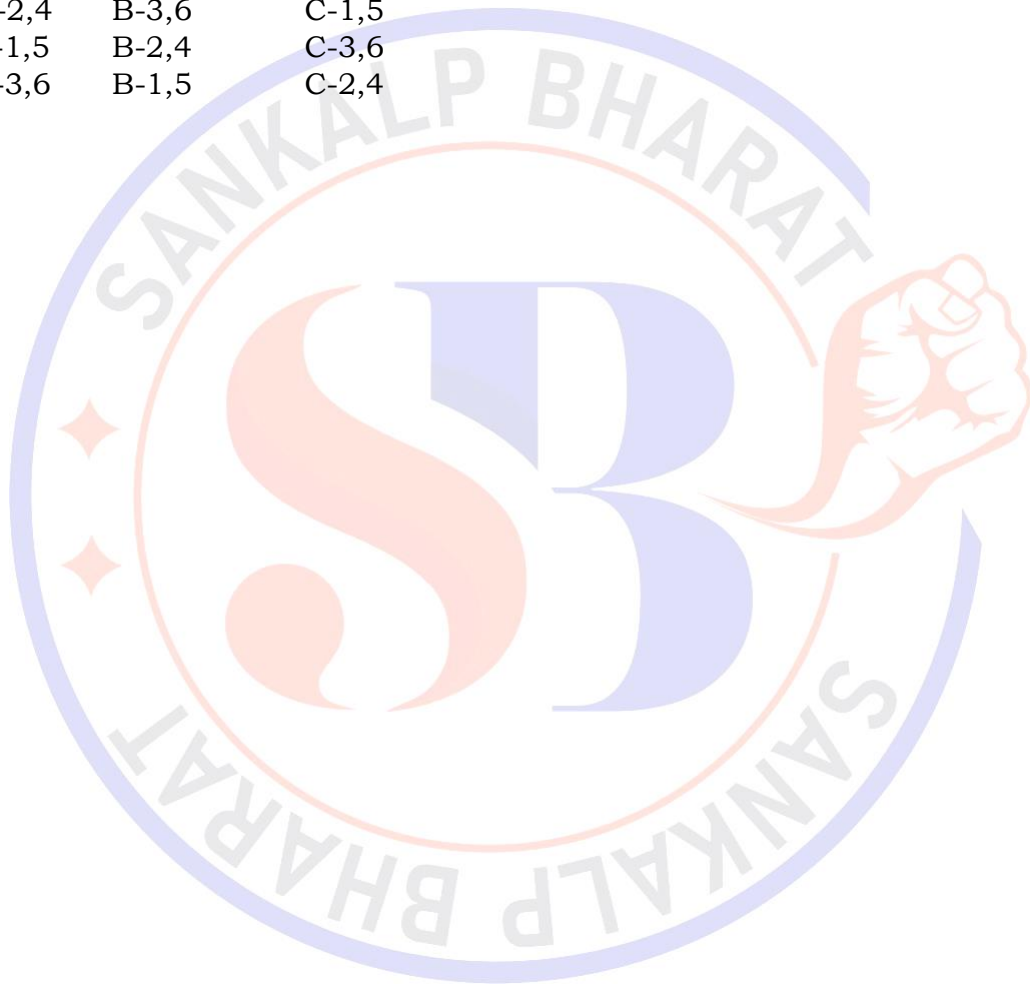
- (a) A-2      B-3      C-1  
 (b) A-2      B-1      C-3  
 (c) A-1      B-3      C-2  
 (d) A-1      B-2      C-3
194. Muscles with characteristic striations and involuntary are the:

