

# National Testing Agency

|                              |                                         |
|------------------------------|-----------------------------------------|
| <b>Question Paper Name :</b> | ICMR Biochemistry 14th Sep 2024 Shift 2 |
| <b>Subject Name :</b>        | ICMR Biochemistry                       |
| <b>Creation Date :</b>       | 2024-09-14 18:16:41                     |
| <b>Duration :</b>            | 120                                     |
| <b>Total Marks :</b>         | 150                                     |
| <b>Display Marks:</b>        | Yes                                     |

## Biochemistry

|                                 |         |
|---------------------------------|---------|
| <b>Group Number :</b>           | 1       |
| <b>Group Id :</b>               | 7495722 |
| <b>Group Maximum Duration :</b> | 0       |
| <b>Group Minimum Duration :</b> | 120     |
| <b>Show Attended Group? :</b>   | No      |
| <b>Edit Attended Group? :</b>   | No      |
| <b>Break time :</b>             | 0       |
| <b>Group Marks :</b>            | 150     |

## Section A General Aptitude

|                                              |           |
|----------------------------------------------|-----------|
| <b>Section Id :</b>                          | 7495724   |
| <b>Section Number :</b>                      | 1         |
| <b>Section type :</b>                        | Online    |
| <b>Mandatory or Optional :</b>               | Mandatory |
| <b>Number of Questions :</b>                 | 42        |
| <b>Number of Questions to be attempted :</b> | 42        |
| <b>Section Marks :</b>                       | 50        |
| <b>Maximum Instruction Time :</b>            | 0         |
| <b>Sub-Section Number :</b>                  | 1         |
| <b>Sub-Section Id :</b>                      | 7495726   |
| <b>Question Shuffling Allowed :</b>          | No        |

**Question Id : 749572153 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No Question Pattern Type : NonMatrix**

**Question Numbers : (1 to 5)**

Question Label : Comprehension

Read the passage and answer the questions that follow :

The opportunity that beckons India is to make optimal use of technology, management, entrepreneurship and investments to overcome the challenges of this decade and beyond. Yesterday's goals cannot be a benchmark as India contemplates graduating to the company of the developed nations of the world. Our targets must be higher, our coverage more inclusive and above all, the methods to achieve must be unique.

Since, Independence, India as a nation has indeed made massive progress in almost every social and economic field. But, as we strive to have an economically developed nation by 2020, each incremental step opens up new vistas before us. After every few pages, we mark our place in history, heading for a new chapter of challenges not experienced earlier.

Following a steady decline in world income – from about 33 per cent in 0 CE to around 25 per cent in 1600 CE – India's share declined even further during the British Raj, falling sharply from about 16 per cent in 1820 CE, to less than 4 per cent at the time of Independence. Since Independence, there has been a steady rise in income, and the per capita national product has increased by more than five times, from Rs. 5,700 in 1950 to about Rs. 32,000 in 2008, and today, India's share in world income – purchasing power parity (PPP) – stands at about 6.3 per cent. But while the economy has been growing steadily and poverty, as a percentage, declining steadily, the absolute number of people below the poverty line has been constant.

### Sub questions

**Question Number : 1 Question Id : 749572154 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

According to the passage, use of the phrase "make optimal use of" means :

- (1) set a higher benchmark for growth
- (2) using the methods effectively and efficiently
- (3) experiment with new challenges
- (4) mark our place in history

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 2 Question Id : 749572155 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which word in the given passage means "without interruption"?

- |                |              |
|----------------|--------------|
| (1) Consistent | (2) Steady   |
| (3) Optimal    | (4) Constant |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 3 Question Id : 749572156 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

What does India need to become a developed nation?

- (A) Take rapid and incremental steps towards progress
- (B) Contemplate on only yesterday's goals
- (C) Make thoughtful usage of technology in various fields
- (D) Work steadily on economic indicators
- (E) Set higher, inclusive and unique targets

Choose the correct answer from the options given below :

- |                        |                        |
|------------------------|------------------------|
| (1) (A), (B), (C) only | (2) (B), (D), (E) only |
| (3) (A), (D), (E) only | (4) (C), (D), (E) only |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 4 Question Id : 749572157 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements :

Statement I : Since Independence, there has been a steady rise in income and the increase of per capita national product by five times from ₹ 5,700 in 1947 to about ₹ 32,000 in 2008.

Statement II : Poverty has declined while the economy has grown but the absolute number of people below poverty line has been constant.

In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) Both Statement I and Statement II are correct
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 5 Question Id : 749572158 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Read the given passage and Match List I with List II.

| List I (India's share in world GDP) | List II (Year) |
|-------------------------------------|----------------|
| (A) 16 percent                      | (I) 0 CE       |
| (B) 33 percent                      | (II) 1820 CE   |
| (C) 25 percent                      | (III) 1947 CE  |
| (D) 4 percent                       | (IV) 1600 CE   |

Choose the correct options given below :

- (1) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)
- (2) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)
- (3) (A)-(II), (B)-(I), (C)-(IV), (D)-(III)
- (4) (A)-(IV), (B)-(II), (C)-(III), (D)-(I)

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Sub-Section Number :** 2  
**Sub-Section Id :** 7495727  
**Question Shuffling Allowed :** No

**Question Id : 749572159 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No Question Pattern Type : NonMatrix Question Numbers : (6 to 10) Question Label : Comprehension**

Read the following passage and answer the questions that follow :

Let us discuss coal, another fossil fuel. Even though India has abundant quantities of coal, it is constrained by regional locations, a high ash content that affects the thermal efficiency of our power plants, besides which there are also environmental concerns. Thus, a movement towards energy independence would demand accelerated work in the production of energy from the coal sector through integrated gasification and a combined cycle route.

In 2030, the total energy requirement of the nation is expected to be 4,00,000 MW. By that time, if we were to follow the present route, the power generated from coal-based power plants would increase from the existing 80,000 MW to 2,00,000 MW. This would demand a significant build-up of thermal power stations and a large-scale expansion of coal fields, leading, naturally, to much higher levels of pollution.

The hydel capacity generated through normal water sources and by the interlinking of rivers is expected to contribute an additional 50,000 MW. Numerous large-scale solar energy farms with a capacity of hundreds of megawatts could together contribute around 55,000 MW. The nuclear power plants should have a target of 50,000 MW of power. At least 64,000 MW of electrical power should come from wind energy. The balance 51,000 MW has to be generated through conventional thermal plants, through coal and gas, and renewable sources of energy such as biomass, through burning municipal solid waste and solar thermal power. The most significant aspect, however, is that the power generated through renewable energy technologies has to be increased to 28 per cent from the present 5 per cent.

### Sub questions

**Question Number : 6 Question Id : 749572160 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

To meet the energy requirements of the nation, the power generation through renewable energy technologies should be :

- (1) increased from 80,000 MW to 4,00,000 MW
- (2) covering the remaining balance of 51,000 MW generated through various modes
- (3) accelerated through integrated gasification and combined cycle route
- (4) increased by 23 percent from the present 5 percent

### Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 7 Question Id : 749572161 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which word in the passage is the antonym of "rare"?

- |                 |                |
|-----------------|----------------|
| (1) existing    | (2) numerous   |
| (3) significant | (4) additional |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 8 Question Id : 749572162 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following factor(s) are a reason behind the constrained utilization of coal as a fuel for generating energy?

- (A) low thermal efficiency of our power plants
- (B) regional locations
- (C) lack of integrated gasification
- (D) high ash content
- (E) environmental concerns

Choose the correct answer from the options given below :

- (1) (A), (B), (C) only
- (2) (B), (C), (D) only
- (3) (B), (D), (E) only
- (4) (B), (D), (A) only

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 9 Question Id : 749572163 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements that are based on the passage mentioned above :

Statement I : To meet the expected energy requirements in 2030, the power generation through renewable energy technologies has to be increased by percent.

Statement II : The balance 51,000 MW will be generated through conventional thermal plants.

In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) Both Statement I and Statement II are correct
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 10 Question Id : 749572164 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Match List I with List II on the basis of the passage mentioned above :

| List I (Power) | List II (Energy Source) |
|----------------|-------------------------|
| (A) 50,000 MW  | (I) Wind energy         |
| (B) 55,000 MW  | (II) Thermal energy     |
| (C) 51,000 MW  | (III) Hydel energy      |
| (D) 64,000 MW  | (IV) Solar energy       |

Choose the correct options given below :

- (1) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)
- (2) (A)-(II), (B)-(III), (C)-(IV), (D)-(I)
- (3) (A)-(III), (B)-(II), (C)-(IV), (D)-(I)
- (4) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)

**Options :**

- 1. 1
- 2. 2
- 3. 3

4. 4

Sub-Section Number :

Sub-Section Id :

Question Shuffling Allowed :

3

7495728

Yes

**Question Number : 11 Question Id : 749572165 Question Type : MCQ Option Shuffling : No**  
**Correct Marks : 1 Wrong Marks : 0.25**

If it was Saturday on 17<sup>th</sup> December, 2002, what was the day on 26<sup>th</sup> December 2004?

- (1) Monday

(2) Sunday

(3) Tuesday

(4) Thursday

**Options :**

1. 1

2. 2

3. 3

4. 4

**Question Number : 12 Question Id : 749572166 Question Type : MCQ Option Shuffling : No**  
**Correct Marks : 1 Wrong Marks : 0.25**

Study the given pattern and select the number that can replace question mark in the given matrix :

|    |     |   |
|----|-----|---|
| 11 | 103 | 9 |
| 13 | 157 | 6 |
| 15 | ?   | 7 |

- (1) 175

(2) 196

(3) 211

(4) 225

**Options :**

1. 1

2. 2

3. 3

4. 4

**Question Number : 13 Question Id : 749572167 Question Type : MCQ Option Shuffling : No**  
**Correct Marks : 1 Wrong Marks : 0.25**

If in a certain code language 'FRIEND' is written as 'JPMCRB', 'UNCLE' is written as 'YLGJI', then what will be the code for 'LEADER'?

