

FIITJEE COMMON TEST

Batches: Three Year CRP(2023)

PHASE TEST - 1

QP CODE:

Time : 2 hours

Maximum Marks : 100

Scholastic Aptitude Test

Instructions

- The question paper consists of **100** multiple choice questions divided into five sections.
Section – I contains **40** questions of **SST**.
Section – II contains **20** questions of **Mathematics**.
Section – III contains **13** questions of **Physics**.
Section – IV contains **13** questions of **Chemistry**.
Section – V contains **14** questions of **Biology**.
- Each question carries **+1** marks for correct answer.
- 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 (SST)

1. Who set up the first Indian Jute mill in Calcutta in 1917?
 (A) Seth Hukumchand (B) Dinshaw petit (C) Dwarkanath Tagore (D) J. Jeejeebhoy

1. **A,**

2. Where was the first International Earth summit held?
 (A) Tokyo (B) Brazil (C) Washington D.C (D) Paris

2. **B,**

3. What is old alluvial soil called?
 (A) Bangar (B) Duar (C) Khadar (D) Chos

3. **A,**

4. Tidal energy is a type of _____ resource.
 (A) Biotic (B) Replenishable (C) Non-Renewable (D) Artificial

4. **B,**

5. Match the following with reference to India's wasteland :

Column – I		Column – II	
1	Water eroded area	A.	10%
2	Forest degraded area	B.	6%
3	Saline and Alkaline	C.	28%
4	Wind eroded area	D.	56%

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

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

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

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

5. **D**

6. Resources which are found in a region, but have not been utilised.
 (A) Community owned resources (B) Individual resources
 (C) Developed resources (D) Potential resources

6. **D**

7. At which of the following states in USA was the United Nation Monetary and Financial Conference held in 1944?

(A) New Hampshire (B) New York (C) San Francisco (D) New Jersey

7. **A,**

8. Which of the following diseases became deadly for Native-Americans?
 (A) Rinderpest (B) Small pox (C) Plague (D) Cholera

8. **B,**

9. Match List I with List II and select the correct answer using the codes given below:

Column – I		Column – II	
1	Biotic	A.	Water
2	Renewable resources	B.	Flora and Fauna
3	Stock	C.	Picnic spots
4	Community owned resources	D.	Wind energy

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

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

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

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

9. **B**

10. Which of the following Tiger Reserve is threatened by dolomite mining?
(A) Gir (B) Buxa (C) Sariska (D) Bandhavgarh
10. B,
11. Which of the following is not true with reference to distribution of resources in India?
(A) The states of Jharkhand, Chhattisgarh and Madhya Pradesh are rich in minerals and coal deposits
(B) Arunachal Pradesh has abundance of water resources
(C) The state of Rajasthan is very well endowed with solar and wind energy
(D) The state of West Bengal lacks fertile soil
11. D
12. Name the writer who presented Gandhian Philosophy of resource conservation in his book.
(A) Brundtland (B) Dickens (C) Schumacher (D) Nehru
12. C,
13. Which of the following system of Power Sharing is called checks and balances?
(A) Federal division of power (B) Separation of powers
(C) Vertical division of power (D) Horizontal division of power
13. D,
14. The system of Panchayati Raj involves:
(A) village, block and district level (B) village, state and national level
(C) village, district and state level (D) village, state and union level
14. A,
15. The Human Development Report published by _____ compares countries based on education level, health status and per capita income of the people.
(A) World Bank (B) UNDP (C) IMF (D) UNICEF
15. A,
16. **Assertion (A):** In India, most migrations have been from rural to urban areas.
Reason (R): The urban areas offer greater employment opportunities and better living conditions.
(A) Both A and R are true and R explains A
(B) Both A and R are true but R does not explain A
(C) A is true and R is false
(D) A is false and R is true
16. A
17. Which two institutions are well-known as Bretton Woods Institutions?
(A) UNICEF and IMF (B) WHO and World Bank
(C) IMF and World Bank (D) UNESCO and UNICEF
17. C,
18. Which among the following was the fabled city of gold?
(A) EL Paso (B) EL Dorado (C) Mexico (D) India
18. B,
19. Who the following is a Nobel Prize winner?
(A) V.S. Naipaul (B) JM Keynes
(C) Shivnarain Chandrapaul (D) Ramnaresh Sarwan
19. A,

20. Match List – I (Type of resources) with List – II (Basis of classification) and select the codes given below:

List – I (Type of resources)		List – II (Basis of classification)	
A.	Biotic and abiotic	I.	Status of development
B.	Renewable and non-renewable	II.	Origin
C.	Individual, community, national and international	III.	Ownership
D.	Potential developed, stock and reserves	IV.	Exhaustibility