- (a) Muscles in the wall of alimentary canal  
 (b) Muscles of the heart  
 (c) Muscles assisting locomotion  
 (d) Muscles of the diaphragm
195. An acromian process is characteristically found in the  
 (a) Pelvic girdle of mammals  
 (b) Pectoral girdle of mammals  
 (c) Skull of frog  
 (d) Sperm of frog
196. **Statement 1:** Axial skeleton comprises 80 bones distributed along the main axis of the body  
**Statement 2:** Sternum is a flat bone on the ventral midline of thorax  
 (a) Both the statements are correct  
 (b) Statement I is correct but statement II is incorrect  
 (c) Statement II is correct but statement I is incorrect  
 (d) Both the statements are incorrect
197. Which of the following is not a function of the skeletal system?  
 (a) Production of blood cells  
 (b) Storage of minerals  
 (c) Storage of carbohydrates  
 (d) Protection of vital organs
198. Arrange the following steps of muscle contraction in a proper sequence  
 A. Binding of  $\text{Ca}^{2+}$  with troponin  
 B. Generation of action potential in sarcolemma  
 C. Singal reaches motor end plate  
 D. Formation of cross-bridges  
 E. Release of  $\text{Ca}^{2+}$  in sarcoplasm  
 (a) C — E — B — A — D  
 (b) C — B — E — A — D  
 (c) B — C — A — D — E  
 (d) B — A — C — D — E
199. 'X' is a large triangular flat bone situated in the dorsal part of the thorax between the 'Y' and the seventh ribs Identify "X" and "Y"  
 (a) X – Patella; Y – Third  
 (b) X – Clavicle; Y – Eight  
 (c) x – Scapula; Y – Sixth  
 (d) X – Scapula; Y – Second

200. Match column-I with column-II and select the correct option from the codes given below.

Column I		Column II	
A.	Humerus	1.	Thigh
B.	Pectoral girdle	2.	Upper arm
C.	Femur	3.	Clavicle
		4.	Acetabulum
		5.	Glenoid cavity
		6.	Scapula

- (a) A-2,5    B-3,6    C-1,4  
(b) A-2,4    B-3,6    C-1,5  
(c) A-1,5    B-2,4    C-3,6  
(d) A-3,6    B-1,5    C-2,4





## Answer Key

S1. Ans. (a)

S2. Ans. (b)

S3. Ans. (b)

S4. Ans. (a)

S5. Ans. (d)

S6. Ans. (c)

S7. Ans. (a)

S8. Ans. (b)

S9. Ans. (a)

S10. Ans. (a)

S11. Ans. (c)

S12. Ans. (a)

S13. Ans. (d)

S14. Ans. (b)

S15. Ans. (a)

S16. Ans. (d)

S17. Ans. (a)

S18. Ans. (c)

S19. Ans. (b)

S20. Ans. (b)

S21. Ans. (d)

S22. Ans. (b)

S23. Ans. (b)

S24. Ans. (a)

S25. Ans. (c)

S26. Ans. (b)

S27. Ans. (d)

S28. Ans. (a)

S29. Ans. (c)

S30. Ans. (b)

S31. Ans. (a)

S32. Ans. (a)

S33. Ans. (a)

S34. Ans. (a)

S35. Ans. (c)

S36. Ans. (d)

S37. Ans. (c)

S38. Ans. (d)

S39. Ans. (c)

S40. Ans. (d)

S41. Ans. (d)

S42. Ans. (c)

S43. Ans. (c)

S44. Ans. (a)

S45. Ans. (c)

S46. Ans. (b)

