NATIONAL TALENT SERVICE EXAM (NTSE)
MODEL QUESTION PAPER

MENTAL ABILITY TEST

PART – 1

Directions: In the following questions (1 – 10) there are five groups of letters in each. Four of these groups are alike in same way while one is different. Find the one that is different and will be your answer as well.

Q1.

    (a) asibu   (b) oarse

    (c) oinak   (d) zamol

    (e) yaixe

Ans. (d) as each contains 2 consonants and 3 vowel but d does not.

Q2.

    (a) MNM   (b) HJR

    (c) VWD   (d) BCX

    (e) KLO

Ans. (b) as in others first two letters are serially pronounced but (b) is not in order.

Q3.

    (a) ira   (b) aam

    (c) kas   (d) utr

    (e) btd

Ans. (e) as all other four gives a sense of words by arranging the letters as air, man ask and True but (e) does not as such.

Q4.

    (a) yxz   (b) cbd

    (c) nmr   (d) wvx

    (e) pqo

Ans. (e) as in other four we find the middle letter in the initial letter in order like xyz, bcd, etc

Q5.

    (a) AiiR   (b) MooX

    (c) VxxZ   (d) DecY

    (e) DffH

Ans. (d) as other four there are some letters repeated twice in the middle which is a deviation in (d).

Q6.

    (a) cot   (b) pot

    (c) but   (d) hut

    (e) mat

Ans.   (e) pronounciation changed.

Q7.

    (a) AabD   (b) eEcf

    (c) pPrs   (d) nNxz

    (e) dDrs

Ans.   (a) as the first letter is capital.

Q8.

    (a) ability   (b) capability

    (c) probability   (d) surety

    (e) flexibility

Ans.   (d) as in others 'li' is absent to give a right sense but (d) has already a sense.

Q9.

    (a) doe   (b) man

    (c) xaz   (d) poq

    (e) oep

Ans.   (c) as in all others two consecutive alphabets occur at the ends as de,mn, pq, and op.

Q10.

    (a) ACE   (b) PKR

    (c) NPR   (d) GIK

    (e) PRT

Ans.   (b) as in all others in each alphabet there is a difference of one space.

Directions: In each of following questions, there are four or five alternatives given. Find the correct one for each question.

Q11. **Two numbers are in the ratio 5:6 and if 4 is subtracted from each, they are reduced to 2:3, then the highest number is**

    (a) 4   (b) 12

    (c) 8   (d) 10

Ans.   (c) the highest number be 6x and the least number be 5x.

Sol: As the problem $\dfrac{5x-4}{6x-4} = 2:3$

                      15x – 12 = 12 x – 8   or 15 x – 12x = – 8 + 12

                      or 3x = 4   or x = 4/3

So largest number is 6x = 6 × 4/3 = 8

Q12. A square and a triangle have equal areas. If the ratio side of square and the height of triangle is 2/3 find the ratio of base to height.

(a) 2/3   (b) 4/3

(c) 4/5   (d) 9/8

(e) None of these

Ans. As the problem

$$a^2 = 1/2h \times b$$

$$\frac{a}{h} = 2/3 \text{ or } a = 2/3h$$

$$h = 3/2 \; b$$

From equation (i)

$$\tfrac{1}{2} \, h \, b = a^2$$

$$\tfrac{1}{2} \, h \, b = (2/3h)^2 = 4/9h^2 \text{ or } h/b = 1/2/4/9 = \tfrac{1}{2} \times 9/4 = 9/8$$
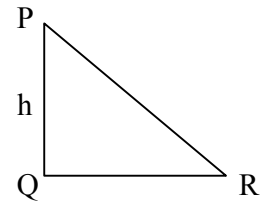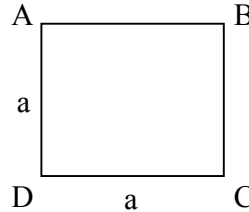
Q13. How many prime numbers lie between 115 – 122.

(a) 2   (b) 3

(c) 4   (d) 5

(e) 6

Ans. 115, 116, 117, 118, 119, 120, 121, 122.

Q14. Ram is 5 times as old as Shyam. If their difference of age is 8 years, how old is Ram?

(a) 8 years   (b) 10 years

(c) 12 years   (d) 5 years

(e) None of these

Ans. (b) 10 years

Sol: Suppose Shyam's age = x

      So Ram's age = 5x

As per the problem

      5x – x = 8 or 4x = 8 or x = 2

So Ram's age = 5x = 5 × 2 = 10 years

Q15. A runs faster than E but not so fast as B and B runs faster than C but not as faster than D, who runs faster?