- |            |            |
|------------|------------|
| (1) QCDBIP | (2) PDFBDL |
| (3) PCEBIP | (4) RBFCNR |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 14 Question Id : 749572168 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Find the missing number from the given alternatives.

$$\begin{array}{c} 9 \\ 5 \quad \bigcirc \quad 3 \\ 6 \end{array}$$

$$\begin{array}{c} 8 \\ 4 \quad \bigcirc \quad 2 \\ 3 \end{array}$$

$$\begin{array}{c} 11 \\ 3 \quad \bigcirc \quad 1 \\ 2 \end{array}$$

- |        |        |
|--------|--------|
| (1) 41 | (2) 56 |
| (3) 67 | (4) 79 |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 15 Question Id : 749572169 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

If,  $P \times Q$  means P is the husband of Q.

$P + Q$  means P is the father of Q.

$P - Q$  means P is the mother of Q.

$P \div Q$  means P is the sister of Q.

Then, which of the following relations shows that C is the paternal grandfather of D?

(1)  $C \times B - E \div D + A$

(2)  $C + A \times B \div E \div D$

(3)  $C + B \times A - E \div D$

(4)  $C \times B \div E + A - D$

**Options :**

1. 1

2. 2

3. 3

4. 4

**Question Number : 16 Question Id : 749572170 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In this question a number series is given. Choose the correct alternative that will continue the same pattern and replace the question mark in the given series.

856, 849, 824, 763, ?, 431

(1) 681

(2) 642

(3) 535

(4) 495

**Options :**

1. 1

2. 2

3. 3

4. 4

**Question Number : 17 Question Id : 749572171 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Sunita starts from her home towards North. After walking 15 meters, she turned to her right and walked 55 meters. Then she turned to her left and after walking a distance of 20 meters turned to her left again and walked 67 meters. What is the shortest distance between her home and final position and what is the direction of final position with respect to her home?

(1) 26 m, North-West

(2) 35 m, North-East

(3) 37 m, North-West

(4) 49 m, North-East

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 18 Question Id : 749572172 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Seven friends A, B, C, D, E, F and G are sitting on a straight bench all facing north. There are exactly three friends sitting between A and B. D is sitting to the left of B. Only one friend is sitting to the left of A. B is sitting immediately left of F. Only one friend is sitting between D and A. Who is sitting at the extreme right end?

- |       |       |
|-------|-------|
| (1) E | (2) F |
| (3) C | (4) D |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 19 Question Id : 749572173 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

BSNT : Y X G C :: M X R V : ? :: F P C Y : C U V H

- |          |          |
|----------|----------|
| (1) JDKE | (2) JCKD |
| (3) JCKE | (4) JCLE |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 20 Question Id : 749572174 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

A cube is painted black on two adjacent faces and on one apposite face, yellow on two apposite faces and green on the remaining face. It is then cut into 64 equal cubes. How many cubes have one black coloured face only?

- |        |        |
|--------|--------|
| (1) 12 | (2) 24 |
| (3) 16 | (4) 8  |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 21 Question Id : 749572175 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In the given question, two statements are given followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance from the commonly known facts and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

Statements : All Hammers are pliers. All screws are pliers.

Conclusions I : Some hammers are screws.

II : Some screws are hammers is a possibility.

- (1) Both Conclusions I and II follow
- (2) Both Conclusions I and II do not follow
- (3) Conclusion I follows but conclusion II does not follow
- (4) Conclusion I does not follow but conclusion II follows

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 22 Question Id : 749572176 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In this question there is a statement followed by two assumptions numbered I and II. You have to consider the statement and the following assumptions and decide which of the assumption(s) is/are implicit in the statement.

Statement : Rohan always studies from the reference books of publication X for his competitive exams.

Assumptions I : Many of the questions asked in competitive exams are from the reference books of publication X.

II : Studying from reference books are necessary for competitive exams.

- (1) Only Assumption I is implicit
- (2) Only Assumption II is implicit
- (3) Neither assumption I nor II is implicit
- (4) Both assumptions I and II are implicit

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 23 Question Id : 749572177 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Following table provides the marks obtained by four friends in five different subjects. Maximum marks in each subject are 100.

| Friends | Physics | Chemistry | Mathematics | English | Physical Education |
|---------|---------|-----------|-------------|---------|--------------------|
| Rahul   | 89      | 92        | 79          | 81      | 90                 |
| Vinay   | 75      | 96        | 85          | 86      | 92                 |
| Abeer   | 94      | 90        | 89          | 77      | 90                 |
| Sudesh  | 93      | 91        | 84          | 86      | 92                 |

Who has scored exactly 88% marks in total?

- (1) Rahul
- (2) Vinay
- (3) Abeer
- (4) Sudesh

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 24 Question Id : 749572178 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In this question there is a statement, followed by two courses of action numbered I and II. You have to assume everything in the statement to be true and on the basis of the information given in the statement, decide which of the suggested courses of action logically follow(s) for pursuing.

Statement :                      A large number of people got ill due to eating cut fruits from road side shops.

Courses of Action I.        Municipal corporation should penalize the road side vendors if they sell cut fruits.

II.        People should be made aware about the dangers of eating cut fruits sold in open.

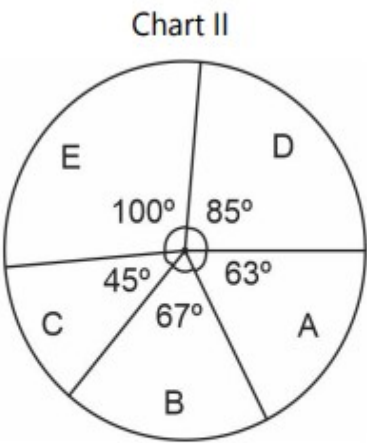
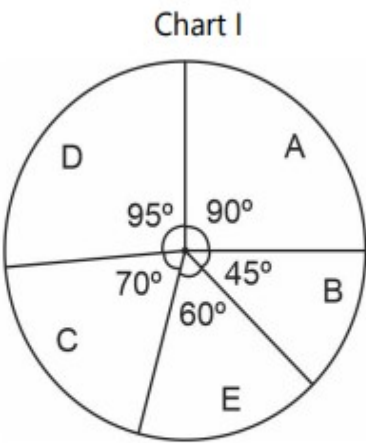
- (1)    Only I follows
- (2)    Only II follows
- (3)    Neither I nor II follows
- (4)    Both I and II follow

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 25 Question Id : 749572179 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The following pie chart show the distribution of students appearing in the Board examination (Chart I) and the students who have passed the Board examination (Chart II) from the different schools A, B, C, D and E.



Total number of students appeared = 1800

Which school has the lowest percentage of students passed with respect to those appeared?

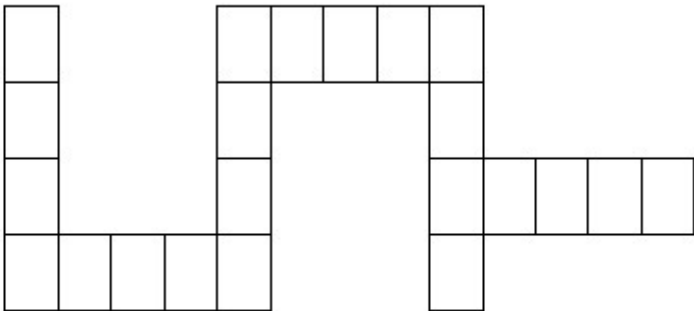
- (1) A
- (2) B
- (3) C
- (4) D

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 26 Question Id : 749572180 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25

How many rectangles are there in the given figure?



- (1) 65
- (2) 70
- (3) 75
- (4) 80

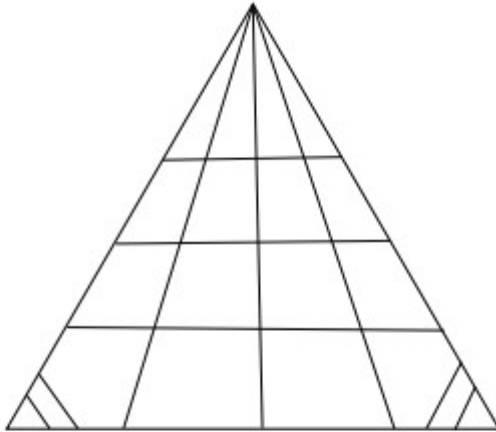
Options :

1. 1

- 2. 2
- 3. 3
- 4. 4

**Question Number : 27 Question Id : 749572181 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

How many triangles are there in the given figure?



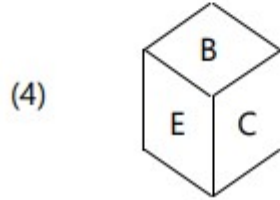
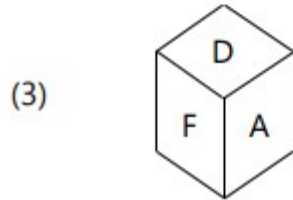
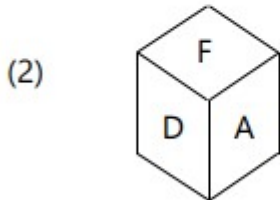
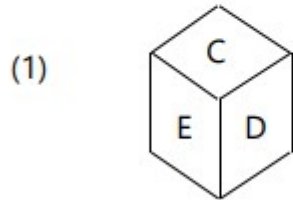
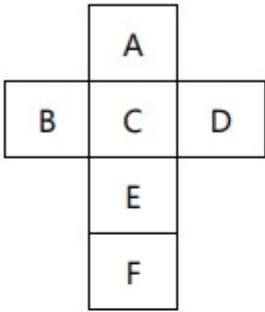
- |        |        |
|--------|--------|
| (1) 26 | (2) 34 |
| (3) 44 | (4) 46 |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 28 Question Id : 749572182 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Select the box that cannot be formed by folding the given unfolded box.

