

Instruction for MCQ tagged questions

Sample Question

6. Which of the following are prime numbers ?

MCQ : +5, -0

- (A) 2
- (B) 4
- (C) 7
- (D) 9

All MCQ questions are tagged as shown.

The correct answers are (A) and (C), then you should darken the circles for options (A) and (C) on the OMR sheet.

✓ Correct only when both (A) and (C) circles are dark	✗ Correct only when both (A) and (C) circles are dark	✗ Incorrect if only circle (C) is dark.
5 (A) (B) (C) (D)	5 (A) (B) (C) (D)	5 (A) (B) (C) (D)
6 (A) (B) (C) (D)	6 (A) (B) (C) (D)	6 (A) (B) (C) (D)
7 (A) (B) (C) (D)	7 (A) (B) (C) (D)	7 (A) (B) (C) (D)
8 (A) (B) (C) (D)	8 (A) (B) (C) (D)	8 (A) (B) (C) (D)

PART I : PHYSICS

This section contains **10 Questions (Q : 01 to Q : 10)**. Each question has four choices **(A), (B), (C) and (D)**.

1. Friction between two surfaces mainly depends on:

SCQ : +3, -1

- (A) Shape of the objects
- (B) Smoothness/Roughness of the surfaces
- (C) Size of the objects
- (D) Colour of the objects

2. What happens to the energy that is lost during energy conversion?

SCQ : +3, -1

- (A) It disappears completely
- (B) It remains stored forever
- (C) It changes form, usually into heat energy
- (D) It turns into electricity again

3. Which type of friction is experienced just before an object starts moving?

SCQ : +3, -1

- (A) Static friction
- (B) Sliding friction
- (C) Rolling friction
- (D) Fluid friction

4. Why are energy-efficient machines important ?

SCQ : +3, -1

- (A) They completely stop energy loss
- (B) They use less input energy to get more useful output
- (C) They store energy in batteries
- (D) They convert light into electricity directly

5. Which of the following statement/s is/ are **True(T)** or **False(F)** ?

T/F SCQ : +4, -1

- (i) Air also creates friction when objects move through it.
- (ii) The weight of an object increases the friction between it and the surface.
- (iii) Sliding friction is usually greater than rolling friction.

Code :

- | | (i) | (ii) | (iii) |
|-----|------------|-------------|--------------|
| (A) | F | F | T |
| (B) | T | F | T |
| (C) | T | T | F |
| (D) | T | T | T |

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6. Match **Column – I** with **Column – II** and select the correct answer using the codes given below.

MTC SCQ : +4, -1

Column – I (Device)	Column – II (Transformation)
P. Solar Panel	1. Chemical → Electrical → Light
Q. Electric Motor	2. Electrical → Mechanical (Kinetic)
R. Burning Wood	3. Light → Electrical
S. Battery-Powered Flashlight	4. Chemical → Thermal and Light

Code :

	P	Q	R	S
(A)	1	3	4	2
(B)	4	3	2	1
(C)	3	2	4	1
(D)	2	1	4	3

Paragraph for Questions 07 & 08

Ravi was riding his bicycle on a straight road. When he pedaled, the bicycle moved faster. When he stopped pedaling, the bicycle continued to move for some distance but slowed down gradually and finally stopped. Just then, his friend threw a rubber ball upward. The ball went up, slowed down, stopped, and came back to the ground.

7. When Ravi stopped pedaling his bicycle, what happened to it ?

SCQ : +3, -1

- (A) It immediately stopped
- (B) It continued to move for some distance and then stops
- (C) It started moving faster
- (D) It moved backward

8. Which effect of force is shown when Ravi pedaled harder and increased the bicycle's speed?

SCQ : +3, -1

- (A) Force can change direction of motion
- (B) Force can stop motion
- (C) Force can change the state of motion
- (D) Force can change the shape of an object

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9. Which of the following are effects of force?

MCQ : +5, -0

- (A) It can change the speed of an object
- (B) It can change the shape of an object
- (C) It can change the direction of motion
- (D) It can increase the mass of an object

10. Which of the following forms of energy are categorized as Potential Energy (stored energy)?

MCQ : +5, -0

- (A) The energy of a ball rolling down a ramp.
- (B) The energy stored in the chemical bonds of gasoline.
- (C) The energy stored in a compressed spring.
- (D) The energy of a book resting on a high shelf.