(a) A   (b) B

(c) C   (d) E

Ans. (d)

Q16. The pages of a book are numbered for 1 to 100 manually. How many times will be it be essential to write the number 5?

(a) 20   (b) 19

(c) 18   (d) 9

(e) 10

Ans. (b)

Q17. A person climbs up a pole of 88 mt high, in every minute he climbs 12 mt but slips down 8 mt. So how much time he will take to reach at the top?

(a) 19   (b) 29

(c) 28   (d) 22

(e) 14

Ans. It is clear that in the last step, he does not slip as he reaches on the top so actual distance which cover for slipping zone will be 88 – 12 = 76, actual distance covered in a minute is 12 – 8 = 4.
So the time taken will be 76/4 = 19

Q18. How many square of side 5 cm cab ve adjusted in a rectangular box of size $25 \times 15 \times 10$ cm

(a) 30   (b) 60

(c) 50   (d) 40

(e) None of these

Ans. Volume of square = 53
Volume of given rectangle = $25 \times 15 \times 10$ cm
As per the question = $\dfrac{25 \times 15 \times 10}{5 \times 5 \times 5}$ = 30

Q19. The sum of 3 positive numbers in AP is 189. The sum of their squares is 11915. Find their product.

(a) 7930   (b) 8970

(c) 9703   (d) 7960

(e) None of these

Ans. Let the numbers in AP series be
$\quad$ a – d, a, a + d
So a – d + a + a + d = 189 or 3a = 189
$\quad$ or a = 63
As per second part of the problem
$\quad (a - (d)^2 + (a)^2 + (a + (d)^{2} = 4023$ or $3a^2 + 3d^2 = 4023$
$\quad$ or $3 \times (63)^{2+} 2d^2 = 4023$
$\quad$ or $2d^2 = 11915 - 3 \times 63 \times 63$
$\quad = 11915 - 11907$
$\quad = 08$
$\quad$ or $d^2 = 4$ or d = 2
So their product is (a – (d) × a × (a + (d)
$\quad = (63 - 2) \times 2 \times (63 + 2)$
$\quad = 61 \times 2 \times 65$
$\quad = 130 \times 61$
$\quad = 7930$

Q20. Find the number whose square root is twice of its cubic root.

(a) 128   (b) 64

(c) 16   (d) 4

(e) None of these

Ans. Let the number be x

As per the problem $2\sqrt{x} = 2 \times 3\sqrt{x}$

or $x^{1/2} = 2x^{1/3}$

Raising both sides by 6 times

$(x^{1/2})^6 = 2^6(x^{1/2})^6$

$x^{1/2 \times 6} = 2^6 x^{1/3 \times 6}$

or $x^3 = 64\,x^2$ $\qquad\qquad\qquad\qquad$ or $x = 64$

Q21. There are 24 birds on a tree. A hunter fired a gun and 20 fall down on ground. So how many birds left on the tree?

(a) 4 $\qquad\qquad\qquad\qquad\qquad$ (b) 7

(c) 24 $\qquad\qquad\qquad\qquad\qquad$ (d) None of these

Ans. None of these as its clear from the general ideology.

Q22. A is four times as efficient as B & A can complete a work in 90 days less time than B. Find in how many days both can complete the work.

(a) 30 $\qquad\qquad\qquad\qquad\qquad$ (b) 20

(c) 40 $\qquad\qquad\qquad\qquad\qquad$ (d) 50

Ans. Let the given work be done by B in x days

As per the problem $x - 90 = \dfrac{x}{4}$ or $4x - x = 90$ or $x = 30$ days.

Since A is 3 times as efficient as B.

Q23. I am the eldest child of my parents. There is a gap of 6 years between the ages of my brother and sister including myself. If my mother was 22 years, when I was born? What was age at the birth of her youngest child?

(a) 30 $\qquad\qquad\qquad\qquad\qquad$ (b) 28

(c) 16 $\qquad\qquad\qquad\qquad\qquad$ (d) 25

(e) None of these.

Ans. (c)

Q24. The calendar of the year 1982 can next be used for the year?

(a) 1984 $\qquad\qquad\qquad\qquad\qquad$ (b) 1990

(c) 1985 $\qquad\qquad\qquad\qquad\qquad$ (d) 1988

(e) None of these

Ans. (d) 1988

Q25. Two successive discount of 20% and 25% equivalent to what amount of a single discount?