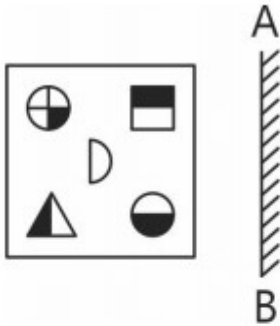


Options :

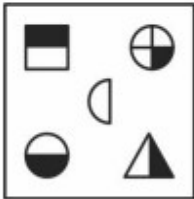
- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 29 Question Id : 749572183 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25

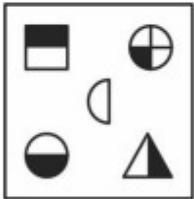
Choose the correct mirror image of the given figure when the mirror is placed at line AB.



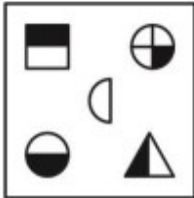
(1)



(2)



(3)



(4)

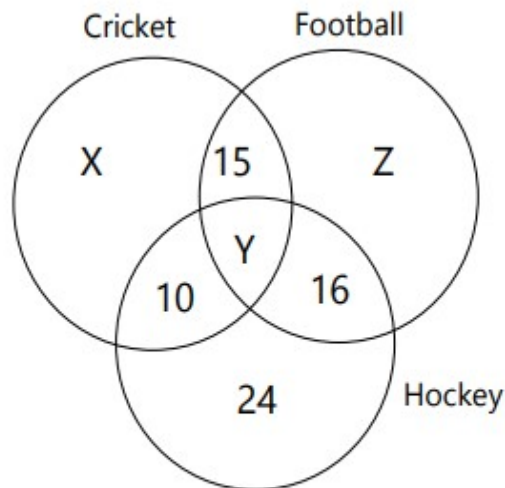


Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 30 Question Id : 749572184 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25

Study the Venn diagram and answer the question. The alphabets and numbers in different sections indicate the number of persons who play different games in a school.



If the total number of persons who play games in the school is 108 and the number of persons who play at least two games is 54, find the number of persons who play all the three games.

- |        |        |
|--------|--------|
| (1) 11 | (2) 13 |
| (3) 19 | (4) 21 |

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 31 Question Id : 749572185 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25

If 'AMAN' is written as 'CLCM' in a certain code then in the same code 'ARUN' is written as

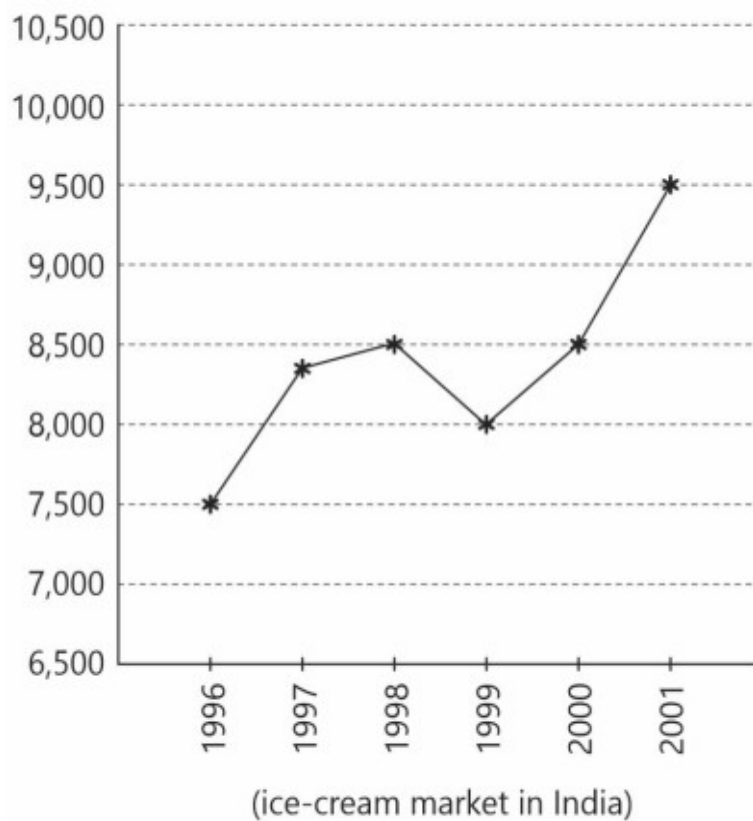
- |          |          |
|----------|----------|
| (1) CQWO | (2) CQVM |
| (3) CPWM | (4) CQWM |

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 32 Question Id : 749572186 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25

Direction : Refer the chart below and answer the question. What is annual average rate of increase in the ice-cream market from 1996 to 2001?



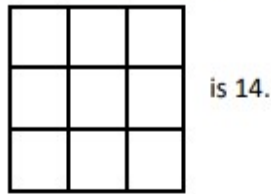
- |           |            |
|-----------|------------|
| (1) 5.33% | (2) 26.67% |
| (3) 6.67% | (4) 10%    |

**Options :**

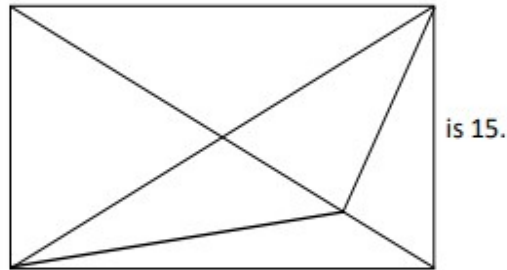
1. 1
2. 2
3. 3
4. 4

**Question Number : 33 Question Id : 749572187 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Statement I : The number of squares in the figure.



Statement II : The number of triangles in the figure.



In the light of the above statements, choose the correct answer from the options given below :

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is true but statement II is false
- (4) Statement I is false but statement II is true

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 34 Question Id : 749572188 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Statement I : The mirror-image of U T Z F Y 6 K H is H K Ø Y J Σ T U.

Statement II : The water-image of D 6 Z 7 F 4 is D Ø Σ Δ E ¶.

In the light of above statements, choose the correct answer from the options given below :

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is true but statement II is false
- (4) Statement I is false but statement II is true

**Options :**

- 1. 1

2. 2
3. 3
4. 4

**Question Number : 35 Question Id : 749572189 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

If '−' means '÷' means '+' means '×', '÷' means '−', '×' means '+', then which of the following equations is correct?

- (1)  $52 \div 4 + 5 \times 8 - 2 = 36$
- (2)  $43 \times 7 \div 5 + 4 - 8 = 25$
- (3)  $36 \times 4 - 12 + 5 \div 3 = 420$
- (4)  $36 - 12 \times 6 \div 3 + 4 = 60$

**Options :**

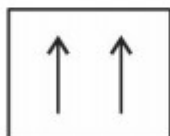
1. 1
2. 2
3. 3
4. 4

**Question Number : 36 Question Id : 749572190 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

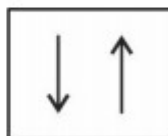
Complete the figure matrix.

|     |     |     |
|-----|-----|-----|
| ↑ ↑ | ↑ ↓ | ↓ ↑ |
| ↑ → | ↑ ← | ↓ → |
| ↑ ↓ | ?   | ↓ ↓ |

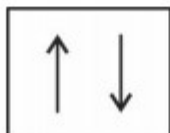
(1)



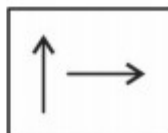
(2)



(3)



(4)



**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 37 Question Id : 749572191 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

A cube whose two adjacent faces are coloured is cut into 64 identical small cubes.  
How many of these small cubes are not coloured at all?

- |        |        |
|--------|--------|
| (1) 60 | (2) 48 |
| (3) 36 | (4) 32 |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 38 Question Id : 749572192 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

A dealer marks his goods at 20% above the cost price and allows a discount of 16% on the marked price. What is his gain percentage?

- |          |           |
|----------|-----------|
| (1) 1%   | (2) 2%    |
| (3) 0.8% | (4) 0.08% |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 39 Question Id : 749572193 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

If  $2a = 3b = 4c = 6d$ , then value of  $\frac{a^2 + b^2}{c^2 + d^2}$ , is :

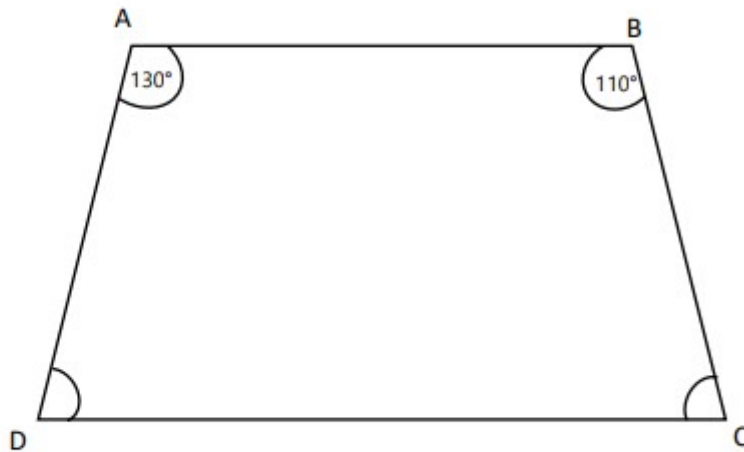
- |                   |                   |
|-------------------|-------------------|
| (1) $\frac{2}{3}$ | (2) 4             |
| (3) $\frac{1}{6}$ | (4) $\frac{7}{3}$ |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 40 Question Id : 749572194 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In trapezium  $ABCD$ , in which  $AB \parallel DC$ ,



$\angle A = 130^\circ$  and  $\angle B = 110^\circ$ . What is the value of  $\angle C - \angle D$ ?