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PART II : CHEMISTRY

This section contains **10 Questions (Q : 11 to Q : 20)**. Each question has four choices **(A), (B), (C) and (D)**.

11. The process of protecting our environment is called —

SCQ : +3, -1

- (A) Pollution
- (B) Conservation
- (C) Construction
- (D) Plantation

12. What happens to the particles of water when it is cooled in a freezer to become ice?

SCQ : +3, -1

- (A) The particles move farther apart and become fixed in place.
- (B) The particles move closer together and start moving faster.
- (C) The particles move closer together and become fixed in place.
- (D) The particles move farther apart and start moving faster.

13. Which of the following is/are abiotic components of an ecosystem?

SCQ : +3, -1

- (A) Air, Animals, Mountains
- (B) Soil, Plant, water
- (C) Oxygen, Water, Stones
- (D) Plants, Animals, Microorganisms

14. Which of the following are examples of decomposers?

SCQ : +3, -1

- (A) Bacteria and Fungi
- (B) Fungi and Plants
- (C) Earthworms and Herbivores
- (D) Carnivores and Herbivores

15. Which of the following statement/s is/are **True(T)** or **False(F)** ?

T/F SCQ : +4, -1

- (i) Carbon monoxide is a poisonous gas released by incomplete combustion.
- (ii) Excessive use of fertilizers and pesticides causes soil pollution.
- (iii) Water pollution has no effect on aquatic life.

Code :

- | | (i) | (ii) | (iii) |
|-----|-----|------|-------|
| (A) | F | F | T |
| (B) | T | F | T |
| (C) | T | T | F |
| (D) | T | F | F |

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16. Match **Column – I** with **Column – II** and select the correct answer using the codes given below.

MTC SCQ : +4, -1

Column – I	Column – II
------------	-------------

- | | |
|----------------------------------|-------------------|
| P. Least attraction force | 1. Gas |
| Q. Least diffusion | 2. Solid |
| R. Can be called as fluid | 3. Liquid |
| S. Sublimable | 4. Camphor |

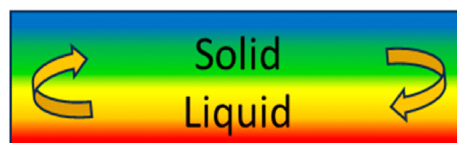
Code :

- | | P | Q | R | S |
|-----|----------|----------|----------|----------|
| (A) | 1 | 2 | 3 | 4 |
| (B) | 4 | 3 | 2 | 1 |
| (C) | 3 | 1 | 4 | 2 |
| (D) | 2 | 1 | 4 | 3 |

Paragraph for Questions 17 & 18

The state of matter of a substance is determined by the arrangement and energy of its particles. In solids, particles are tightly packed in a fixed pattern, vibrating slightly but not moving freely, which gives solids a definite shape and volume. Liquids allow to flow and take the shape of their container while maintaining a definite volume.

17. According to the paragraph, what is the primary reason a solid transforms into a liquid when heated?



SCQ : +3, -1

- (A) The particles expand in size.
- (B) The particles gain kinetic energy and break free from fixed positions.
- (C) The particles lose mass and become lighter.
- (D) The particles chemically react with heat.

18. Which of the following properties is true for liquids but NOT for solids, as described in the paragraph?

SCQ : +3, -1

- (A) Definite shape
- (B) Definite volume
- (C) Particles slide past one another
- (D) Particles vibrate in fixed positions

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19. Select the correct statement/s for water harvesting-

MCQ : +5, -0

- (A) Water harvesting is important for sustainable water management.
- (B) Collecting rainwater from roof surfaces and storing it in tanks.
- (C) Storing rainwater in ponds, lakes, and check dams.
- (D) Directing rainwater into pits, trenches, or wells to refill underground water.

20. Which of the following are endothermic processes (require heat absorption)?

MCQ : +5, -0

- (A) Melting
- (B) Boiling
- (C) Condensation
- (D) Sublimation

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PART III : BIOLOGY

This section contains **10 Questions (Q : 21 to Q : 30)**. Each question has four choices **(A), (B), (C) and (D)**.