(a) 25% $\qquad\qquad\qquad\qquad\qquad$ (b) 10%

(c) 15% $\qquad\qquad\qquad\qquad\qquad$ (d) 5%

(e) 20%

Ans. Let the amount be = Rs. 100

After 20% of discount, actual amount payable

$$= 100 - \frac{20}{100} \times 100 = 80$$

In second case the discount is 25%

So the total single discount will be = $\frac{25}{100} \times 80 = 20\%$

Q26. **If x persons can complete work in t hours, in how many hours y persons can complete it?**

(a) $\dfrac{yt}{x}$ (b) $\dfrac{yx}{t}$

(c) $\dfrac{tr}{y}$ (d) $\dfrac{tx}{y}$

(e) None of these

Ans. x person can complete in t hours

1 person can complete in t $\times$ x hrs

y person can complete in $\dfrac{t \times x}{y} = \dfrac{tx}{y}$

Q27. **Mohan spent 25% of his monthly earning on magazines. Out of the banana amount he spent 75% on the hostel and college fees. If he had Rs. 120 at the end of the month, find how much money he has received from his father in that month?**

(a) Rs. 1000   (b) Rs. 1260

(c) Rs. 640   (d) Rs. 850

(e) None of these

Ans. Let the monthly income be = x

Expenditure on magazine = 25 x = ¼ x

So balance amount = x – x/4 = ¾ x

And hostel and college expense = 3/4x $\times$75/100 = 9x/16

So balance amount he had = ¾ x – 9x/16

$$= \frac{12x - 9x}{16} = \frac{3x}{16}$$

As per the problem = 3x/16 = 240

or 3x = 120 $\times$ 16 or x = $\dfrac{120 \times 16}{3}$ = Rs. 640

Q28. **A, B and C are partners and invests in a business such that A spends 1/4th of the total. B spends 1/5th less than C. If C's investment is 1/3, find the ratio of their profits on a amount of 4300.**

(a) 15:20:8   (b) 20:15:8

(c) 8:15:20   (d) 25:5:8

(e) None of these

Ans. Let the total capital be $= x$

A's share $= 1/4x = x/4$

C's share $= 1/3 \ x = x/3$

B's share $= x/3 - x/5 = \dfrac{5x - 3x}{15} = \dfrac{2x}{15}$

So their ratio of investment is

$$\dfrac{x}{4} : \dfrac{x}{3} : \dfrac{2x}{15} \quad = \dfrac{x}{4} \times 60, \ \dfrac{x}{3} \times 60, \ \dfrac{2x}{15} \times 60$$

15x: 20x: 8x

Profit will be distributed as per proportion of their investment.

So 15x + 20x + 8x = 4300

Or 43 x = 4300   Or x = 4300/43 = 100

A's profit = 1500

B's profit = 2000

C's profit = 800

A:B:C = 1500:2000:800 = 150:20:8

Q29. **In a cage, there are rabbits and parrots and the number of heads are 28 and feet are 72. Find the number of parrots and rabbits.**

(a) 20, 8   (b) 8, 20

(c) 14, 14   (d) 12, 16

(e) None of these

Ans. Let there be x parrots and y rabbits

As per the problem,

Total number of heads $= 28 = x + y$ (i)

Total number of legs $= 72 = 2x + 4 \ y$

$= x + 2y = 36$ (ii)

Solving equation (i) and equation (ii)

x + y = 28

x + 2y = 36

y = 8

and x + y = 28 or x = 28 – 8 = 20

So there are 20 parrots and 8 rabbits.

Q30. **Some students are divided into two groups A & B. If 10 students are sent from A to B, the number in each is the same. But if 20 students are sent from B to A, the number in A is double the number in B. Find the number of students in each group A & B.**

(a) 100, 80   (b) 80, 100

(c) 110, 70   (d) 70, 110

(e) None of these

Ans. Let the number in A and B be a & b respectively

As per the question a – 10 = b + 10

a – b = 20   (i)

and a + 20 = 2 (b – 20)

a – 2b = – 20   (ii)

Solving A = 100; B = 80

DIRECTIONS: In each of the following questions, a series of numbers is given followed by a blank space with a (?) question mark on it. The number to fill in the blank is given has one of the alternative among the five given under each question. Find the correct alternative in each case.

Q31.   **3, 18, 43, 78, 123,?**

(a) 169   (b) 178

(c) 163   (d) 153

(e) 157

Ans.   The Arithmetic mean difference between the two consecutive numbers is increasing 10 as 15 25 35 45. So the numbers will be 123 + 55 = 178

Q32.   **1, 5, 13, 29, 61, 125, ?**

(a) 252   (b) 258

(c) 255   (d) 253

(e) None of these

Ans.   The mean difference between the consecutive numbers are

1	5	13	29	61	125	?
4	8	16	32	64	128	

So 125 + 128 = 253

Q33.   **49, 343, 64, ?, 81, 729**

(a) 1024   (b) 512

(c) 778   (d) 182

(e) None of these

Ans.   The first and second terms are square cube of 7, 5th and 6th terms are square and cube of 9. So third and fourth terms are square and cubes of 8. $8^3 = 512$

Q34.   **55296, ?, 288, 36, 9.**

(a) 3456   (b) 3436

(c) 4638   (d) 3638

(e) None of these.