- |                 |                |
|-----------------|----------------|
| (1) $10^\circ$  | (2) $20^\circ$ |
| (3) $-20^\circ$ | (4) $40^\circ$ |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 41 Question Id : 749572195 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In a town, 65% people watched the news on television, 40% read a newspaper and 25% read a newspaper and watched the news on television also. What percent of the people neither watched the news on television nor read a newspaper?

- |        |        |
|--------|--------|
| (1) 10 | (2) 14 |
| (3) 16 | (4) 20 |

**Options :**

1. 1
2. 2
3. 3

4. 4

**Question Number : 42 Question Id : 749572196 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

- (A) The missing term of the series  
4, 8, 28, 80, 244, ? , is 728.
- (B) The missing term of the alphabet series  
UPI, SHJ, ODP, MBQ, ? is IAV.
- (C) The missing term of the letter – number series  
Q1F, S2E, U6D, W21C, ? is Y88B.
- (D) The missing term of the letter – number series  
D–4, F–6, H–8, J–10, ? is L–22

Choose the correct answer from the options given below :

- (1) (A) and (C) only
- (2) (A), (B) and (C) only
- (3) (B), (C) and (D) only
- (4) (B) and (D) only

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 43 Question Id : 749572197 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The ratio of the ages of man and his wife is 4 : 3. After 4 years, this ratio will be 9 : 7. If at the time of their marriage, the ratio of their ages was 5 : 3, then how many years ago were they married?

- |        |        |
|--------|--------|
| (1) 8  | (2) 10 |
| (3) 12 | (4) 15 |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 44 Question Id : 749572198 Question Type : MCQ Option Shuffling : No**

**Correct Marks : 1 Wrong Marks : 0.25**

Read the following information and answer the question :

Alka is older than Mala. Gopal is older than Mala but younger than Alka. Kapil is younger than Ram and Mala. Mala is older than Ram.

- (A) Mala's age is between Gopal and Ram.
- (B) Gopal age is between Mala and Kapil.
- (C) Mala lies in the middle.
- (D) Alka is the youngest.
- (E) Kapil is the eldest.

Choose the correct answer from the options given below :

- (1) (C) and (E) only
- (2) (B), (D) and (E) only
- (3) (A), (C) and (D) only
- (4) (A) and (C) only

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 45 Question Id : 749572199 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Direction : Study the table carefully and answer the question :

Number of washing machines and refrigerators manufactured by a company.

|                 | 2005  | 2006  | 2007  | 2008  | 2009  |
|-----------------|-------|-------|-------|-------|-------|
| Washing machine | 14400 | 20500 | 12800 | 16400 | 18600 |
| Refrigerator    | 12800 | 24700 | 19200 | 20200 | 14900 |

Find, what was the difference in the total number of washing machines and refrigerators manufactured in 2006 to the total number of washing machines and refrigerators manufactured in 2008?

- (1) 6,800
- (2) 5,600
- (3) 8,600
- (4) 8,200

**Options :**

- 1. 1
- 2. 2

3. 3

4. 4

**Question Number : 46 Question Id : 749572200 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements :

Statement I : A compound interest on a certain sum for 2 years at 10% per annum is ₹ 525. The simple interest on the same sum for double the time at half the rate percent per annum is ₹ 500.

Statement II : The respective ratio of milk and water in the mixture is 4 : 3. If 6 litres of water is added to this mixture, the respective ratio of milk and water becomes 8 : 7, then the quantity of milk in the original mixture is 24 litres.

In the light of the above statements, choose the most appropriate answer from the options :

- (1) Both Statement I and Statement II are correct
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but statement II is incorrect
- (4) Statement I is incorrect but statement II is correct

**Options :**

1. 1

2. 2

3. 3

4. 4

**Question Number : 47 Question Id : 749572201 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

If  $x + \frac{1}{x} = 10$ , then what is the value of  $\left(x^2 - \frac{1}{x^2}\right)^2$ ?

- |           |           |
|-----------|-----------|
| (1) 9,600 | (2) 9,604 |
| (3) 9,608 | (4) 9,610 |

**Options :**

1. 1

2. 2

3. 3

4. 4

**Question Number : 48 Question Id : 749572202 Question Type : MCQ Option Shuffling : No**

**Correct Marks : 1 Wrong Marks : 0.25**

A sector of a circle of radius 6 cm is formed with central angle  $60^\circ$ . What will be its area (in  $\text{cm}^2$ )? (Here ' $\pi$ ' refers to  $\frac{22}{7}$ )

(1)  $\frac{3}{4}\pi$

(2)  $\frac{5}{4}\pi$

(3)  $6\pi$

(4)  $12\pi$

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 49 Question Id : 749572203 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

How many four digit numbers can be formed by using the digits 0, 1, 3, 7 if repetition of digits are allowed?

(1) 160

(2) 500

(3) 2400

(4) 2500

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 50 Question Id : 749572204 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

What is the difference between simple interest and compound interest on sum ₹ 10,000 at the rate of 10% per annum for the period of two years?

(1) ₹ 110

(2) ₹ 100

(3) ₹ 150

(4) ₹ 160

**Options :**

1. 1
2. 2
3. 3
4. 4

## Section B Cross Disciplinary

|                                       |           |
|---------------------------------------|-----------|
| Section Id :                          | 7495725   |
| Section Number :                      | 2         |
| Section type :                        | Online    |
| Mandatory or Optional :               | Mandatory |
| Number of Questions :                 | 50        |
| Number of Questions to be attempted : | 50        |
| Section Marks :                       | 50        |
| Maximum Instruction Time :            | 0         |
| Sub-Section Number :                  | 1         |
| Sub-Section Id :                      | 7495729   |
| Question Shuffling Allowed :          | Yes       |

**Question Number : 51 Question Id : 749572205 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

A short microtubular organelle projecting into extra cellular medium used for locomotion

- |                  |                |
|------------------|----------------|
| (1) Cisternae    | (2) Cilium     |
| (3) Pesudopodium | (4) Basal Body |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 52 Question Id : 749572206 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Organelle that is involved in carbohydrate digestion, autophagy, hydrolysis etc.

- |                |                  |
|----------------|------------------|
| (1) Golgi body | (2) Nucleus      |
| (3) Lysosome   | (4) Mitochondria |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 53 Question Id : 749572207 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Microtubular protein having ATPase activity and required for movement

- |              |                 |
|--------------|-----------------|
| (1) Ecdysone | (2) Fibronectin |
| (3) Dynein   | (4) Sarcopin    |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 54 Question Id : 749572208 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following principle of bioethics emphasizes the importance of minimizing harm and maximizing benefits in health care decisions?

- |                 |                     |
|-----------------|---------------------|
| (1) Justice     | (2) Autonomy        |
| (3) Beneficence | (4) Non-maleficence |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 55 Question Id : 749572209 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following ethical principle supports the idea that health care resources should be distributed fairly among individuals and communities?

- |                     |                      |
|---------------------|----------------------|
| (1) Confidentiality | (2) Informed consent |
| (3) Justice         | (4) Beneficence      |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 56 Question Id : 749572210 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Match List I with List II.

| List I                                                           | List II       |
|------------------------------------------------------------------|---------------|
| (A) Released by anterior pituitary and affects the adrenal gland | (I) FSH       |
| (B) Influences extracellular fluid volume                        | (II) Oxytocin |
| (C) Stimulates estrogen secretion and egg maturation in females  | (III) ADH     |
| (D) Causes uterine contractions during child birth               | (IV) ACTH     |

Choose the correct options given below :

- (1) (A)-(II), (B)-(IV), (C)-(III), (D)-(I)
- (2) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
- (3) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)
- (4) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 57 Question Id : 749572211 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements :

Statement I : An endocrine gland releases substances through tubes or ducts.

Statement II : An exocrine gland releases substances it makes directly into the fluid bathing the glands.

In the light of the above statements, choose the correct answer from the options given below :

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is true but statement II is false
- (4) Statement I is false but statement II is true

**Options :**

1. 1
2. 2

3. 3

4. 4

**Question Number : 58 Question Id : 749572212 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Match List I with List II.

| List I              | List II                                                    |
|---------------------|------------------------------------------------------------|
| (A) Mechanoreceptor | (I) Detects change in water volume of a solution           |
| (B) Nociceptor      | (II) Responds to heat or cold                              |
| (C) Osmoreceptor    | (III) Detects tissue damage                                |
| (D) Thermoreceptor  | (IV) Detects changes in pressure, position or acceleration |

Choose the correct answer from the options given below :

- (1) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
- (2) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)
- (3) (A)-(II), (B)-(I), (C)-(IV), (D)-(III)
- (4) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)

**Options :**

1. 1

2. 2

3. 3

4. 4

**Question Number : 59 Question Id : 749572213 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following connective tissues has a matrix of collagen and elastin fibres in a rubbery ground substance?