21. Which microorganism lives in the roots of leguminous plants to fix nitrogen?

SCQ : +3, -1

- (A) Rhizobium
- (B) Yeast
- (C) Salmonella
- (D) Amoeba

22. Which microorganism is used in the preparation of antibiotics like penicillin?

SCQ : +3, -1

- (A) Penicillium
- (B) Rhizobium
- (C) Mycobacterium
- (D) Amoeba

23. Which microorganism causes cholera?

SCQ : +3, -1

- (A) Plasmodium
- (B) Vibrio cholerae
- (C) Salmonella
- (D) Rhizopus

24. Which organ acts as the control center of the body?

SCQ : +3, -1

- (A) Kidney
- (B) Brain
- (C) Heart
- (D) Lungs

25. Which of the following statement/s is/are **True(T)** or **False(F)** ?

T/F SCQ : +4, -1

- (i)** Yeast is used in baking industry.
- (ii)** Bacteria cannot live in soil.
- (iii)** Plasmodium is spread through contaminated food.

Code :

(i) (ii) (iii)

- (A) F F T
- (B) T F T
- (C) T T F
- (D) T F F

26. Match **Column - I** with **Column - II** and select the correct answer using the codes given below.

MTC SCQ : +4, -1

Column - I	Column - II
P. Heart	1. Storage of urine
Q. Lungs	2. Exchange of gases
R. Urinary bladder	3. Pumping blood
S. Stomach	4. Digestion of food

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Code :

	P	Q	R	S
(A)	1	2	3	4
(B)	4	3	2	1
(C)	3	2	1	4
(D)	2	1	4	3

Paragraph for Questions 27 & 28

The nervous system controls body actions by sending messages through nerves. It works closely with the muscular system to produce movement. For example, when we decide to walk, the brain sends signals to the leg muscles, making them contract and relax.

27. Which two systems work together when we walk?

SCQ : +3, -1

- (A) Circulatory and respiratory
- (B) Nervous and muscular
- (C) Digestive and nervous
- (D) Excretory and respiratory

28. What is the role of the brain in walking?

SCQ : +3, -1

- (A) It supplies oxygen to the muscles.
- (B) It pumps blood to the legs.
- (C) It sends signals to muscles to contract.
- (D) It absorbs nutrients for energy.

29. Which of these organs are part of the digestive system?

MCQ : +5, -0

- (A) Brain
- (B) Small intestine
- (C) Large intestine
- (D) Kidney

30. Which microorganisms are useful?

MCQ : +5, -0

- (A) Yeast
- (B) Rhizobium
- (C) Plasmodium
- (D) Salmonella

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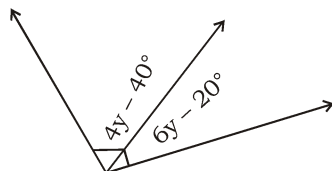
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PART IV : MATHEMATICS

This section contains 20 Questions (Q : 31 to Q : 50). Each question has four choices (A), (B), (C) and (D).

31. Find the difference between two angles in the figure given below :



SCQ : +3, -1

- (A) 15°
 (B) 50°
 (C) 70°
 (D) 20°

32. A rectangular mat has an area of 60 m^2 . Length is 12m, then measure of its diagonal is :

SCQ : +3, -1

- (A) 16 m
 (B) 13 m
 (C) 18 m
 (D) 20 m

33. Find the number of cubes of 2cm that can be obtained from a cube of side 12cm.

SCQ : +3, -1

- (A) 716
 (B) 416
 (C) 400
 (D) 216

34. The sum of the all prime numbers between 60 and 75 is :

SCQ : +3, -1

- (A) 199
 (B) 201
 (C) 211
 (D) 272

35. A bicycle wheel makes four and a half turns. Find the number of right angles through which it turns.

SCQ : +3, -1

- (A) 15
 (B) 17
 (C) 18
 (D) 20

36. Keeping the place of 6 in the number 6350947 same, the smallest number obtained by rearranging other digits is.

SCQ : +3, -1

- (A) 6975430
 (B) 6034579
 (C) 6043579
 (D) 6034759

Space for rough work

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37. If x and y are two co-primes, then their HCF is :

SCQ : +3, -1

- (A) xy
- (B) $x + y$
- (C) $\frac{x}{y}$
- (D) 1

38. The number of sheets of paper available for making notebooks are 75000. If 8 notebooks contain 200 pages, then how many notebooks can be made from the paper available ?