Ans.   9/36   36/288 288/x   x/55296

¼ 1/8   1/12 1/16 like this.

So 288/x = 1/12 or x = 3456

Q35.   **30, 56, 90, 132, 182, ?**

(a) 3627   (b) 3234

(c) 1206   (d) 2412

(e) None of these.

Ans.   (a)

DIRECTIONS: The six faces of a cube are painted in a manner that no two adjacent faces have the same colour. The three colour used in the painting are red, blue and green. The cube is then cut into 64 equal cubical parts. Answer the following questions.

Q36. **How many cubes in all have three sides painted?**
    (a) 24   (b) 16
    (c) 10   (d) 8
    (e) None of these

Ans. (d)

Q37. **How many cubes have only two sides painted?**
    (a) 16   (b) 24
    (c) 8   (d) 6
    (e) None of these.

Ans. (b)

Q38. **How many cubes have one and two sides painted but the third side is not painted.**
    (a) 28   (b) 24
    (c) 48   (d) 64
    (e) None of these

Ans. (c)

Q39. **How many cubes are there whose only one side is painted?**
    (a) 24   (b) 4
    (c) 48   (d) 64
    (e) None of these

Ans. (a)

Q40. **How many cubes are there which has no sides painted?**
    (a) 8   (b) 64
    (c) 36   (d) 48
    (e) 16

Ans. (a)

DIRECTIONS: The following questions are based on letter series from which some of the letters are missing. The missing letters are given in the proper sequence as are of the alternative among the five given under each question. Find the correct alternative for each case.

Q41. **aab – aaa – bba –**
    (a) bab   (b) abb
    (c) baa   (d) bba
    (e) None of these

Ans. (c)

Q42. **abba – baaabba – bbaaa**

(a) aaa   (b) aba
(c) bba   (d) abab
(e) None of these

Ans. (a)

Q43. **– abaaaba – a – a**

(a) aab   (b) abb
(c) aba   (d) bba
(e) None of these

Ans. (a)

Q44. **b – a – aab – ab – –**

(a) abaaa   (b) ababa
(c) aabba   (d) bbaba
(e) babab

Ans. (a)

Q45. **p – x – pt – – – txppt**

(a) ptxptx   (b) pxtptx
(c) ptptxt   (d) xptxpt
(e) tpxppx

Ans. (e)

DIRECTIONS: In each of the following question apply the interchanging of the codes to choose correct alternative.

Q46. **If PRESS = RESSP**

Then SMLE = ?

(a) SMLE   (b) SMILE
(c) SLME   (d) SLMIE
(e) None of these

Ans. (b)

Q47. **If STUPID = STUPID then CYCLES?**

(a) CYESCL   (b) CYLECS
(c) CYELCS   (d) CYECSL
(e) CYLCES

Ans. (e)

Q48. **If ROTUND = RONDTU, then PATATO = ?**

(a) POTOTA   (b) POTOAT
(c) PATOO   (d) POOTAT
(e) POOATT

Ans. (a)

BIOLOGY

Q1. **The process of Transcription is involved in the ?**
- (a) Conversation of RNA & DNA
- (b) Movement of RNA from nucleus
- (c) Formation of RNA & DNA
- (d) None of these

Ans. (c)

Q2. **Persons who received Nobel Prize for their work on green plants are**
- (a) Carsan & Van – U.San
- (b) Calvin & Borlang
- (c) Beadle & Tcrick
- (d) None of these

Ans. (b)

Q3. **Genes are made of**
- (a) Hristones
- (b) Poly nucleotides
- (c) Hydrocarbon
- (d) Lipoproteins

Ans. (b)

Q4. **The cell membrane is made of**
- (a) Phospho Proteins
- (b) Proteins
- (c) Phospholipid Proteins
- (d) None of these

Ans. (c)

Q5. **Which of the following diseases are sex – linked**

(a) Maliganancy   (b) Levnemia

(c) Blood ness   (d) Hepatitis

Ans. (c)

Q6. **Which vitamin deficiency caused the cracking of lips of the patient at corner ?**

(a) Vitamin A   (b) Vitamin C

(c) Vitamin B_2 (d) None of these

Ans. (c)

Q7. **What is weed ?**
- (a) Unwanted plant along with crops
- (b) The root protein of the plants
- (c) The disease cause to plants
- (d) None of these

Ans. (a)

Q8. **The protein part of an enzyme is termed as**

    (a)   Holoenzyme

    (b)   Ribosome

    (c)   Prostetic group

    (d)   Apoenzyme

Ans.   (d)