- |               |           |
|---------------|-----------|
| (1) Adipose   | (2) Bone  |
| (3) Cartilage | (4) Blood |

**Options :**

1. 1

2. 2

3. 3

4. 4

**Question Number : 60 Question Id : 749572214 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

All of the following acts as anaphylotoxins EXCEPT

- |         |         |
|---------|---------|
| (1) C3a | (2) C4a |
| (3) C5a | (4) C6a |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 61 Question Id : 749572215 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The mechanism by which B cells ensure that only one heavy and one light chain allele is translated is referred to as

- |                        |                         |
|------------------------|-------------------------|
| (1) Co-dominance       | (2) Allelic exclusion   |
| (3) Isotypic selection | (4) Idiotypic selection |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 62 Question Id : 749572216 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements regarding Major Histocompatibility Complex (MHC).

Statement I : MHC I contains two different polypeptide chains –  $\alpha$  chain and  $\beta$  chain.

Statement II : MHC I is present on all nucleated cells.

In the light of the above two statements, select the most appropriate answer from the options given below :

- (1) Both Statement I and Statement II are correct
- (2) Statement I is correct but Statement II is incorrect
- (3) Statement I is not correct but Statement II is correct
- (4) Both Statement I and Statement II are not correct

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 63 Question Id : 749572217 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The function of the 3' to 5' exonuclease activity of a DNA polymerase is to :

- (1) Remove the 5' end of the polynucleotide strand that is attached to the template strand that is being copied
- (2) Remove incorrect nucleotides from the newly synthesized strand of DNA
- (3) Remove damaged nucleotide from the template strand during DNA synthesis
- (4) Remove nucleotides from the ends of DNA molecules to ensure the generation of blunt ends

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 64 Question Id : 749572218 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Identify which of the following tests is the most convincing to identify a gene as oncogene or tumor suppressor gene.

- (1) Transgenic mice overexpressing the candidate oncogene and knock-out mice lacking the candidate tumor suppressor gene
- (2) Transgenic mice overexpressing the candidate tumor suppressor gene and knock-out mice lacking the candidate oncogene
- (3) Transgenic mice that overexpresses the candidate oncogene and tumor suppressor gene
- (4) Knockout mice that lacks the candidate oncogene and tumor suppressor gene

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 65 Question Id : 749572219 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

A study is done on a mammalian cell line that has a doubling time of 24 hours. These cells are synchronized in G1 and then labeled for 2 days with BrdU (an analog of thymidine). At the end of labeling period, chromosomal DNA is isolated from the cells and its density analyzed by equilibrium centrifugation in cesium chloride gradients. Which of the following patterns would be expected to be seen? (H = heavy, L = light)

- |                       |                      |
|-----------------------|----------------------|
| (1) 100% H/H          | (2) 100% H/L         |
| (3) 50%, H/H, 50% H/L | (4) 50% H/H, 50% L/L |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 66 Question Id : 749572220 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Identify the correct order in which extra-cellular signals are transmitted.

- (A) Adenylate cyclase
- (B) cAMP
- (C) Protein kinase A

Choose the correct answer from the options given below :

- |                   |                   |
|-------------------|-------------------|
| (1) (A), (B), (C) | (2) (C), (B), (A) |
| (3) (A), (C), (B) | (4) (B), (C), (A) |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 67 Question Id : 749572221 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following is not a function of the lysosomes?

- (1) Engulf worn-out components of the cells
- (2) Engulf exogeneous substances
- (3) Suicidal bags
- (4) Power generating units

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 68 Question Id : 749572222 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements :

Statement I : In Anaphase I, homologous chromosomes separate which sister chromatids remain together.

Statement II : In Anaphase II, chromosomes line up along the metaphase plate.

In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) Both Statement I and Statement II are correct
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 69 Question Id : 749572223 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The function of the hepatic portal circulation is to :

- (1) carry toxins to the venous system for disposal through the urinary tract
- (2) hormone distribution
- (3) collect absorbed nutrients for metabolic processing or storage
- (4) transfer bile to the liver from the pancreas

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 70 Question Id : 749572224 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following statements is incorrect?

- (1) Aldosterone stimulates the reabsorption of  $\text{Na}^+$
- (2) Aldosterone affects water resorption
- (3) Aldosterone is made in the hypothalamus and released from the anterior pituitary
- (4) Aldosterone stimulates the secretion of  $\text{K}^+$

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 71 Question Id : 749572225 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Regarding BLAST (Basic Local Alignment Search Tool) all the following statements are correct EXCEPT :

- (1) The tool is used to compare newly sequenced genomic DNA to known sequences stored in various databases
- (2) Once aligned the result is showed as output of three lines : Query, Sbject (Subject) and human sequence
- (3) Access to BLAST is provided by NCBI
- (4) BLAST report also provides an 'Expect' value or E value based on number of matches

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 72 Question Id : 749572226 Question Type : MCQ Option Shuffling : No**

**Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements ; in which one is Assertion (A) and the other one is Reason (R) :

Assertion (A) : Cri du chat syndrome is a classical example of endopolyploidy in human.

Reasoning (R) : In Cri du chat syndrome there is partial monosomy resulting from small terminal deletion involving chromosome 5.

In the light of above statements choose the correct answer :

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (3) (A) is true but (R) is false
- (4) (A) is false but (R) is true

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 73 Question Id : 749572227 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements :

Statement I : The genetic code is written in linear form with three nucleotide letters, thus referred as triplet code.

Statement II : The coding system is highly variable, in different organisms one triplet code can specify different amino acids in different organisms.

In the light of the above statements, choose the correct answer from the options :

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is true but statement II is false
- (4) Statement I is false but statement II is true

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 74 Question Id : 749572228 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In a pedigree, the first person identified to be suffering from a genetic disease is called as :

- |                |                |
|----------------|----------------|
| (1) Consultant | (2) Proband    |
| (3) Kindred    | (4) Consultand |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 75 Question Id : 749572229 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Two hypothetical SNPs (Single Nucleotide Polymorphism) in humans are 4 map units (m.u.) apart. The allele at SNP1 can be A or T ; the allele at SNP2 can be C or G. A male with genotype AG/TC and a female with genotype AC/AC have a child. What is the probability they have a child with genotype AG/AC?

- |         |         |
|---------|---------|
| (1) 96% | (2) 4%  |
| (3) 48% | (4) 16% |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 76 Question Id : 749572230 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The clover leaf structure is a unique feature of which of the following molecules?

- |                             |                             |
|-----------------------------|-----------------------------|
| (1) 28S subunit of ribosome | (2) Unspliced mRNA molecule |
| (3) Spliced tRNA molecule   | (4) Pre-processed sno RNA   |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 77 Question Id : 749572231 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

An autosomal recessive condition affects 1 new born in 10,000. What is the expected frequency of carriers?

- |                |               |
|----------------|---------------|
| (1) 198/10,000 | (2) 99/10,000 |
| (3) 1/100      | (4) 99/100    |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 78 Question Id : 749572232 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The Hardy Weinberg principle is integral to population genetics. All of the following options can disturb the Hardy Weinberg equilibrium EXCEPT

- |                   |                           |
|-------------------|---------------------------|
| (1) Random mating | (2) Mutation              |
| (3) Gene Flow     | (4) Small population size |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 79 Question Id : 749572233 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In genetic linkage, the concept of recombination fraction is very important, of the characteristics given here, choose the correct ones.

- (A) Recombination fraction is usually designated as  $\theta$  (theta)
  - (B) It is the measure of the distance separating two loci on different chromosomes
  - (C) It gives an indication of the likelihood that a cross-over will occur between the two loci
  - (D) Genes at loci are not linked then  $\theta = 0.5$
  - (E) Genes at unlinked loci will segregate together during 20% of all meiosis
- |                   |                   |
|-------------------|-------------------|
| (1) (B), (C), (E) | (2) (A), (D), (E) |
| (3) (A), (C), (D) | (4) (A), (B), (C) |

**Options :**

- 1. 1

- 2. 2
- 3. 3
- 4. 4

**Question Number : 80 Question Id : 749572234 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The process of genetic counselling involves various steps. These steps have been randomised and listed below. From the options given below, choose the correct sequence in which the counselling steps should be undertaken/performed.

- (A) Risk assessment
- (B) Diagnosis based on history and investigation
- (C) Long term contact and support group
- (D) Discussion of options

- (1) (B), (D), (C), (A)
- (2) (B), (A), (D), (C)
- (3) (A), (B), (C), (D)
- (4) (B), (C), (A), (D)

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 81 Question Id : 749572235 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In which stage of the cell cycle, the cells double their amount of DNA?

- |              |              |
|--------------|--------------|
| (1) G1 phase | (2) G2 phase |
| (3) M phase  | (4) S phase  |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 82 Question Id : 749572236 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In Eukaryotes, citric acid cycle takes place in

- |                  |                  |
|------------------|------------------|
| (1) Nucleus      | (2) Cytoplasm    |
| (3) Mitochondria | (4) Golgi bodies |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 83 Question Id : 749572237 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

What is the approximate molecular mass of polypeptide containing 100 amino acid residues?

- |               |               |
|---------------|---------------|
| (1) 300 Da    | (2) 11,000 Da |
| (3) 30,000 Da | (4) 110 Da    |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 84 Question Id : 749572238 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Human genomic DNA isolated with concentration of 400 µg/ml, needs to be digested with restriction enzyme Bam H1 (2000 U/ml). Investigator needs to set reaction with 10 µg of genomic DNA with 10 units of enzyme. How much volume (in µl – micro litre) needs to be drawn from the two stock solutions respectively to get 10 µg of DNA and 10 U of enzyme?

