

FIITJEE COMMON TEST

PHASE – I
QP CODE:

Time : 1 ½ hours

Maximum Marks : 90

Scholastic Aptitude Test

Instructions

- The question paper consists of **90** multiple choice questions divided into four sections.
Section – I contains **45** questions of **Mathematics**.
Section – II contains **15** questions of **Physics**.
Section – III contains **15** questions of **Chemistry**.
Section – IV contains **15** questions of **Biology**.
- Each question carries **+1** marks.
- There is **No negative** marking.
- Attempt **All** questions.
- Use of Calculator is **NOT PERMITTED**.
- All symbols have their usual meanings, if not mentioned in the question.
- The Question Paper contains blank spaces for your rough work.
No additional sheets will be provided for rough work.
- This booklet also contains **OMR** answer sheet.

Name of the Candidate :

Enrollment Number :

SECTION – I
Mathematics

1. The value of $17 - \{8 \div (2 \times 3 - 4)\}$ is
(A) 11 (B) 12
(C) 13 (D) none of these
1. C
2. $[-5 + -4] \times -8 = \dots\dots\dots$
(A) 72, distributive property (B) 72, associative property
(C) 37, associative property (D) 37, distributive property
2. A
3. Divide Rs. 240 among X, Y and Z so that X gets Rs. 13 more than Y and Y gets Rs. 8 less than Z. What amount of money X gets?
(A) Rs. 81 (B) Rs. 83
(C) Rs. 85 (D) Rs. 86
3. D
4. If median and mean of a certain data are 32 and 40 respectively, then mode is equal to
(A) 12 (B) 8
(C) 16 (D) 72
4. C
5. After 16 years, I shall be $2\frac{1}{2}$ times as old as I was 2 years ago. Then my present age is equal to:-
(A) 12 yrs. (B) 13 yrs.
(C) 14 yrs. (D) 15 yrs.
5. C
6. The highest score in Mathematics test was $\frac{3}{11}$ of the total score and the next highest was $\frac{3}{10}$ of the remaining. If the difference between two scores was 24, then the total score is equal to
(A) 420 (B) 440
(C) 410 (D) 430
6. B

7. Arrange the following rational numbers in ascending order.

$$P = \frac{28}{5}, Q = \frac{48}{7}, R = \frac{17}{2}, S = \frac{35}{4}$$

- (A) $P < Q < S < R$ (B) $P < R < S < Q$
 (C) $Q < R < P < S$ (D) $P < Q < R < S$

7. **B**

8. If a, b, c, d, e are 5 consecutive odd numbers, find the average.

- (A) a (B) b
 (C) c (D) d

8. **C**

9. The 4-digit number A55B is divisible by 36. What is the sum of A and B?

- (A) 8 (B) 6
 (C) 4 (D) 2

9. **A**

10. Which of the following follows associativity?

- (A) Multiplication (B) Subtraction
 (C) Division (D) none of these

10. **A**

11. By how much is three-fifth of 350 greater than four-seventh of 210?

- (A) 100 (B) 110
 (C) 90 (D) 95

11. **C**

12. $\frac{3}{4} \times \left(\frac{-2}{3} + \frac{3}{5} \right)$ is equal to

- (A) $\frac{-3}{20}$ (B) $\frac{-19}{20}$
 (C) $\frac{-1}{20}$ (D) $\frac{1}{20}$

12. **C**

13. The value of $7 - \frac{2}{3 + \frac{2}{1 + \frac{5}{4 + \frac{2}{3}}}}$ is

- (A) $\frac{747}{105}$ (B) $\frac{747}{125}$
 (C) $\frac{747}{115}$ (D) $\frac{747}{135}$