Q9. **Fungi resemble human beings in**

    (a)   Their mode of nutrition

    (b)   Their requirement of oxygen for respiration

    (c)   Their stored food

    (d)   All of the above

Ans.   (d)

Q10. **Quinine is obtained from**

    (a)   Roots of Ravoltia Serpentine

    (b)   Bark of Cinchona

    (c)   Stigmas of Crocus

    (d)   None of these

Ans.   (b)

Q11. **The first event in Photosynthesis is**

    (a)   Photolysis of water

    (b)   Release of water

    (c)   Formation of ATP & NADPH

    (d)   Photoexitation of Chlorophyll & ejection of an electron

Ans.   (d)

Q12. **Plants are made disease resistance by**

    (a)   Crossing them with their wild relatives

    (b)   Crossing them with new varieties

    (c)   Giving x – rays in restricted doses

    (d)   None of these

Ans.   (a)

Q13. **The total number of Amino acids in natural is**

    (a)   20

    (b)   25

    (c)   30

    (d)   200

Ans.   (d)

Q14. **Protein catalysts of chemical reactions in biological systems are**

    (a)   Hormones

    (b)   Enzymes

    (c)   Vitamins

    (d)   Both Harmones & enzymes

Ans.   (b)

Q15. Carbohydrates may be defined chemically as

 (a) Aldehyde or Ketone derivatives of the polyhedric alcoholes
 (b) Compounds which yield as are derivatives on Hydrolysis
 (c) Both a & b
 (d) None of these

Ans. (a)

Q16. Lipids are important dietary constituents because of

 (a) High energy volume
 (b) Fat – soluble vitamins
 (c) Essential fatty acids
 (d) All of the above

Ans. (d)

Q17. Which of the following crops would require minimum quantity of urea of NPK for its growth

 (a) Sugarcane   (b) Paddy

 (c) Groundnut   (d) Black – gram

Ans. (d)

Q18. Which of the following are non – biogradable

 (a) Egg shell
 (b) Butter
 (c) Detergents
 (d) Leather

Ans. (c)

Q19. Symptoms of food poisoning

 (a) Nausea & abdominal pain
 (b) Head & body etching
 (c) Loose motion
 (d) All of the above

Ans. (a)

Q20. A doctor noticed that the patient is pale & loosing weight with tiredness physically. What is its cause ?

 (a) This disease is due to Iron deficiency & Vitamin B_{12}
 (b) This disease is due to deficiency of Vitamin C
 (c) This disease is due to deficiency of Vitamin D& E
 (d) All of the these

Ans. (a)

Q21. Spiracles of cockroach is known as

 (a) 2 pairs
 (b) 8 pairs
 (c) 10 pairs
 (d) None of these

Ans. (c)

Q22. **Benign tertian liver in man is caused**

(a) P. Vivax
(b) P – malaria
(c) P. Faclic prumbra
(d) P. ovale

Ans. (a)

Q23. **Water balance in fresh water protozoans is maintained by**

(a) Food vacuoles
(b) Diffusion
(c) Nucleus
(d) Contractile Vacuoles

Ans. (d)

Q24. **Which is the most widely accepted theory of locomotion in Amoeba ?**

(a) Sol – gel theory
(b) Rolling movement theory
(c) Walking movement theory
(d) None of these

Ans. (b)

Q25. **Urea is produced in the body of man in a**

(a) Kidney
(b) Urinary bladder
(c) Liver
(d) Blood

Ans. (c)

Q26. **Rabbit is classified as a mammal because it posses**

(a) Mammary glands & hair & pinna
(b) Mammary glands, hair, pinna & cochlea
(c) Hair, pinna, cochlea & teeth
(d) None of these

Ans. (a)

Q27. **In Kidney, glucose is mainly absorbed in the**

(a) Bowman's capsule
(b) Distal Convoluted tubule
(c) Loop of Henle
(d) Proximal convoluted tubule

Ans. (d)

Q28. **What will happen to the body of an adult human being if spleen is removed ?**

(a) RBC production will be reduced
(b) Antibody production will less
(c) WBC production lowered
(d) Filtration of dead RBC will not be possible

Ans. (d)

Q29. **Maligant fever is caused by speci**
   (a)   Vivax
   (b)   Malaria
   (c)   Ovale
   (d)   Falciparum
Ans.   (d)

Q30. **Malaria is transmitted by**
   (a)   Male anopheleles
   (b)   Female anopheleles
   (c)   Anopheleles
   (d)   Mosquitoes
Ans.   (b)