SCQ : +3, -1

- (A) 3000 notebooks
- (B) 2000 notebooks
- (C) 5000 notebooks
- (D) 4000 notebooks

39. Which of the following statement/s is/ are **True(T)** or **False(F)** ?

T/F SCQ : +4, -1

- (i) If the radius of a circle is 7cm, then the circumference of the circle is 44cm.
- (ii) If area of a square is 225m^2 then perimeter of a square is 100m.
- (iii) If area and height of a triangle is 90cm^2 and 15cm respectively, then base of triangle is 6cm.

(iv) If length of a rectangle is 9cm and breadth is 6cm then perimeter of rectangle is 118cm.

Code :

(i) (ii) (iii) (iv)

- (A) F F T F
- (B) T F T T
- (C) T T F T
- (D) T F F F

40. Which of the following statement/s is/ are **True(T)** or **False(F)** ?

T/F SCQ : +4, -1

- (i) The common factor of the number a and b is less than $a + b$.
- (ii) The HCF of 1794 and 2346 is 138.
- (iii) Q is the product of 5 and the lowest common multiple of 20 and 36 than value of Q is 700.
- (iv) The largest 3-digit number divisible by 2, 3 and 5 is 900.

Code :

(i) (ii) (iii) (iv)

- (A) F T F T
- (B) T F T T
- (C) T T F F
- (D) T F T F

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41. Match **Column - I** with **Column - II** and select the correct answer using the codes given below.

MTC SCQ : +4, -1

Column - I	Column - II
------------	-------------

- | | |
|--------------------------------|--------------------------|
| P. East and West | 1. Right angle |
| Q. East and North | 2. Straight angle |
| R. North and North-West | 3. Obtuse angle |
| S. North and South-East | 4. Acute angle |

Code :

- | | P | Q | R | S |
|-----|---|---|---|---|
| (A) | 1 | 2 | 3 | 4 |
| (B) | 2 | 3 | 4 | 1 |
| (C) | 3 | 1 | 4 | 2 |
| (D) | 2 | 1 | 4 | 3 |

42. Match **Column - I** with **Column - II** and select the correct answer using the codes given below.

MTC SCQ : +4, -1

Column - I	Column - II
------------	-------------

- | | |
|--|--------------|
| P. If 324 marbles are packed equally into 18 boxes, number of marbles are in each box | 1. 11 |
|--|--------------|

Q. Multiply the average of 36 and 64 by 5

2. 18

R. Add the first 10 natural number and divide by 5

3. 250

S. Multiply the difference of 201 and 187 by 12

4. 168

Code :

- | | P | Q | R | S |
|-----|---|---|---|---|
| (A) | 1 | 2 | 3 | 4 |
| (B) | 2 | 3 | 1 | 4 |
| (C) | 3 | 1 | 4 | 2 |
| (D) | 2 | 1 | 4 | 3 |

Paragraph for Questions 43 & 44

Two bells ring at different intervals. The first bell rings every 36 minutes and the second bell rings every 48 minutes. Both bells ring together at 12:00 noon. Read this paragraph carefully and give answer the following questions.

43. After how many minutes will both bells ring together again ?

SCQ : +3, -1

- (A) 142 minutes
 (B) 156 minutes
 (C) 144 minutes
 (D) 147 minutes

Space for rough work

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44. At what time will they next ring together ?

SCQ : +3, -1

- (A) 2:24 PM
- (B) 2:25 PM
- (C) 2:24 AM
- (D) 3:25 PM

Paragraph for Questions 45 & 46

A child makes a kite with two sticks crossing at a point O.

One stick is vertical (line PQ), and the other stick (line RS) crosses it.

The angle between PQ and RS is given as 50° .

On the opposite side, the angle between PQ and RS is marked as x.

Read this paragraph carefully and give answer the following questions.