13. **C**

14. A number consists of two digits whose sum is 11. If 9 is added to the number, its digits are interchanged. The original number is
(A) 65 (B) 56
(C) 92 (D) 74
14. B
15. If the mean of five numbers 7, 6, 3, x and 4 is 5.4 then x is
(A) 4.5 (B) 4
(C) 7 (D) none of these
15. C
16. If two coins are tossed simultaneously, find the Probability of getting one head.
(A) 0.2 (B) 0.25
(C) 0.5 (D) 0.75
16. C
17. Sum of median and mode of following data 3, 4, 2, 4, 6, 9, 0 is
(A) 4 (B) 6
(C) 7 (D) 8
17. D
18. Which of the following illustrates the inverse property of addition?
(A) $5 - 5 = 0$ (B) $5 + 5 = 10$
(C) $5 + 0 = 5$ (D) $5 - 0 = 5$
18. A
19. If $x = \frac{-5}{9}$ then $|x|$ is equal to
(A) $-|x|$ (B) $-x$
(C) 0 (D) 1
19. B
20. In an examination a student was asked to find $\frac{5}{13}$ th of a certain number. By mistake, he found $\frac{5}{3}$ of it. His answer was 250 more than the correct answer. The number given to him is
(A) 165 (B) 175
(C) 185 (D) 195
20. D

21. The value of $0.6 \times 0.5 + 0.6 \div 0.3$ is equal to
 (A) 2.45 (B) 2.3
 (C) 2.40 (D) 2.5
21. B
22. $\frac{1}{2\frac{1}{3}} + \frac{1}{1\frac{3}{4}} = \text{_____}$.
 (A) $\frac{7}{14}$ (B) $\frac{12}{49}$
 (C) $4\frac{1}{12}$ (D) 1
22. B
23. The difference of a number $\frac{1}{k}$ from its reciprocal is 75. Then the equation showing this relation is
 (A) $k = \frac{1}{k} - 75$ (B) $k = \frac{1}{k} + 75$
 (C) $k + 75 = \frac{1}{k}$ (D) None of these
23. B
24. A school has 20 teachers, one of them retires at the age of 60 years and a new teacher replaces him, this change reduces the average age of the staff by 2 years, the age of new teacher is :
 (A) 28 years (B) 25 years
 (C) 20 years (D) 18 years
24. C
25. Find the range of the following ages (in years) of 5 students of Class VIII in your school :
 13, 14, 12, 13, 15
 (A) 2 (B) 3
 (C) 4 (D) 5
25. B
26. The final marks in Chemistry of 10 students are as follows:
 53, 61, 48, 60, 65, 67, 69, 70, 71, 72
 What is the lowest score.
 (A) 53 (B) 61
 (C) 48 (D) None of these
26. C
27. In a class of 42 students, the number of boys is $\frac{2}{5}$ of the girls. Then number of boys in the class is
 (A) 30 (B) 12
 (C) 22 (D) 20
27. B

28. Find $(x+y) \div (x-y)$ if $x = \frac{1}{4}$ and $y = \frac{3}{2}$:
- (A) $\frac{6}{5}$ (B) $\frac{10}{3}$
(C) $\frac{-5}{4}$ (D) $\frac{-7}{5}$
28. D
29. Sum of the additive inverse and multiplicative inverse of 2 is:
- (A) $\frac{3}{2}$ (B) $\frac{-3}{2}$
(C) $\frac{1}{2}$ (D) $\frac{-1}{2}$
29. B
30. Which number can replace both the question marks in the equation $4\frac{1}{2} = \frac{?}{?} = \frac{?}{32}$
- (A) 144 (B) 7
(C) $7\frac{1}{2}$ (D) 12
30. D
31. The sum of first 10 natural numbers is
- (A) 45 (B) 35
(C) 56 (D) 55
31. D
32. The product of the ages of Anil and Sara is 240. If twice the age of Sara is more than Anil's age by 4 years. Sara's age is:
- (A) 10 years (B) 12 years
(C) 16 years (D) 20 years
32. B
33. Three fourth of a number is 60 more than its one third. The number is
- (A) 108 (B) 84
(C) 144 (D) 116
33. C

34. The tally marks given below show the distribution in the subjects preferred by a sample of school children. What fraction of the sample preferred mathematics?