MATHEMATICS

Q1. If $x + \dfrac{1}{x} = r_3$ then $x^3 + \dfrac{1}{x_3}$ is

    (a)   3
    (b) $3r_3$
    (c) r_3
    (d)   0

Ans.
$$x^3 + \frac{1}{x_3} = \left(x + \frac{1}{x}\right)^3 - 3\left(x + \frac{1}{x}\right)$$
$$= \left(\sqrt{3}\right)^3 - 3\sqrt{3} = \left(\sqrt{3}\right)^3 - \left(\sqrt{3}\right)^3$$
$$= 0$$

Q2. One third of a number is greater then one fourth of its successor by 1, find the number

    (a)   15
    (b)   20
    (c)   5
    (d)   25

Ans. Number = x, Successor = x + 1

$\dfrac{1}{3}$ rd of the successor number = $\dfrac{x}{3}$

$\dfrac{1}{4}$ th of the successor number = $\dfrac{x+1}{4}$

As per question $\dfrac{x}{3} = \dfrac{x+1}{4} + 1$

X = 15

Q3. If $2^x = 8^{y+1}$ & $9y = 3^{x-9}$ then y in

    (a)   6
    (b)   3
    (c)   4
    (d)   9

Ans. $2^x = (2)^{3(y+1)}$
X = 3y + 1   (i)
$(3)^{2y} + 3^{(x-9)}$
2y = x − 9 or x = 2y + 9   (ii)
from equation (i) & (ii) 3y + 3 = 3y + 9
3y − 2y = 9 − 3 = 6
= 6

Q4. The sum of two numbers is 24 & the sum of their reciprocal is $\frac{1}{5}$, find their product

      (a) 80   (b) 100

      (c) 60   (d) 40

Ans. $x + y = 24$ (i)

$\frac{x}{y} = \frac{1}{5}$ or $y = 5x$ (ii)

from equation (i) $x + 5x = 24$ or $x = 4$

& $y = 5x = 5x = 5 \times 4 = 20$

Their product is $= 20 \times 4 = 80$

Q5. $\left(1 - \frac{1}{2}\right)\left(1 - \frac{1}{3}\right)\left(1 - \frac{1}{4}\right) K\ K\ K\ K \left(1 - \frac{1}{n}\right) = ?$

      (a) $\frac{1}{n}$ (b) $\frac{2x - 1}{n}$

      (c) $n\left(\frac{n + 1}{n}\right)$ (d) None of these

Ans. (a)

Q6. In two similar triangle ABC & PQR, if their corresponding altitudes AD & PS are in ratio of 4:9, find the ratio of the Area of $\triangle$ ABC to that of $\triangle$ PQR.

      (a)   16:81

      (b)   32:92

      (c)   33:94

      (d)   None of these

Ans. (a) Now from fig. $\dfrac{Area\,of\,ABC}{Area\,of\,PQR} = \dfrac{AD^2}{PS^2} = \dfrac{4^2}{9^2} = \dfrac{16}{81}$

Q7. Five year hence, father's age will be 3 times then the age of his son. Five years ago, father was 7 times as old as his son. Find their present age ?

      (a)   10, 40

      (b)   5, 50

      (c)   3, 30

      (d)   None of these

Ans. Let father, age $= x$ & son's age $= y$

as per the problem $x = 7y$ ....(i) & after 5 year

F.A $=$ (Present ag(e) $+ 5 = (x + 5) + 5 = x + 10$

S.A $=$ (Present ag(e) $+ 5 = (y + 5) = y + 10$

as per the question $x + 10 = 3\,(y + 10)$ (i)

$= x - 3y = 20$ (ii)

from equation (i) and (ii) on solving

$x = 40$ & $y = 10$.

Q8. If α & β be the root of the equation $x^2 - px + 9$

(a) $p^2 - 2q$ (b) $p^2 + 2q$

(c) $p^2 - q^2$ (d) None of these

Ans. $\alpha + \beta = \dfrac{p}{1} = p$

$\alpha\beta = \dfrac{9}{1} = 9$

$\alpha^2\beta^2 = (\alpha + \beta)^2 - 2\,\alpha\beta$

$= (-p)^2 - 2q$

$= p^2 - 2q$

Q9. The value of $\left(\dfrac{x^a}{x^b}\right)^{a+b} \times \left(\dfrac{x^b}{x^c}\right)^{b+c} \left(\dfrac{x^c}{x^a}\right)^{c+a} = ?$

(a) 1   (b) 0

(c) x^{abc} (d) None of these

Ans. $x^{(a-(b)(a+(b)} \times x^{(b-(c)(b+(c)} \times x^{(c-(a)(c+(a)}$

$(x)\,a^2 - b^2 + b^2 - c^2 + c^2 - a^2 = x^0 = 1$

Q10. IF $x + y = 12$, the maximum value of the product of xy is

(a) 26   (b) 36

(c) 30   (d) None of these

Ans. (b)