- (1) DNA stock – 25µl Enzyme – 5 µl
- (2) DNA stock – 35µl Enzyme – 7.5 µl
- (3) DNA stock – 27.5µl Enzyme – 7.5 µl
- (4) DNA stock – 10µl Enzyme – 10 µl

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 85 Question Id : 749572239 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Match the List I with List II.

| List I                                   | List II                                         |
|------------------------------------------|-------------------------------------------------|
| (A) Taq DNA polymerase                   | (I) used to make cDNA                           |
| (B) MMLV Reverse Transcriptase           | (II) used to phosphorylate oligos or DNA        |
| (C) RNA polymerase II                    | (III) used to amplify DNA                       |
| (D) T <sub>4</sub> polynucleotide kinase | (IV) Transcription particularly of mRNA, LncRNA |

Choose the correct options given below :

- (1) (A)-(IV), (B)-(III), (C)-(II), (D)-(I)
- (2) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)
- (3) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
- (4) (A)-(III), (B)-(I), (C)-(IV), (D)-(II)

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 86 Question Id : 749572240 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Select the correct primer pair of forward and reverse primer sequence that amplify full length of sequence given below :

5' – TAC TAT CGA GTA CTA GAC TAC TAAGT 1 – 100 – 1 ACT, AGA, CGT ACG, TAG, TAC, GTT ACT AC – 3'

- (1) 5' – ATG ATA GCT CAT GAT CTG AT – 3' Forward  
5' – GTA GTA ACG TAC TAC GTA CG – 3' Reverse
- (2) 5' – TAC TAT CGA GTA CTA GAC TA – 3' Forward  
5' – GTA GTA ACG TAC TAC GTA CG – 3' Reverse
- (3) 5' – ATG ATA GCT CAT GAT CTG AT – 3' Forward  
5' – GCA TGC ATC ATG CAA TGA TG – 3' Reverse
- (4) 5' – TAG TCT AGT ACT CGA TAG TA – 3' Forward  
5' – GCA TGC ATC ATG CAA TGA TG – 3' Reverse

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 87 Question Id : 749572241 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

\_\_\_\_\_ variant of BLAST, compares a DNA query sequence to the protein database.

- |             |             |
|-------------|-------------|
| (1) BLASTP  | (2) BLASTX  |
| (3) BLAST N | (4) TBLASTN |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 88 Question Id : 749572242 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which one of the following is not a primary database?

- |                  |              |
|------------------|--------------|
| (1) SWISS – PROT | (2) EMBL     |
| (3) DDBJ         | (4) Gen Bank |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 89 Question Id : 749572243 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The computational approaches to predict the three-dimensional structures of proteins are :

- (A) Homology modeling
- (B) X-ray crystallography
- (C) NMR
- (D) Threading
- (E) Ab-initio

Choose the correct answer from the options given below:

- (1) (A) only
- (2) (B) and (C) only
- (3) (A), (D) and (E) only
- (4) (C) only

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 90 Question Id : 749572244 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

What happens to transferrin when iron is bound to it and it interacts with its receptor?

- (1) It is degraded inside the lysosome
- (2) Undergoes a conformational change allowing binding to its receptor
- (3) It is converted to apotransferrin
- (4) Permanently internalized and degraded

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 91 Question Id : 749572245 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which non-viral gene delivery method utilizes physical forces to introduce genetic material into cells?

- |                     |                     |
|---------------------|---------------------|
| (1) Liposomes       | (2) Poly (L-lysine) |
| (3) Electroporation | (4) Adenoviruses    |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 92 Question Id : 749572246 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which protein is responsible for cleaving double stranded RNA into smaller fragments during RNA interference?

- |            |              |
|------------|--------------|
| (1) Slicer | (2) Helicase |
| (3) RISC   | (4) Dicer    |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 93 Question Id : 749572247 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

What is the main advantage of using Short Tandem Repeats (STRs) over restriction fragment length polymorphism (RFLP) in DNA fingerprinting?

- (1) STRs are easier to visualize on a gel
- (2) STRs requires less DNA and are more resistant to degradation
- (3) STRs produce more distinct band pattern
- (4) STRs are less expensive to analyze

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 94 Question Id : 749572248 Question Type : MCQ Option Shuffling : No**

**Correct Marks : 1 Wrong Marks : 0.25**

Which of the following steps in PCR is responsible for separating double-stranded DNA into single strands?

- |               |                |
|---------------|----------------|
| (1) Annealing | (2) Extension  |
| (3) Melting   | (4) Elongation |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 95 Question Id : 749572249 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Match the following :

| List I          | List II                 |
|-----------------|-------------------------|
| (A) Autotroph   | (I) Macro consumers     |
| (B) Phagotrops  | (II) Micro consumers    |
| (C) Saprotrops  | (III) Primary producers |
| (D) Heliotrophs | (IV) Sun loving plants  |

Choose the correct answer from the options given below :

- (1) (A)-(II), (B)-(IV), (C)-(III), (D)-(I)
- (2) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
- (3) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)
- (4) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 96 Question Id : 749572250 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The reductive pentose phosphate pathway is also known as

- (A) Photosynthetic Carbon Oxidation cycle (PCO)
- (B) Calvin – Benson cycle
- (C) Photorespiration
- (D) C4 cycle

Choose the correct answer from the options given below :

- (1) Both (A) and (B) are correct
- (2) Both (B) and (C) are correct
- (3) (B) only
- (4) (C) only

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 97 Question Id : 749572251 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Cortisones, used in the treatment of rheumatoid arthritis, are produced from fermentation of \_\_\_\_\_ by *Rhizopus migrans*.

- |                 |            |
|-----------------|------------|
| (1) Amino acids | (2) Lipids |
| (3) Glycosides  | (4) Starch |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 98 Question Id : 749572252 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In cell cycle there are 4 stages. M, G1, S and G2. There is another term commonly used ; G0 phase. Choose the best described statement for this G0 phase.

- (1) Cells are at growing stage
- (2) Cells are at the stage of differentiation
- (3) Cells have ceased to divide
- (4) Cells are about to double

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 99 Question Id : 749572253 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Based on series of events outlined in Central Dogma, there are enzymes that convert from one stage to the other. However, one conversion is not possible yet. Identify the stage :

- |                |                    |
|----------------|--------------------|
| (1) DNA to RNA | (2) Protein to RNA |
| (3) DNA to DNA | (4) RNA to DNA     |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 100 Question Id : 749572254 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In lactose operon, the following events happen.

- (A) The operon is normally in an "off" mode when appropriate substrate is absent.
- (B) Lactose is an inducer substrate.
- (C) If lactose is added to the cell's environment, it triggers events that turn the operator "on".
- (D) The structural genes are transcribed in 3 different transcripts coding for all three different enzymes.
- (E) As lactose is depleted, operon is repressed.

Which of the answers is correct?

- |                   |                   |
|-------------------|-------------------|
| (1) (A), (B), (C) | (2) (B), (C), (D) |
| (3) (A), (D), (E) | (4) (C), (D), (E) |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

## Section C Biochemistry

|                                       |           |
|---------------------------------------|-----------|
| Section Id :                          | 7495726   |
| Section Number :                      | 3         |
| Section type :                        | Online    |
| Mandatory or Optional :               | Mandatory |
| Number of Questions :                 | 50        |
| Number of Questions to be attempted : | 50        |
| Section Marks :                       | 50        |
| Maximum Instruction Time :            | 0         |
| Sub-Section Number :                  | 1         |
| Sub-Section Id :                      | 74957210  |
| Question Shuffling Allowed :          | Yes       |

**Question Number : 101 Question Id : 749572255 Question Type : MCQ Option Shuffling : No**  
**Correct Marks : 1 Wrong Marks : 0.25**

In NMR spectroscopy, the role of chemical shift is to

- (1) provide information about the environment of specific nuclei
- (2) determine the molecular weight of the compound
- (3) measure the rate of reaction
- (4) measure the concentration of nuclei

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 102 Question Id : 749572256 Question Type : MCQ Option Shuffling : No**  
**Correct Marks : 1 Wrong Marks : 0.25**

Following are few diseases resulting from ion channel defects. Choose the incorrect pair from the following pairs.

- (1)  $\text{Cl}^-$  ion channel – Cystic fibrosis
- (2)  $\text{K}^+$  (neuronal) – Dominant deafness
- (3)  $\text{Ca}^{2+}$  (polycystin-1) – Polycystic kidney disease
- (4)  $\text{Na}^+$  (neuronal) – Familial hemiplegic migraine

**Options :**

1. 1
2. 2

3. 3

4. 4

**Question Number : 103 Question Id : 749572257 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Classic hemophilia, or hemophilia A, is the best known clotting defect. This disorder is genetically transmitted as a sex-linked recessive characteristic.

Given below are two statement.

Statement I : In classic hemophilia, factor VIII (anti hemophilic factors) of the intrinsic pathway is missing or has markedly reduced activity.

Statement II : Factor VIII inhibits the activation of factor X, the final protease of intrinsic pathway by factor IX a serine protease.

In the light of the above statements, choose correct answer from the options given below :

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is true and Statement II is false
- (4) Statement I is false and Statement II is true

**Options :**

1. 1

2. 2

3. 3

4. 4

**Question Number : 104 Question Id : 749572258 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In number of known three-dimensional protein structures is new in the tens of thousands and more than doubles every couple of years. One of the most important resources available to biochemists is Protein Data Bank (PDB). Choose correct statements for PDB from following.