45. Find the value of x.

SCQ : +3, -1

- (A) 60°
- (B) 50°
- (C) 40°
- (D) 70°

46. How many acute angles and how many obtuse angles formed in the kite, where sticks crossing each other ?

SCQ : +3, -1

- (A) Two acute and two obtuse
- (B) One acute and two obtuse
- (C) One acute and one obtuse
- (D) Two acute and one obtuse

47. The ratio of the height and the base of a triangle is 5:7 whose area = 70cm^2 , then

MCQ : +5, -0

- (A) height = 10 cm
- (B) height = 14 cm
- (C) base = 14 cm
- (D) base = 10 cm

48. Which of the following numbers are divisible by both 3 and 9 ?

MCQ : +5, -0

- (A) 11106
- (B) 8757
- (C) 12312
- (D) 35673

49. A cuboid of $5\text{cm} \times 4\text{cm} \times 3\text{cm}$ and a cube of side 4cm are compared with each other. Which are true?

MCQ : +5, -0

- (A) Volume of cuboid = 60 cm^3
- (B) Volume of cube = 64 cm^3
- (C) Base area of cuboid = 94 cm^2
- (D) Cube has larger volume than cuboid.

50. If sum of three consecutive odd numbers is 51 then which is correct ?

MCQ : +5, -0

- (A) Product of numbers = 4845
- (B) Sum of two smaller numbers = 36
- (C) Difference between larger and smaller number = 4
- (D) Product of two smaller number = 285

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PART V : LOGICAL REASONING & IQ

This section contains **10 Questions (Q : 51 to Q : 60)**. Each question has four choices **(A), (B), (C) and (D)**.

51. Select the appropriate sequence of mathematical sign to replace the sign '@' and balance the given equation.

$$5 @ 0 @ 3 @ 5 = 20$$

SCQ : +3, -1

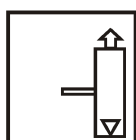
- (A) ×, ×, × (B) −, +, ×
(C) ×, +, × (D) +, −, ×

52. If P denotes '+', Q denotes '−', R denotes '×' and S denotes '÷', which of the following statements is correct ?

SCQ : +3, -1

- (A) 8 R 8 P 8 S 8 Q 8 = 57
(B) 16 R 12 P 49 S 7 Q 9 = 200
(C) 32 S 8 R 9 = 160 Q 12 R 12
(D) 36 R 4 S 8 Q 7 P 4 = 10

53. In this question, choose the correct water-image of the given figure (X).

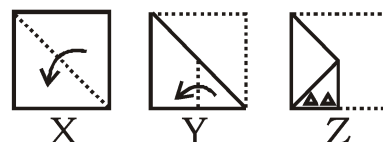


(X)

SCQ : +3, -1

- (A) (B)
(C) (D)

54. The following consist of three figures X, Y and Z showing a sequence a folding of paper figure Z showing the manner in which the paper has been cut. Choose a correct figure, Which would exactly resemble the unfolded form of figure(Z).



X

Y

Z

SCQ : +3, -1

- (A) (B)
(C) (D)

55. In a class, Rajan got 11th rank from top and 31st from the bottom of the list of boys passed. Three boys did not take the examination and one failed. What is the total strength of the class ?

SCQ : +3, -1

- (A) 32
(B) 42
(C) 45
(D) 46

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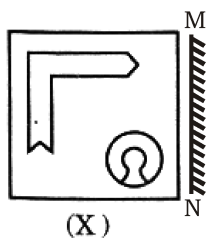
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56. There are four friends E, F, G and H. F has less money than H but more than G. E has more money than F but less than H. Who is the poorest among them ?

SCQ : +3, -1

- (A) E
- (B) F
- (C) G
- (D) H

57. In this question, choose the correct mirror-image of the figure (X) from amongst four alternative, when the mirror is held at MN.



SCQ : +3, -1

- (A)
- (B)
- (C)
- (D)

58. From his house, Lokesh went 15 km to the North and then turned left and covered 10 km. He then turned South and covered 5 km. Finally turning to East and covered 10 km. In which direction is he from his house ?

SCQ : +3, -1

- (A) South
- (B) North
- (C) West
- (D) East

59. Find the missing term in given series:
3, 4, 7, 7, 13, 13, 21, 22, 31, 34, ?

SCQ : +3, -1

- (A) 42
- (B) 43
- (C) 51
- (D) 55

60. Find the wrong term of given number series:

10, 15, 24, 37, 54, 80

SCQ : +3, -1

- (A) 54
- (B) 37
- (C) 24
- (D) 80

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