(A) A-II, B-I, C-III, D-IV

(B) A-II, B-I, C-III, D-IV

(C) A-II, B-IV, C-III, D-I

(D) A-IV, B-II, C-III, D-I

20. **C**

21. GDP is the total value of _____ produced during a particular year.

(A) All goods and services

(B) All final goods and services

(C) All intermediates goods and services

(D) All intermediate and final goods and services

21. **B,**

22. Who said these words, "There is enough for everybody's need and not for anybody's greed".

(A) George Washington

(B) Rabindra Nath Tagore

(C) John Kennedy

(D) Mahatma Gandhi

22. **D,**

23. The colour of red soil is due to

(A) aluminium oxide

(B) iron oxide

(C) calcium oxide

(D) none of these

23. **B,**

24. Which one of the following is known as Regur?

(A) red soil

(B) black soil

(C) desert soil

(D) mountain soil

24. **B,**

25. The soil ideal for growing cotton is

(A) alluvial soil

(B) laterite soil

(C) red soil

(D) black soil

25. **D,**

26. Assertion (A): In Belgium state government is not subordinate to central government and enjoys more power than earlier.

Reason (R): Many powers of central government were transferred to state government

(A) Both A and R are correct and R explains A

(B) Both A and R are correct and R does not explain A

(C) Only A is correct

(D) Only R is correct

26. **A**

27. What were the Corn Laws?

(A) They were passed by the British Government to restrict the import of corn

(B) They were passed by the British Government to restrict the export of corn

(C) They were passed by the French Government to export corn to Canada

(D) They were passed by the America to import corn from other countries

27. **A,**

28. Which Indian port connected India to the Gulf and Red Sea Ports?

(A) Surat

(B) Broach

(C) Calicut

(D) Cochin

28. **A,**

29. What was "Spinning Jenny"?

(A) A machine

(B) A person

(C) An industry

(D) None of the above

29. **A,**

30. Which country has a better rank of HDI than India ?
 (A) Pakistan (B) Sri Lanka (C) Nepal (D) Myanmar
 30. **B,**
31. Which of the following is / are considered as the criteria of HDI rank?
 (A) Per capita income (B) Education (C) Health (D) All the these
 31. **D,**
32. Power shared among the different levels of the government is also known as ____
 (A) Horizontal division of power (B) the system of checks and balances
 (C) Federalism (D) None of these
 32. **C,**
33. Which was the first symbol of the new era during industrialization ?
 (A) Iron and Steel (B) Cotton (C) Steam Engine (D) Coal as a fuel
 33. **B,**
34. Which of the following Indian Ports had links with south east Asian countries ?
 (A) Surat (B) Bombay (C) Masulipatnam (D) Broach
 34. **C,**
35. Which local govt. works at district level ?
 (A) Panchayat Samiti (B) Village Panchayat (C) Zila Parishad (D) None of the above
 35. **C,**
36. Due to the dry climate and high temperature, evaporation is faster and the soil lacks humus and moisture. Identify the soil.
 (A) Alluvial soil (B) Black soil
 (C) Arid soil (D) Laterite soil
 36. **C**
37. The alluvial soil of northern plains have been deposited by three important river systems. Which of the following river systems matches with the statement?
 (A) The Indus, the Ganga and the Brahmaputra
 (B) The Brahmaputra, the Narmada and the Kaveri
 (C) The Indus, the Brahmaputra and the Kaveri
 (D) The Indus, the Ganga and the Krishna
 37. **A**
38. The total income of the country divided by its total population is called ?
 (A) National income (B) Per Capita Income (C) Total Income (D) None of these
 38. **B,**
39. Chutney music was popular in
 (A) Trinidad (B) Canada (C) England (D) Germany
 39. **A**
40. When was the indentured labour system abolished in India ?
 (A) 1920 (B) 1922 (C) 1921 (D) 1923
 40. **C,**

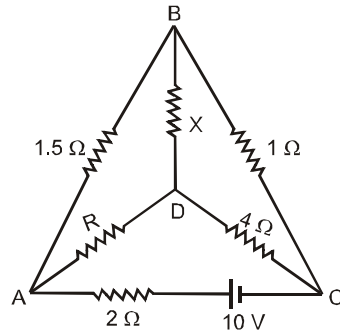
SECTION – II (MATHEMATICS)