- (1) PDB is an archive of experimentally determined three-dimensional structures of biological macromolecules including proteins, RNAs, DNAs etc.
- (2) PDB is an archive of simulated three-dimensional structures of proteins
- (3) PDB is an archive of experimentally determined three-dimensional structures of proteins only
- (4) PDB is an archive of three-dimensional structures of peptide and protein sequences

**Options :**

1. 1

- 2. 2
- 3. 3
- 4. 4

**Question Number : 105 Question Id : 749572259 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Next-generation pyrosequencing uses two enzymes to detect nucleotide addition with flashes of light.

From the following, identify the correct pair of enzymes.

- (1) luciferase and pyrophosphates
- (2) surfurylase and luciferase
- (3) surfurylase and pyrokinase
- (4) luciferase and phosphokinase

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 106 Question Id : 749572260 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Tay-Sachs disease, in which ganglioside GM2 accumulates in the brain and spleen owing to lack of enzyme X. The symptoms of this disease is progressive developmental retardation, paralysis, blindness and death by the age of 3 or 4 years.

The correct name of the enzyme X is :

- |                      |                   |
|----------------------|-------------------|
| (1) Phosphokinase    | (2) Hexokinase    |
| (3) Hexosaminidase A | (4) Neurominidase |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 107 Question Id : 749572261 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

From the following statements, choose the incorrect statement.

- (1) Vitamin A and D are hormone precursors
- (2) Vitamin E and K are oxidation-reduction cofactors
- (3) Vitamin A, D, E and K are isoprenoid compounds
- (4) Vitamin D is produced in skin by UV irradiation of dihydroxycholecalciferol

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 108 Question Id : 749572262 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Many cells can precisely control the time of their own death by one process of programmed cell death, or apoptosis. Choose the incorrect roles of apoptosis from following statements.

- (1) Eliminating anti-self-antibodies (cause of many autoimmune diseases)
- (2) Monthly sloughing of cells of the uterine wall (during menstrual cycle)
- (3) Dropping of leaves in the fall
- (4) Remission in patients with early stage chronic myeloid leukemia

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 109 Question Id : 749572263 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Two homologs that are present in different species are called as

- |               |              |
|---------------|--------------|
| (1) Orthologs | (2) Paralogs |
| (3) Ubilogs   | (4) Analogs  |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 110 Question Id : 749572264 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In diabetic ketoacidosis (DKA), which electrolyte imbalance is commonly observed?

- |                  |                  |
|------------------|------------------|
| (1) Hypocalcemia | (2) Hyperkalemia |
| (3) Hypokalemia  | (4) Hyponatremia |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 111 Question Id : 749572265 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

During protein synthesis, which of the following class of RNA molecular are charged with amino acids?

- |          |           |
|----------|-----------|
| (1) tRNA | (2) rRNA  |
| (3) mRNA | (4) SnRNA |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 112 Question Id : 749572266 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

From the following statements, match the correct statements about the mechanism of action of antibiotics given below :

| List I              | List II                                                                                                                                                                             |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (A) Tetracycline    | (I) blocks peptidyl transferase of 80 S eukaryotic ribosome but not that of 70 S (bacterial, mitochondrial and chloroplast ribosomes)                                               |
| (B) Chloramphenicol | (II) inhibits protein synthesis in (bacterial, mitochondrial and chloroplast) ribosomes by blocking peptidyl transfer; it does not affect cytosolic protein synthesis in eukaryotes |
| (C) Cycloheximide   | (III) inhibits protein synthesis in bacteria by blocking the A site on the ribosome, preventing the binding of aminoacyl-tRNAs                                                      |
| (D) Streptomycin    | (IV) a basic trisaccharide, causes misreading of the genetic code (in bacteria) at relatively low concentrations and inhibits initiation at high concentrations                     |

Choose the correct options given below :

- (1) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)
- (2) (A)-(II), (B)-(III), (C)-(IV), (D)-(I)
- (3) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
- (4) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 113 Question Id : 749572267 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The most sensitive test among thyroid function test for detecting primary hypothyroidism?

- (1) Total T4
- (2) Thyroid stimulating hormone (TSH)
- (3) Free T3
- (4) Thyroglobulin

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 114 Question Id : 749572268 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The ATP-dependent pathway of protein degradation in eukaryotic cells is quite different, involving the protein ubiquitin. Ubiquitin is covalently linked to proteins determined for destruction via an ATP-dependent pathway involving three separate types of enzymes. Identify correct set of three separate types of enzymes.

- (1) U1 activating enzymes, U2 conjugating enzymes and U3 ligases
- (2) P1 activating enzymes, P2 conjugating enzymes and P3 ligases
- (3) E1 activating enzymes, E2 conjugating enzymes and E3 ligases
- (4) K1 activating enzymes, K1 conjugating enzymes and K3 ligases

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 115 Question Id : 749572269 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In chronic kidney disease, hyperkalemia is often a concern due to impaired renal excretion. Which hormone's decreased activity exacerbates this condition?

- (1) Vasopressin
- (2) Erythropoietin
- (3) Renin
- (4) Aldosterone

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 116 Question Id : 749572270 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which one of the following is an experimental method for determining three dimensional structure of a protein?

- |                           |                      |
|---------------------------|----------------------|
| (1) X-ray crystallography | (2) Threading        |
| (3) Homology Modeling     | (4) Ab-initio method |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 117 Question Id : 749572271 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Chose a compound with best docking score.

- |                   |                   |
|-------------------|-------------------|
| (1) -3.0 Kcal/mol | (2) -4.5 Kcal/mol |
| (3) +6.2 Kcal/mol | (4) -9.0 Kcal/mol |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 118 Question Id : 749572272 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which algorithm is used for global alignment?

- |                      |                        |
|----------------------|------------------------|
| (1) Needleman-Wunsch | (2) Smith and Waterman |
| (3) Altschul         | (4) Dayhoff            |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 119 Question Id : 749572273 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

In the FASTA format the definition line start with

- |       |       |
|-------|-------|
| (1) # | (2) @ |
| (3) > | (4) < |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 120 Question Id : 749572274 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The PDB-ID or PDB code is of \_\_\_\_\_ character and is represented as \_\_\_\_\_.

- |                     |                       |
|---------------------|-----------------------|
| (1) 1, digits only  | (2) 2, letters only   |
| (3) 4, alphanumeric | (4) 5, alphabets only |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 121 Question Id : 749572275 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

When aligning sequences that are highly divergent best results will be obtained with which substitution matrix?

- |            |             |
|------------|-------------|
| (1) PAM 1  | (2) PAM 100 |
| (3) PAM 25 | (4) PAM 250 |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 122 Question Id : 749572276 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Transport proteins associated with facilitated diffusion process include

- (A) Uniporters
- (B) Pump motors
- (C) Ion channels
- (D) Transport motors

Chose the correct answer from the options given below :

- (1) (A) and (B) only
- (2) (B) and (C) only
- (3) (A) and (C) only
- (4) (C) and (D) only

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 123 Question Id : 749572277 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Plants that take up high amounts off metal elements from soil and store them in their aerial tissue are known as

- (A) hyper accumulators
- (B) metallophytes
- (C) chelators
- (D) reducers

Choose the correct answer from the options given below :

- (1) (B) and (C)
- (2) (C) and (D)
- (3) (A) and (B)
- (4) (A) and (D)

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 124 Question Id : 749572278 Question Type : MCQ Option Shuffling : No**

**Correct Marks : 1 Wrong Marks : 0.25**

C2 oxidative photosynthetic carbon cycle is known as

- (A) Photorespiration
- (B) Calvin-Benson cycle
- (C) Photo synthetic carbon oxidation cycle (PCO)
- (D) Reduction pentose phosphate pathway

Choose the correct answer from the options given below :

- (1) Both (A) and (C) are correct
- (2) Both (A) and (B) are correct
- (3) Both (B) and (C) are correct
- (4) Both (C) and (D) are correct

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 125 Question Id : 749572279 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Leaves maximize light absorption by continuously adjusting the orientation of leaf lamina is called

- |                      |                    |
|----------------------|--------------------|
| (1) Light channeling | (2) Solar tracking |
| (3) Sun flecks       | (4) Fluorescence   |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 126 Question Id : 749572280 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Secondary macro nutrients include

- (1) Calcium and Magnesium only
- (2) Calcium and Potassium only
- (3) Magnesium and Potassium only
- (4) Phosphorus and Potassium only

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 127 Question Id : 749572281 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Two peptides are subjected to column chromatography. At the pH of mobile phase, Peptide 'A' has a net charge of  $-3$  due to more Glu and Asp residue. Peptide 'B' has a net charge of  $+1$ .

Statement I : Peptide 'A' will elute first in cation-exchange column.

Statement II : Peptide 'B' will elute second in anion-exchange column.

In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) Both Statement I and Statement II are correct
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 128 Question Id : 749572282 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements :

Statement I : PCR can be used for *in vitro* amplification of genes.

Statement II : PCR can be used to introduce site-directed point mutation in a cloned gene.

Choose the most appropriate answer from the options given below :

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Both Statement I is true but Statement II is false
- (4) Both Statement I is false but Statement II is true

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 129 Question Id : 749572283 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Match List I with List II.

| List I              | List II         |
|---------------------|-----------------|
| (A) Spectroscopy    | (I) pH          |
| (B) Chromatography  | (II) Wavelength |
| (C) Spectrometry    | (III) X-ray     |
| (D) Crystallography | (IV) Ionization |

Choose the correct options given below :

- (1) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
- (2) (A)-(II), (B)-(IV), (C)-(III), (D)-(I)
- (3) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)
- (4) (A)-(II), (B)-(I), (C)-(IV), (D)-(III)

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 130 Question Id : 749572284 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following restriction endonuclease are '4-base cluster' and leads to 'blunt ends'?