Mathematics	
Physics	
Chemistry	
Biology	
Sociology	

- (A) $\frac{4}{25}$ (B) $\frac{1}{2}$
 (C) $\frac{7}{25}$ (D) $\frac{8}{25}$

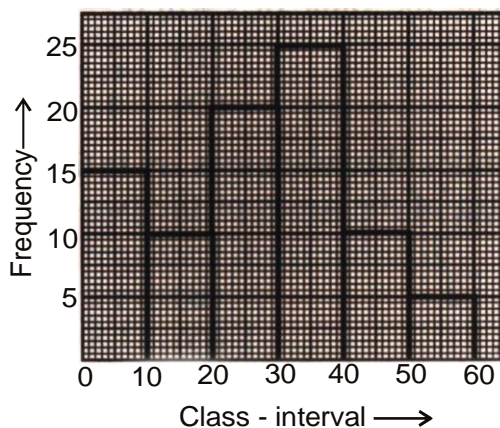
34. D

35. Two years ago, Dilip was three times as old as his son and two years hence, twice this age will be equal to five times that of his son. Then the present age of Dilip is

- (A) 14 years (B) 38 years
 (C) 32 years (D) 34 years

35. B

36. Refer the figure given below answer the following question.



- How many class-intervals have equal frequency ?
 (A) 2 (B) 3
 (C) 1 (D) None of these

36. A

37. If a is additive inverse of b then $2(a + b) = ?$
 (A) 2a (B) 0
 (C) 2b (D) 1

37. A

38. If a is additive identity element of b then what is the value of $(a + b)$?
 (A) b (B) a
 (C) 0 (D) 1

38. A

39. For rational numbers a & b , if b is multiplicative inverse of a and $b \neq 0$ then $ab = ?$
(A) a^2 (B) b^2
(C) 1 (D) 0
39. C
40. A decimal fraction is added by itself which equal to 176.252, then the fraction is:
(A) 88.126 (B) 88.136
(C) 88.216 (D) 88.316
40. A
41. If the digit 1 is placed after a two digit number whose tens digit is 't' and unit digit is 'u', the new number is:
(A) $10t + u + 1$ (B) $100t + 10u + 1$
(C) $t + u + 1$ (D) $t + u - 1$
41. B
42. If a and b are two non – negative integers then which statements is/are true
(i) $a + b$ is always positive integers
(ii) $a - b$ is an integer
(iii) $a \times b$ is always non – negative
(A) i only (B) ii & iii only
(C) i & iii only (D) i, ii, iii
42. B
43. The sum of three consecutive odd numbers is 20 more than the first of these numbers. What is the middle number?
(A) 7 (B) 9
(C) 11 (D) Data inadequate
43. B
44. For what value of * the statement $\left(\frac{*}{15}\right)\left(\frac{45}{135}\right) = 1$ is true?
(A) 15 (B) 25
(C) 35 (D) 45
44. D
45. What should be added to $\frac{2}{5}$ to get $\frac{3}{7}$?
(A) $\frac{1}{2}$ (B) $\frac{1}{5}$
(C) $\frac{1}{35}$ (D) none of these
45. C