1. HCF of 4029, 3081 and 5451 is
 (A) 869 (B) 711 (C) 237 (D) 241
1. A,
2. If $2x + y = 171$, $x + 2y = 105$, then $x - 6y$ is
 (A) 0 (B) 1 (C) 2 (D) 3
2. B,
3. The coefficient of x^9 in $(2x^4 + 3x^3 + 5x^2 + 7)(x^9 + 3x^5 + 4x^6 + 8)$ is
 (A) 25 (B) 16 (C) 15 (D) 41
3. A,
4. HCF of $4x^4 + 1$ and $4x^4 + 8x^3 + 8x^2 + 4x + 1$ is
 (A) $2x^2 - 2x + 1$ (B) $2x^2 + 2x + 1$ (C) $2x^2 - 2x - 1$ (D) $4x^4 + 1$
4. B,
5. If $73x + 137y = 283$ and $137x + 73y = 347$, then the value of x^{3y} is
 (A) 12 (B) 1 (C) 8 (D) 27
5. C,
6. $12x + ky = 6$ and $kx + 3y = 3$ have no solution for
 (A) $k = 3$ (B) $k = -6$ (C) $k = -3$ (D) $k = 6$
6. B,
7. The value(s) of x for which $\sqrt{\frac{x}{x-1}} + \sqrt{\frac{x-1}{x}} = \frac{50}{7}$ is
 (A) $-\frac{1}{48}, -\frac{49}{48}$ (B) $-\frac{1}{48}, \frac{49}{48}$ (C) $\frac{1}{48}$ (D) $-\frac{49}{48}$
7. B,
8. If α, β are the zeros of the polynomial $= x^2 - ax + 2$, then the polynomial $g(x)$ whose zeros are $\frac{1}{\alpha^2\beta}$ and $\frac{1}{\beta^2\alpha}$ such that $g(0) = 1$, is
 (A) $8x^2 - ax + 1$ (B) $\frac{1}{8}(8x^2 - ax + 1)$ (C) $\frac{1}{8}(8x^2 - 2ax + 1)$ (D) $8x^2 - 2ax + 1$
8. D,
9. The value of $.53\bar{6}$ is:
 (A) $\frac{536}{1000}$ (B) $\frac{536}{999}$ (C) $\frac{536}{990}$ (D) $\frac{161}{300}$
9. D,
10. Applying Euclid's division algorithm, the H.C.F. of 5256 and 18278 is
 (A) equal to the H.C.F. of the remainders obtained in second and third step
 (B) less than H.C.F. of the remainders obtained in second and third step
 (C) greater than H.C.F. of the remainders obtained in second and third step
 (D) none of these
10. A,

11. A two-digit number is formed by either subtracting 17 from nine times the sum of the digits or by adding 21 to 13 times the difference of the digits. Find the number.
 (A) 37 (B) 73 (C) 71 (D) cannot be determined
11. B,
12. For what value of k do the equations $3(k-1)x+4y=24$ and $15x+20y=8(k+13)$ have infinite solutions?
 (A) 1 (B) 4 (C) 3 (D) 2
12. D,
13. H.C.F. and L.C.M. of two polynomials are $(x+y)$ and $(3x^5+5x^4y+2x^3y^2-3x^2y^3-5xy^4-2y^5)$ respectively. If one of the polynomials is (x^2-y^2) , the other one is:
 (A) $3x^4-8x^3y+10x^2y^2+7xy^3-2y^4$ (B) $3x^4-8x^3y-10x^2y^2+7xy^3+2y^4$
 (C) $3x^4+8x^3y+10x^2y^2+7xy^3+2y^4$ (D) $3x^4+8x^3y-10x^2y^2+7xy^3+2y^4$
13. C,
14. If $3.2^{2x+1}-5.2^{x+2}+16=0$ and x is an integer, find the value of x
 (A) 1 (B) 2 (C) 3 (D) 4
14. A,
15. The remainder when 2^{23} is divided by 7
 (A) 4 (B) 3 (C) 2 (D) 1
15. A,
16. If x^3+6x^2+4x+k is exactly divisible by $(x+2)$, then the value of k is:
 (A) -6 (B) -7 (C) -8 (D) -10
16. C,
17. If α and β be the zeros of the polynomial x^2+5x+k , where $\alpha^2+\beta^2=11$, then the value of k .
 (A) 5 (B) 6 (C) 7 (D) 4
17. C,
18. If the HCF of the polynomials $(x-3)(3x^2+10x+b)$ and $(3x-2)(x^2-2x+a)$ is $(x-3)(3x-2)$, then the relation between a and b is
 (A) $33a+8b=0$ (B) $8a-3b=0$ (C) $8a+3b=0$ (D) $a-2b=0$
18. B,
19. If the roots of the equation $x^3-12x^2+39x-28$ are in A.P. then their common difference will be
 (A) ± 1 (B) ± 2 (C) ± 3 (D) ± 4
19. C,
20. Let a_n be the n th term of an A.P. If $\sum_{r=1}^{10^{99}} a_{2r} = 10^{100}$ and $\sum_{r=1}^{10^{99}} a_{2r-1} = 10^{99}$, then the common difference of A.P. is
 (A) 1 (B) 10 (C) 9 (D) 10^{99}
20. C,