- |                          |                     |
|--------------------------|---------------------|
| (1) Alu I and Hae III    | (2) Ava I and Hha I |
| (3) BamHI I and Hind III | (4) Kpn I and Hpa I |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 131 Question Id : 749572285 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Match List I with List II.

| List I                               | List II                   |
|--------------------------------------|---------------------------|
| (A) Confocal Microscope              | (I) Virus Structures      |
| (B) Transmission Electron Microscope | (II) Prion Fibrils        |
| (C) Phase Contrast Microscope        | (III) Actin Fibres        |
| (D) Atomic Force Microscope          | (IV) Unicellular Organism |

Choose the correct options given below :

- (1) (A)-(III), (B)-(I), (C)-(IV), (D)-(II)
- (2) (A)-(II), (B)-(I), (C)-(IV), (D)-(III)
- (3) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)
- (4) (A)-(IV), (B)-(I), (C)-(III), (D)-(II)

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 132 Question Id : 749572286 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Match List I with List II.

| List I                           | List II                            |
|----------------------------------|------------------------------------|
| (A) Protein Primary Structure    | (I) Circular Dichroism             |
| (B) Protein Secondary Structure  | (II) Gel filtration chromatography |
| (C) Protein Tertiary Structure   | (III) Tandem Mass Spectrometry     |
| (D) Protein Quaternary Structure | (IV) Nuclear Magnetic Resonance    |

Choose the correct options given below :

- (1) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)
- (2) (A)-(IV), (B)-(III), (C)-(II), (D)-(I)
- (3) (A)-(III), (B)-(I), (C)-(IV), (D)-(II)
- (4) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)

**Options :**

1. 1

2. 2
3. 3
4. 4

**Question Number : 133 Question Id : 749572287 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Eukaryotic cells in the tissue has multiple adhesive mechanisms. Animal cell adhesion to basal lamina matrix is mediated by \_\_\_\_\_.

- |               |               |
|---------------|---------------|
| (1) Connexins | (2) Selectins |
| (3) Cadherins | (4) Integrins |

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 134 Question Id : 749572288 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Match List I with List II.

- | List I                       | List II                           |
|------------------------------|-----------------------------------|
| (A) Frederick Sanger 1953    | (I) Amino acid analyzer           |
| (B) Edman Degradation method | (II) Protein-Protein interaction  |
| (C) Protein microarray       | (III) Peptide mass finger print   |
| (D) MALDI-TOF                | (IV) Complete sequence of insulin |

Choose the correct options given below :

- (1) (A)-(I), (B)-(IV), (C)-(II), (D)-(III)
- (2) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
- (3) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)
- (4) (A)-(IV), (B)-(III), (C)-(II), (D)-(I)

**Options :**

1. 1
2. 2
3. 3
4. 4

**Question Number : 135 Question Id : 749572289 Question Type : MCQ Option Shuffling : No**

**Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements :

Statement I : Subtractive hybridization for enriching mRNA and subsequent making enriched library requires involvement reverse transcribing resin-bound single-stranded mRNA.

Statement II : During subtractive hybridization DNA-RNA hybrid are separated from unbound mRNA by use of a column chromatography.

Choose the most appropriate answer from the options given below :

- (1) Both Statement I and Statement II are correct
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 136 Question Id : 749572290 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

\_\_\_\_\_ is NOT used to tag the secondary antibodies for use in ELISA.

- |                          |                              |
|--------------------------|------------------------------|
| (1) Alkaline phosphatase | (2) Colloidal gold particles |
| (3) Alexa flour          | (4) Horse-raddish peroxidase |

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 137 Question Id : 749572291 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following is not a method of contraception?

- |                         |                     |
|-------------------------|---------------------|
| (1) Rhythm method       | (2) Withdrawal      |
| (3) Intrauterine device | (4) Cholecystectomy |

**Options :**

- 1. 1

- 2. 2
- 3. 3
- 4. 4

**Question Number : 138 Question Id : 749572292 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements :

Statement I : Progesterone cooperates with estrogens to prepare and maintain the endometrium for implantation of a fertilized ovum.

Statement II : Progesterone is mainly secreted by ovarian follicles.

In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) Both Statement I and Statement II are correct
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 139 Question Id : 749572293 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following statements are correct regarding the "surfactant" lining the alveoli of lungs?

- (A) It helps in preventing alveolar collapse
- (B) It is produced by alveolar type II cells
- (C) It's excessive secretion can cause infant respiratory distress syndrome
- (D) Dipalmitoyl phosphatidylcholine (DPPC) is an important constituent of the surfactant

Choose the correct answer from the options given below :

- (1) (A), (B), (C) and (D)
- (2) (A), (B) and (C) only
- (3) (A), (B) and (D) only
- (4) (B), (C) and (D) only

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 140 Question Id : 749572294 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements :

Statement I : Respiratory acidosis is caused by an abnormally high  $\text{PCO}_2$  in systemic arterial blood – above 45 mm Hg.

Statement II : Any condition that decreases the movement of  $\text{CO}_2$  from the blood to the alveoli of the lungs to the atmosphere causes a buildup of  $\text{CO}_2$ ,  $\text{H}_2\text{CO}_3$  and  $\text{H}^+$ .

In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) Both Statement I and Statement II are correct
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 141 Question Id : 749572295 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following statements are correct?

- (A) Oxygen and carbon dioxide diffuse into and out of capillaries following their partial pressure gradient
- (B) Hemoglobin in RBCs greatly increases the oxygen-carrying capacity of the blood
- (C) Hemoglobin do not carry carbon dioxide
- (D) In plasma, most carbon dioxide is transported in the form of carbolic acid
- (E) Buffers help prevent the blood from becoming too acidic

Choose the correct answer from the options given below :

- (1) (A), (B), (C) and (E) only
- (2) (A), (B) and (E) only
- (3) (A), (B) and (C) only
- (4) (B), (D) and (E) only

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 142 Question Id : 749572296 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following statements are correct regarding the term 'Steatorrhea'?

- (A) It is passage of fatty, bulky and clay-colored stools.
- (B) It is caused due to destruction exocrine portion of pancreas
- (C) It can be caused due to impaired digestion and absorption of fat
- (D) It can be caused by lipase deficiency

Choose the correct answer from the options given below :

- (1) (A), (B), (C) and (D)
- (2) (A), (B) and (C) only
- (3) (A) and (B) only
- (4) (A) and (C) only

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 143 Question Id : 749572297 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following factors lead to an increased cardiac output?

- (A) Increased sympathetic stimulation
- (B) Increased catecholamines in the blood
- (C) Decreased body temperature
- (D) Calcium channel blockers
- (E) Increased contractivity of heart

Choose the correct answer from the options given below :

- (1) (B), (C) and (D) only
- (2) (A), (B) and (E) only
- (3) (A) and (B) only
- (4) (B) and (E) only

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 144 Question Id : 749572298 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Which of the following statements are CORRECT regarding angiotensin II?

- (A) It increases the glomerular filtration rate by causing vasoconstriction of the efferent arterioles
- (B) It enhances reabsorption of  $\text{Na}^+$  and water in the proximal convoluted tubule
- (C) It stimulates the adrenal cortex to release aldosterone
- (D) Angiotensin converting enzyme (ACE) converts angiotensin I to angiotensin II

Choose the correct answer from the options given below :

- (1) (B), (C) and (D) only
- (2) (A), (D) and (E) only
- (3) (D) and (E) only
- (4) (A), (B) and (D) only

**Options :**

- 1. 1
- 2. 2

3. 3

4. 4

**Question Number : 145 Question Id : 749572299 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Given below are two statements :

Statement I : Conditioned reflex is a classic example of dissociative learning.

Statement II : A conditioned reflex is a reflex response to a stimulus that previously elicited little or no response and, is acquired by repeatedly pairing the stimulus with another stimulus that normally does produce the response.

In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is true but Statement II is false
- (4) Statement I is false but Statement II is true

**Options :**

1. 1

2. 2

3. 3

4. 4

**Question Number : 146 Question Id : 749572300 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

A 36 year old women reported muscle weakness in the extraocular eye muscles and muscles of the extremities. Her muscle weakness worsens by physical activity and improves with rest. Sensation appears normal. The woman is suffering from?

- |                        |                         |
|------------------------|-------------------------|
| (1) Muscular dystrophy | (2) Parkinson's disease |
| (3) Myasthenia gravis  | (4) Multiple sclerosis  |

**Options :**

1. 1

2. 2

3. 3

4. 4

**Question Number : 147 Question Id : 749572301 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Genetic code refers to the

- (1) Amino acid sequence of protein
- (2) Nucleotide sequence of triplet corresponding to a particular amino acid
- (3) Number of chromosomes in diploid cells
- (4) Inheritance of genome

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 148 Question Id : 749572302 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Telomerase enzyme plays role in

- (1) DNA replication of whole genome
- (2) Extension of chromosome termini
- (3) DNA replication of centromere
- (4) DNA replication of mismatched genome

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 149 Question Id : 749572303 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

Klinefelter syndrome is

- (1) Autosomal trisomy chromosome 21
- (2) Sex chromosome aneuploidy
- (3) Autosomal trisomy chromosome 3
- (4) Triploid abnormality

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4

**Question Number : 150 Question Id : 749572304 Question Type : MCQ Option Shuffling : No Correct Marks : 1 Wrong Marks : 0.25**

The trisomy condition in Down Syndrome is due to non-disjunction of chromosome during gamete formation. This process occurs during

- (1) Mitosis in Somatic cells of parent
- (2) Mutational process during zygote formation
- (3) Meiosis process in gamete formation
- (4) S phase of Mitosis

**Options :**

- 1. 1
- 2. 2
- 3. 3
- 4. 4