Q11. Divide 50 into two parts x & y so that the sum of their reciprocals is $\dfrac{1}{12}$ and the parts are

(a) 30, 20   (b) 20, 30

(c) 20, 40   (d) 40, 20

Ans. As per question $x + y = 50$ (i)

$\dfrac{1}{x} + \dfrac{1}{y} = \dfrac{1}{12}$

or $\dfrac{x+y}{xy} = \dfrac{1}{12}$

$xy = 12\,(x + Y)$

$= 12 \times 50 = 600$ (ii)

$= \sqrt{2500 - 2400}$

or $x - y = \sqrt{(x + y)^2 - 4xy}$

$= 50^2 - 4 \times 600$

$= \sqrt{2500 - 2400}$

$= \sqrt{100} = 10$

Solving $x + y = 50$

$x - y = 10$

$2x = 60$ or $x = 30$ & $y = 20$

Q12. **A man buys mangoes paying one variety Rs. 320 to 240 & another variety of 640 to 400. He mixes & sells them at16 mangoes for Rs. 30. Find the percentage of profit?**

C.P of 240 mangoes = Rs. 320

C.P of 640 mangoes = Rs. 640

C.P of 640 mangoes = Rs. 960

(on variety)

S.P pf 16 mangoes = Rs. 30

S.P pf 640 mangoes = $\dfrac{30}{16} \times 640 = 1200/-$

Profit = 1200 – 960 = 240

So percentage of profit = $\dfrac{240}{960} \times 100 = 25\ V$

Q13. **Two taps A & B take 20 minutes & 30 minutes to fill a cistern independently. The cistern can filled in 40 minutes with the taps A & B & the waste pipe are open altogether. If the taps are closed, calculate the time taken by the discharging outlet to empty the full cistern.**

(a) 10 minutes
(b) 15 minutes
(c) 20 minutes
(d) None of these

Ans. Let the volume of cistern = V

Volume of water filled by tap A in 1 minute =

Volume of water filled by tap B in 1 minute =

Taps (A + (B) together can fill in 1minute =

When the discharging outlet is open these taps can fill water in one minute =

The outlined empties the cistern in 1 minute =

So the time taken by the outlet to discharging the whole water volume v is =

Q14. **The price of sugar has decreased by 20%, by what% are the consumption of the sugar be increased in a house so that there is no decrease in the expenditure on the sugar**

Ans. Let the sugar consumption was x kg

Total expenditure of sugar = wx

Decrease in price = 25%

So new cost of sugar = x

Now, let w1kg of sugar is consumed for the same total expenditure in wx. This wx = w1x

% increase in consumption =

Q15. **Ram Babu deposits Rs. 280. Consisting of one rupee 50 paise & 10 paise coins which are in the ratio of 3:4:20. The number of 10 paise coins is**

(a) 400
(b) 300
(c) 200
(d) None of these

Ans. Consider rupee, 50 paise & 10 paise respectively are 3:

Hence, the value of 10 paise coins is =

So the 10 paise coins are =

Q16. A man borrows Rs. 2500 at 10% pa simple interest. He lends it in the same year & at the same time at 15% pa for 2 years compound annually. Find the C.I ?

Q17. The area of a square inscribed inside a circle of a radius is

(a) $2r^2$ (b) r^2

(c) $1r^2$ (d) None of these

Ans. Let AB = x

& OA = r & diagional AC = 2r

∴ Area of square = a^2

A square is a rhombus of equal diagional

So x^2 =

Q18. The least number of square slab of side 1.25 which can be fitted in a varendah of 25 × 20 m is

(a) 320   (b) 340

(c) 280   (d) 200

Ans. The minimum number of slabs

Q19. While going for Station A to Station B a train traveled at a speed 100 km/h & 150 km/h during return. The average speed of train

(a)   120
(b)   180
(c)   130
(d)   140

Q20. While going for station A to station B a train travelled at a speed 100 km/hr and 150 km/hr during return. The average speed of train

(a)   120
(b)   180
(c)   130
(d)   140

Ans. Let distance between station A and Station B is x

$$\frac{Total\ dis\tan ce}{total\ time\ taken}$$

Average speed =

$$\frac{2x}{\dfrac{x}{100}+\dfrac{x}{150}}=120\ km/hr$$

Q21. The sum of length of minute hand of a clock is 14 cm. Find the area of swept by the minute hand in one minute.