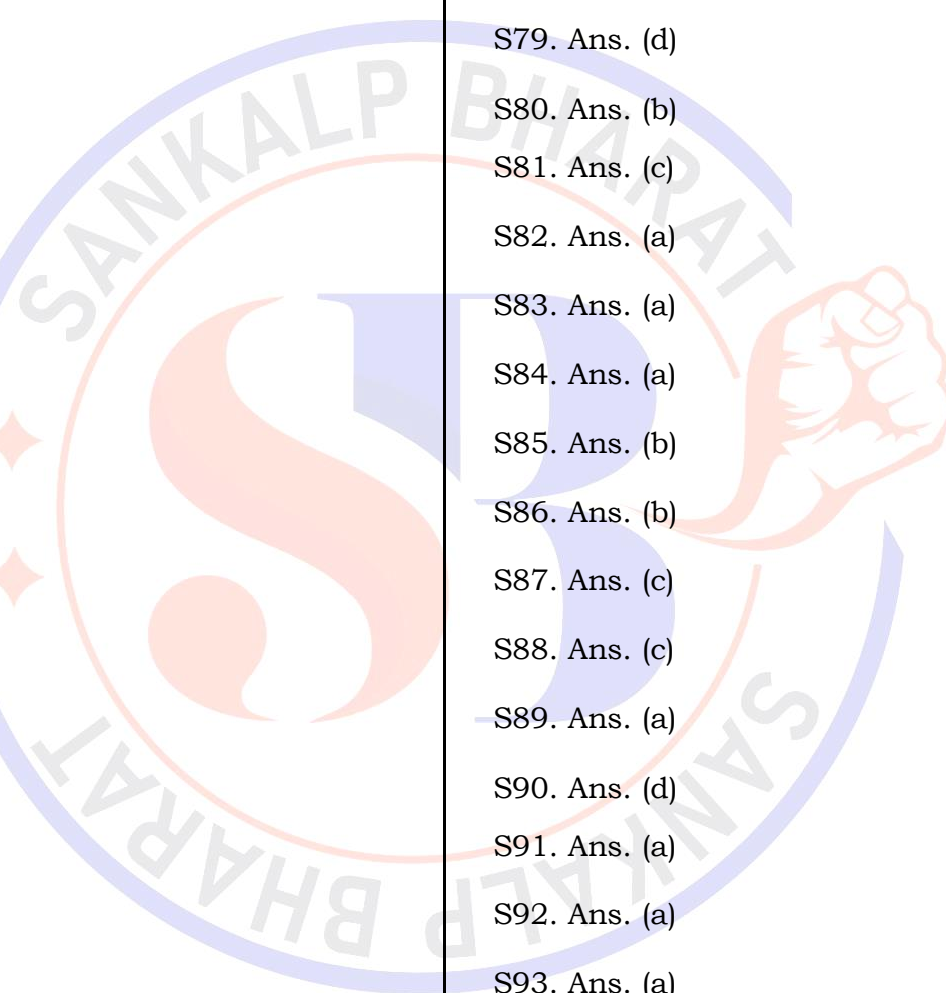
S47. Ans. (c)

S48. Ans. (b)



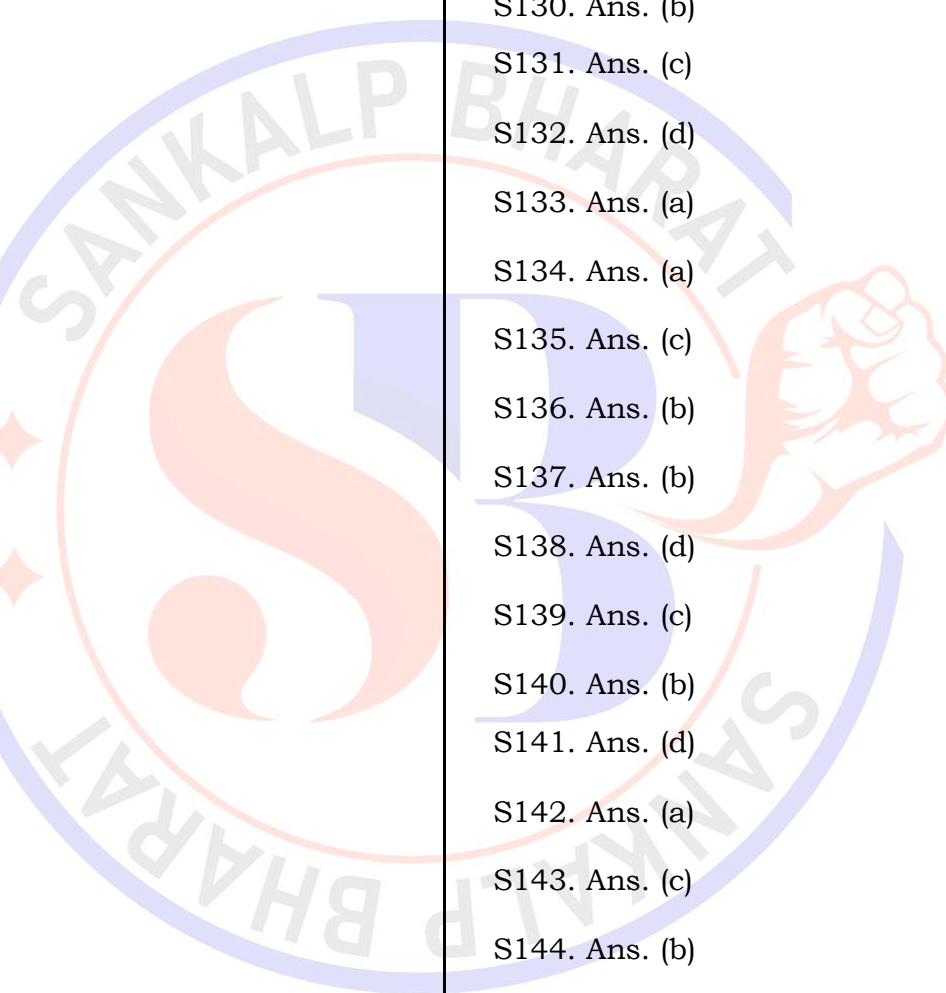
S49. Ans. (b)  
S50. Ans. (a)  
S51. Ans. (d)  
S52. Ans. (b)  
S53. Ans. (c)  
S54. Ans. (d)  
S55. Ans. (b)  
S56. Ans. (c)  
S57. Ans. (a)  
S58. Ans. (b)  
S59. Ans. (a)  
S60. Ans. (c)  
S61. Ans. (b)  
S62. Ans. (a)  
S63. Ans. (d)  
S64. Ans. (a)  
S65. Ans. (b)  
S66. Ans. (a)  
S67. Ans. (a)  
S68. Ans. (b)  
S69. Ans. (d)  
S70. Ans. (b)  
S71. Ans. (a)  
S72. Ans. (c)  
S73. Ans. (a)