SECTION – III (PHYSICS)

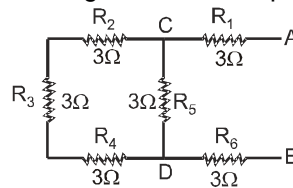
1. If the current through the branch BD of the circuit, shown, is zero. Find the resistance R and current I through it.



- (A) $R = 2\Omega, I = 1A$ (B) $R = 6\Omega, I = 1A$ (C) $R = 2\Omega, I = 0.5 A$ (D) $R = 6\Omega, I = 0.5 A$

1. **D,**

2. For the combination of resistors shown in figure, find the equivalent resistance between (i) C and D :



- (A) 3Ω (B) 1.5Ω (C) 1.25Ω (D) 2.25Ω

2. **D,**

3. A cylindrical rod is reformed to twice its length with no change in its volume. If The resistance of the rod was R, the new resistance will be :

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

3. **C,**

4. A wire carries a steady current of 1.0 A over a period of 20s. What total charge passes through the wire in this time interval :

- (A) 200 C (B) 20 C (C) 2.0 C (D) 0.20 C

4. **B,**

5. A 24V potential difference is applied across a parallel combination of four 6 ohm resistor. The current in each resistor is :

- (A) 1A (B) 4A (C) 16A (D) 36A

5. **B,**

6. Two unequal resistances are connected in parallel. Which of the following statement is true :

- (A) current is same in both (B) current is larger in higher resistance
(C) voltage-drop is same across both (D) voltage-drop is lower in lower resistance

6. **C,**

7. A letter 'A' is constructed of a uniform wire of resistance 1 ohm per cm. The sides of the letter are 20 cm and the cross piece in the middle is 10 cm long. The resistance between the ends of the legs will be :

- (A) 32.4 ohm (B) 28.7 ohm (C) 26.7 ohm (D) 24.7 ohm

7. **C,**

8. If one micro-amp. current is flowing in a wire, the number of electrons which pass from one end of the wire to the other end in one second is :

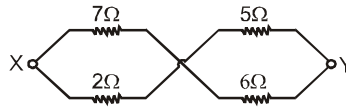
- (A) 6.25×10^{12} (B) 6.25×10^{15} (C) 6.25×10^{18} (D) 6.25×10^{19}

8. **A,**

9. When the resistance wire is passed through a die the cross section area decreases by 1%, the change in resistance of the wire is :
 (A) 1% decrease (B) 1% increase (C) 2% decrease (D) 2% increase

9. **D,**

10. The equivalent resistance points X & Y :



- (A) 4Ω (B) 4.55Ω (C) 2Ω (D) 20Ω

10. **B,**

11. Two electric lamps each of 100 watts 220V are connected in series to a supply of 220 volts. The power consumed would be :

- (A) 100 watts (B) 200 watts (C) 25 watts (D) 50 watts

11. **D,**

12. When a fuse is rated 8A, it means :

- (A) it will not work if current is less than 8A (B) it has a resistance of 8 ohm
 (C) it will work only if current is 8A (D) it will burn if current exceeds 8A

12. **D,**

13. If 10 cells each of 1.4 volts are connected in parallel, their equivalent potential difference will be :

- (A) 1.4 volts (B) 0.14 volts (C) 14 volts (D) 10/1.4 volts

13. **A,**

SECTION – IV (CHEMISTRY)