SECTION – II

Physics

1. The addition of heat causes particles to _____ their motion.
(A) counteract (B) decrease
(C) increase (D) stay the same
1. **C**
2. The freezing point of a substance is the same as its _____.
(A) boiling point (B) condensation point
(C) evaporation point (D) melting point
2. **D**
3. A temperature of 30° Celsius is equal to _____ Kelvin.
(A) -303 (B) -243
(C) 243 (D) 303
3. **D**
4. Dial thermostats have bimetallic strips in them to regulate the temperature. Bimetallic strips are made of two pieces of metal that have _____ of expansion.
(A) different rates (B) high rates
(C) rigid rates (D) the same rates
4. **A**
5. Which of the following best explains the scenario below? On a summer morning, Ram walks barefoot across his paved driveway with no problem. However, later that afternoon he steps barefoot onto the same driveway and must quickly run off because the bottoms of his feet feel like they are burning.
(A) as the temperature increased during the day, the particles in the pavement moved slower and the thermal energy increased
(B) as the temperature increased during the day, the particles in the pavement moved slower and the thermal energy decreased
(C) as the temperature increased during the day, the particles in the pavement moved faster and the thermal energy increased
(D) as the temperature increased during the day, the particles in the pavement moved faster and the thermal energy decreased
5. **C**
6. The change in temperature of a body is 20°C, then the change in temperature on Kelvin scale is
(A) 293 K (B) 25 K
(C) 20 K (D) 253 K
6. **C**
7. Using the absolute temperature scale, the freezing point of water is correctly written as
(A) 0 K (B) 0°K
(C) 273 K (D) 273°K
7. **C**
8. Water has its greatest density at ___ F.
(A) 39° (B) 38°
(C) 39.2° (D) none
8. **C**

9. At what temperature Fahrenheit scale and Kelvin scale show same reading
(A) 488 (B) 574.25
(C) 284.5 (D) 625
9. **B**
10. Expansion during heating
(A) Occurs only in solids
(B) Increases the weight of a material
(C) Decreases the density of a material
(D) Occurs at the same rate for all liquids and solids
10. **C**
11. **Assertion** : A beaker is completely filled with water at 4°C . It will overflow, both when heated or cooled.
Reason : There is expansion of water below and above 4°C .
(A) If both assertion and reason are true and the reason is the correct explanation of the assertion.
(B) If both assertion and reason are true but reason is not the correct explanation of the assertion.
(C) If assertion is true but reason is false.
(D) If the assertion and reason both are false.
11. **A**
12. A solid ball of metal has a concentric spherical cavity within it. If the ball is heated, the volume of the cavity will be
(A) Increase (B) Decrease
(C) Remain unaffected (D) None of these
12. **A**
13. Surface of the lake is at 2°C . What is the temperature of the bottom of the lake
(A) 2°C (B) 3°C
(C) 4°C (D) 1°C
13. **C**
14. Oxygen boils at -183°C . This temperature is approximately
(A) -215°F (B) -297.4°F
(C) 329°F (D) 361.4°F
14. **D**
15. Two thermometers are used to record the temperature of a room. If the bulb of one is wrapped in wet hanky
(A) The temperature recorded by both will be same
(B) The temperature recorded by wet-bulb thermometer will be greater than that recorded by the other
(C) The temperature recorded by dry-bulb thermometer will be greater than that recorded by the other
(D) None of the above
15. **C**

SECTION – III

Chemistry

1. Which of the following is NOT a vegetable fibre?
(A) flax (B) silk
(C) hemp (D) jute
1. B,
2. Vegetable fibre are made up of
(A) Cellulose (B) Protein
(C) Nylon (D) Rayon
2. A,
3. Animal fibres are made up of
(A) cellulose (B) proteins
(C) Nylon (D) Rayon
3. B,
4. Which of the following process is NOT part of wool extraction?
(A) shearing (B) scouring
(C) sorting (D) reeling
4. D,
5. Removal of wool from a sheep is known as
(A) rearing (B) sorting
(C) shearing (D) scouring
5. C,
6. Sericulture is
(A) rearing of silk worms (B) rearing of sheep
(C) cotton plantation (D) rearing of honey bees
6. A,
7. Which of the following statement is not true?
(A) workers in wool industry generally suffers from sorters diseases
(B) Bakharwal is an Indian breed of sheep
(C) Rayon is a natural fibre.
(D) Shearing is usually done is summer season.
7. C,
8. Which country is the most producing silk in the world?
(A) China (B) India
(C) Bangladesh (D) Japan
8. A,
9. The fleece are combed to remove
(A) Burrs (B) Dust
(C) Low quality hair (D) None
9. A,
10. Which of the following is not a type of silk?
(A) Mulberry silk (B) Tassar silk
(C) Moga silk (D) Moth silk
10. D,