S74. Ans. (c)  
S75. Ans. (b)  
S76. Ans. (c)  
S77. Ans. (a)  
S78. Ans. (c)  
S79. Ans. (d)  
S80. Ans. (b)  
S81. Ans. (c)  
S82. Ans. (a)  
S83. Ans. (a)  
S84. Ans. (a)  
S85. Ans. (b)  
S86. Ans. (b)  
S87. Ans. (c)  
S88. Ans. (c)  
S89. Ans. (a)  
S90. Ans. (d)  
S91. Ans. (a)  
S92. Ans. (a)  
S93. Ans. (a)  
S94. Ans. (b)  
S95. Ans. (d)  
S96. Ans. (b)  
S97. Ans. (b)  
S98. Ans. (d)



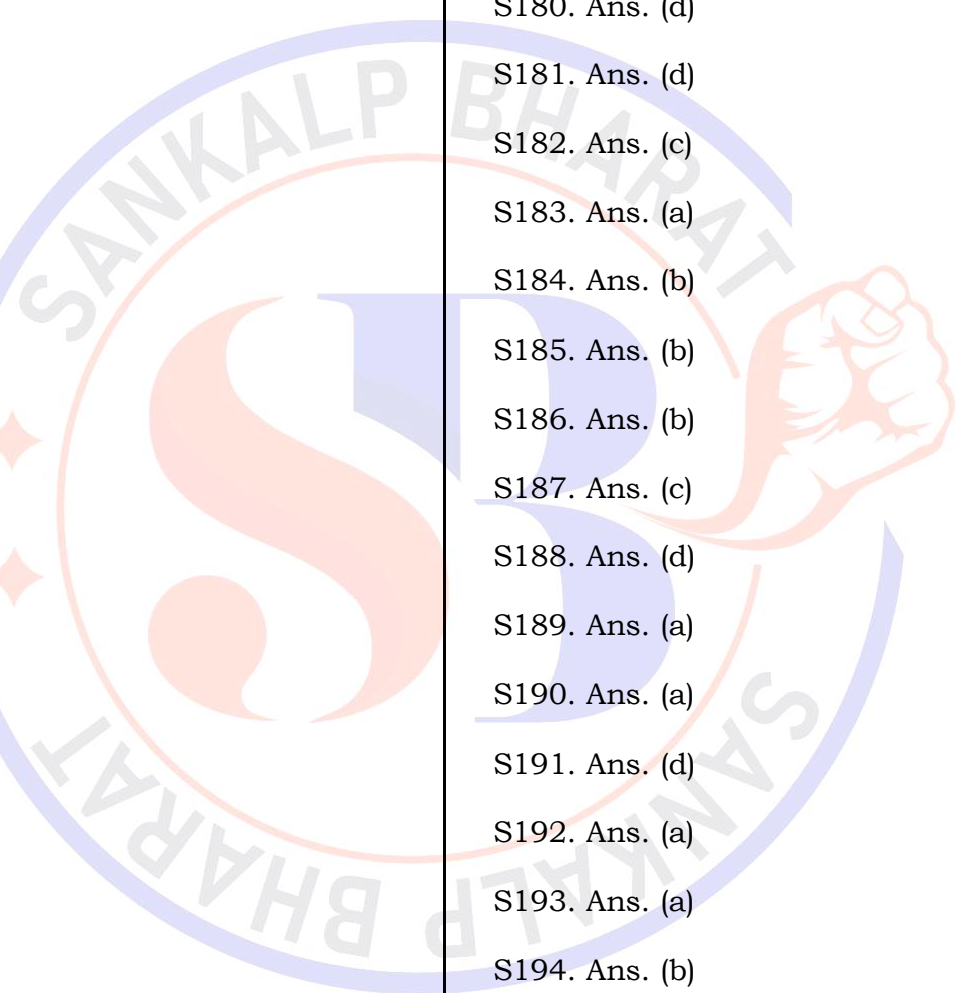
S99. Ans. (a)  
S100. Ans. (c)  
S101. Ans. (b)  
S102. Ans. (d)  
S103. Ans. (d)  
S104. Ans. (c)  
S105. Ans. (a)  
S106. Ans. (a)  
S107. Ans. (d)  
S108. Ans. (b)  
S109. Ans. (d)  
S110. Ans. (b)  
S111. Ans. (c)  
S112. Ans. (d)  
S113. Ans. (d)  
S114. Ans. (b)  
S115. Ans. (c)  
S116. Ans. (c)  
S117. Ans. (a)  
S118. Ans. (b)  
S119. Ans. (a)  
S120. Ans. (a)  
S121. Ans. (d)  
S122. Ans. (a)  
S123. Ans. (c)  
S124. Ans. (c)