1. The conjugate acid of NH_2^- is:
 (A) NH_3 (B) NH_2OH (C) NH_4^+ (D) N_2H_4
1. A,
2. pH of 0.0001 N H_2SO_4 will be:
 (A) 2 (B) 6 (C) 13 (D) 4
2. D,
3. The term rancidity represents
 (A) Acid rain (B) Oxidation of fatty food
 (C) Rottening of fruit (D) Fading of coloured clothes in the Sun
3. B,
4. Which of the statements about the reaction below are incorrect?
 $\text{Fe}_2\text{O}_3 + 3\text{C} \rightleftharpoons 2\text{Fe} + 3\text{CO}$
 (A) Ferric oxide is getting reduced (B) Carbon is getting oxidized
 (C) Ferric oxide is the oxidizing agent (D) Carbon is the oxidizing agent
4. D,
5. When a gas is passed through dry slaked lime a bleaching agent is produced. Then the gas is
 (A) H_2 (B) O_2 (C) Cl_2 (D) N_2
5. C,
6. Which of the following has setting property with water?
 (A) Burnt plaster (B) Plaster of Paris
 (C) Monoclinic gypsum (D) Orthorhombic gypsum
6. B,
7. Which of the following is(are) Lewis acid?
 (i) AlCl_3 (ii) BF_3 (iii) NH_3 (iv) PH_3
 (A) only (i) (B) (iii) and (iv) (C) (i) and (ii) (D) (ii) and (iv)
7. C,
8. The conjugate base of HCO_3^- is
 (A) H_2CO_3 (B) CO_3^{2-} (C) H^+ (D) CO_2
8. B,
9. Calculate the pH of 0.05 M Ca(OH)_2 solutions
 (A) 1 (B) 5 (C) 9 (D) 13
9. D,
10. The oxidation number of carbon in CHCl_3 is
 (A) +6 (B) +3 (C) +4 (D) +2
10. D,
11. $\text{CaCO}_3(\text{s}) \xrightarrow{\text{Heat}} \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$
 The reaction above is a kind of
 (A) combustion reaction (B) displacement reaction
 (C) combination reaction (D) decomposition reaction
11. D,

12. Pick out the incorrect statement:
(i) All Arrhenious acids are Bronsted acid
(ii) All Arrhenious bases are Bronsted base
(iii) All Bronsted acids are Lewis acids
(iv) All Bronsted bases are Lewis bases
(A) (i) and (iv) (B) (i) and (iii)
(C) (ii) and (iii) (D) (ii) and (iv)
- 12. C,**
13. Which will have maximum pH?
(A) M/10 HCl (B) M/100 HCl (C) M/100 NaOH (D) M/10 NaOH
13. **D,**

SECTION – V (BIOLOGY)

1. Which of the following products of light dependent phase are used during dark reaction of photosynthesis?
 (A) RuDP and ATP (B) H₂O and O₂
 (C) NADPH and ATP (D) ATP and O₂
 1. C
2. The breakdown of glucose to pyruvate takes place in:
 (A) Mitochondria (B) Nucleus
 (C) Lungs (D) Cytoplasm
 2. D
3. If pepsin is lacking in gastric juice, then the event in the stomach will be affected
 (A) Digestion of starch into sugars
 (B) Proteins break down into peptides
 (C) Breaking of fats into glycerol and fatty acids
 (D) Digestion of nucleic acid.
 3. B
4. Cramps in the leg muscle after running a long distance are because of
 (A) Build up of acetic acid. (B) Build up of oxalic acid.
 (C) Build up of lactic acid. (D) Build up of pyruvic acid.
 4. C
5. Bow shaped legs in children are due to deficiency of vitamin
 (A) Vitamin D (B) Vitamin A
 (C) Vitamin B (D) Vitamin C
 5. A
6. Which is the correct sequence of air passage during inhalation?
 (A) Nostrils → Larynx → pharynx → trachea → lungs.
 (B) Nasal passage → trachea → pharynx → larynx → alveoli
 (C) Larynx → nostrils → pharynx → lungs
 (D) Nostrils → pharynx → larynx → trachea → alveoli
 6. D
7. The average life span of WBC in man is about?
 (A) 15 – 20 days (B) 10 – 13 days
 (C) 80 – 100 days (D) 50 – 75 days
 7. B
8. Carbon monoxide has greater affinity for haemoglobin as compared to oxygen:
 (A) 2 times (B) 20 times
 (C) 200 times (D) 1000 times
 8. C
9. Alkaline food contents of intestine is called:
 (A) Chyme (B) Bolus
 (C) Chyle (D) None of these
 9. C
10. The contraction and expansion movement of the walls of oesophagus is called
 (A) translocation (B) transpiration
 (C) Peristaltic movements (D) digestion
 10. C

11. The pancreas secrete pancreatic juices which contains enzyme like _____ for digesting proteins.
(A) pepsin (B) lipase
(C) trypsin (D) nuclease
11. C
12. Succus entericus is:
(A) Swollen area between ileum and rectum
(B) Intestinal juice
(C) Any swelling in gut
(D) Vermiform appendix
12. B
13. Dark reaction occurs in
(A) Grana (B) Stroma
(C) Both (A) and (B) (D) None of these
13. B
14. Gastric digestion takes place efficiently in
(A) acidic medium (B) alkaline medium
(C) Neutral medium (D) none of these
14. A