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11. What is the common name of sodium bicarbonate?
(A) Baking soda (B) Blue vitriol
(C) Caustic soda (D) Washing soda
11. A,
12. White vitriol is
(A) $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ (B) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
(C) $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ (D) $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$
12. D,
13. All soluble bases are called
(A) acid (B) base
(C) alkali (D) none
13. C,
14. The gas which escape out from many aerated soft drinks is
(A) H_2 (B) CO_2
(C) O_2 (D) N_2
14. B,
15. The acid which contain a large amount of water
(A) concentrated acid (B) diluted acid
(C) acetic acid (D) acidic
15. B,
-

Space for rough work

SECTION – IV
Biology

- 1 The presence of Rhizobium bacteria in the root nodules of legumes that fixes nitrogen into the soil, is an example of
(A) Decomposition (B) Parasitism
(C) Symbiotic relationship (D) Chemoautotrophic nourishment
1. C,
- 2 Ptyalin is an enzyme that digests
(A) carbohydrates (B) proteins
(C) lipids (D) cholesterol
2. A,
- 3 Elderly people are unable to digest milk and may vomit. This is due to the absence of
(A) Rennin (B) Amylase
(C) Lactase (D) Lipase
3. C,
- 4 Trypsin is an enzyme that digests proteins and is usually added in the baby foods. This enzyme is secreted by:
(A) Pancreas (B) Liver
(C) Stomach (D) Small intestine
4. A
- 5 During photosynthesis, the end product Oxygen is liberated from:
(A) water (B) carbon dioxide
(C) both (A) and (B) (D) atmosphere
5. A,
- 6 Fat digestion in humans occurs in
(A) mouth cavity (B) stomach
(C) liver (D) duodenum
6. D,
7. **Breakdown of sugars from the leftover food and release of acids in the mouth leads to**
(A) diarrhoea (B) tooth decay
(C) food poisoning (D) all of these
7. B,
8. Stomal thylakoids of chloroplasts is the site for
(A) Calvin cycle (B) Dark reaction
(C) Light reaction (D) Cellular metabolism
8. C,
9. Roughage is often recommended to enhance the efficiency of digestive system as it helps
(A) to digest carbohydrates (B) to increase the rate of absorption
(C) to fasten the assimilatory process (D) to increase the absorption of water
9. D,

10. **Movement of food through alimentary canal is called by which of these terms?**
 (A) Locomotion
 (B) Peristalsis
 (C) Pumping
 (D) Sliding
10. B,
11. Milk teeth in children has no
 (A) molars
 (B) premolars
 (C) incisors
 (D) canines
11. B,
12. The term 'Dark reaction' is considered as misnomer because it
 (A) requires no sunlight
 (B) occurs in the dark only
 (C) occurs in the shaded leaves
 (D) occurs on the underneath surface of leaves
12. A,
13. Match the following :
- | Column I | Column II |
|--------------------|--|
| (a) Stomach | (i) Storage of undigested organic matter |
| (b) Liver | (ii) Digestion of carbohydrates |
| (c) Salivary gland | (iii) Site for milk protein digestion |
| (d) Rectum | (iv) Has alkaline medium |
| (e) Duodenum | (v) Production of bile pigments |
-
- | | (a) | (b) | (c) | (d) | (e) |
|-----|------------|------------|------------|------------|------------|
| (A) | (i) | (ii) | (iii) | (iv) | (v) |
| (B) | (ii) | (iv) | (v) | (i) | (iii) |
| (C) | (ii) | (iii) | (v) | (iv) | (i) |
| (D) | (iii) | (v) | (ii) | (i) | (iv) |
13. D,
14. Some plants eat and digest insects
 (A) to suppress their hunger
 (B) to fulfill their nitrogen and phosphorus needs
 (C) as they are unable to produce food
 (D) to maintain the ecological balance in nature
14. B,
15. Which of the following substances is not a final product of digestion?
 (A) glycerol
 (B) amino acids
 (C) maltose
 (D) fatty acids
15. C,

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PHASE – I

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Answer key