S125. Ans. (b)  
S126. Ans. (d)  
S127. Ans. (d)  
S128. Ans. (a)  
S129. Ans. (d)  
S130. Ans. (b)  
S131. Ans. (c)  
S132. Ans. (d)  
S133. Ans. (a)  
S134. Ans. (a)  
S135. Ans. (c)  
S136. Ans. (b)  
S137. Ans. (b)  
S138. Ans. (d)  
S139. Ans. (c)  
S140. Ans. (b)  
S141. Ans. (d)  
S142. Ans. (a)  
S143. Ans. (c)  
S144. Ans. (b)  
S145. Ans. (d)  
S146. Ans. (b)  
S147. Ans. (a)  
S148. Ans. (c)  
S149. Ans. (a)



S150. Ans. (b)  
S151. Ans. (b)  
S152. Ans. (a)  
S153. Ans. (b)  
S154. Ans. (c)  
S155. Ans. (c)  
S156. Ans. (d)  
S157. Ans. (c)  
S158. Ans. (b)  
S159. Ans. (b)  
S160. Ans. (c)  
S161. Ans. (c)  
S162. Ans. (a)  
S163. Ans. (a)  
S164. Ans. (b)  
S165. Ans. (b)  
S166. Ans. (d)  
S167. Ans. (d)  
S168. Ans. (c)  
S169. Ans. (a)  
S170. Ans. (d)  
S171. Ans. (d)  
S172. Ans. (b)  
S173. Ans. (c)  
S174. Ans. (c)

S175. Ans. (b)  
S176. Ans. (d)  
S177. Ans. (a)  
S178. Ans. (d)  
S179. Ans. (a)  
S180. Ans. (d)  
S181. Ans. (d)  
S182. Ans. (c)  
S183. Ans. (a)  
S184. Ans. (b)  
S185. Ans. (b)  
S186. Ans. (b)  
S187. Ans. (c)  
S188. Ans. (d)  
S189. Ans. (a)  
S190. Ans. (a)  
S191. Ans. (d)  
S192. Ans. (a)  
S193. Ans. (a)  
S194. Ans. (b)  
S195. Ans. (b)  
S196. Ans. (a)  
S197. Ans. (c)  
S198. Ans. (b)  
S199. Ans. (d)





S200. Ans. (a)