(a) $10\dfrac{4}{5}$ (b) $5\dfrac{4}{5}$

(c) $6\dfrac{4}{15}$ (d) None of these

Ans. Angle made by minute hand at center in 600 minute = 360^0
Angle made by minute hand at center in 1 minute = 360/60
$= 6^0$
$\theta = 6^0$
r = 14 cm
$$\text{Area} = \frac{\theta}{360} \times \pi r^2 = \frac{6}{360} \times \frac{22}{7} \times 14 \times 14$$
$$= 10\frac{4}{15}$$

Q22. In fig. TAS is a tangent to the circle with center at O at a point A if $\angle OBA = 32^0$, find the value of x and y.
(a) 40^0
(b) 58^0
(c) 32^0
(d) None of these

Ans. O is the center
OA = OB (Radii)
In AOB Δ,
$\angle OAB = \angle OBA = 32^0$
A is the point of contact of tangent.
$\angle OAS = 90^0$ or $\angle OAB + \angle BAG = 90^0$
$= 32 + y = 90^0$ or $y = 58^0$

Q23. Find the mean, mode and median
133, 73, 89, 108, 94, 140, 94, 85, 100, 120

Ans. Arranging the data in increasing order,
73, 85, 89, 94, 94, 100, 108, 120, 133, 140
n = 10 So median = $\frac{n}{2}$ & $\frac{n}{2} + 1$
$$= \frac{n}{2} = \frac{10}{2} = 5$$
$$= \frac{n}{2} + 1 = 5 + 1 = 6$$
5th term = 94
6th term = 100
$$\text{Median} = \frac{94 + 100}{2} = \frac{194}{2} = 97$$

Q24. A hemi $-$ spherical bowl of internal diameter 36 cm contains a liquid in a cylindrical bottles of radius 3 cm and height 6 cm. How many bottled required
(a) 72
(b) 36
(c) 54
(d) None of these

Ans. Volume of hemi $-$ spherical bowl = $2/3\pi r3$
$= 2/3\pi \times 183$

Volume of right circular cylinder $= \pi r^2 h = \pi 3^2 6$

Where $r = 3$ and $h = 6$

Now number of bottles required to supply the bowl

$$= \frac{2/3\pi \times 18^3}{\pi \times 3^2 \times 6} = 72$$

Q25. **The value of** $\dfrac{\cos\theta}{\sin(90+\theta)} + \dfrac{\sin\theta}{\sin(180+\theta)} + \dfrac{\cos(90+\theta)}{\tan\theta}$

Is equal to

(a) 1   (b) 2

(c) 3   (d) 4

Ans. (a)

Q26. **Which figure has the greatest area**

(a) Triangle   (b) Rectangular

(c) Hexagon   (d) Circular

Ans. (c)

Q27. $\sin^2(90 - \theta) + \cos^2(90 - \theta) = ?$

(a) 1   (b) 0

(c) $\sin^2\theta - \cos^2\theta$ (d) None of these

Ans. (a)

Q28. **If** $\cos\theta + \sin\theta = \sqrt{2}\cos\theta$**, then value of** $\cos\theta - \sin\theta = ?$

(a) $\sqrt{2}\,\sin\theta$ (b) 0

(c) $\sqrt{2}\,\cos\theta$ (d) $2\,\sin\theta$

Ans. Squaring both sides and simplifying, we get
$\cos\theta - \sin\theta = \sqrt{2}\sin\theta$

Q29. **A shop keeper buys a number of books for Rs 80. If he had to bought 4 more books for the same amount, each book would have cost him Rs 1/– less. How many books did he buy?**

(a) 6   (b) 10

(c) 15   (d) 20

Ans. Let total number of books $= x$
Cost per book $= 80$
As per our question, we get
$(x + 4)(80/x - 1) = 80$
$80x - x + 320 - 4x = 80x$
$x^2 + 4x - 30 = 0$
$$x = \frac{-4 \pm \sqrt{16 + 1280}}{2} = -20,\ 16$$
So number of books $= 16$

Q30. If $\dfrac{P}{9} = 3 + \dfrac{1}{4 + \dfrac{1}{1 + \dfrac{1}{5}}}$ then find P/9.

(a) 93/29
(b) 47/15
(c) 101/49
(d) 55/47

Ans. 93/29

Q31. If (x, y) are complex numbers then $\sqrt{x^2 + y^2}$ is called its modulus. The modulli of a complex number and its conjugate

(a) are always equal
(b) are always different
(c) are off and on equal
(d) None of these.

PHYSICS

Q1. A sheet of paper is placed on a table and a jug full of water is kept on it while pulling the paper suddenly, it is observed that the water does not spill out of jug. It is due to the inertia of the
  (a) paper sheet
  (b) jug & water in it
  (c) hard
  (d) table

Ans. (b)

Q2. "Every Action has equal & opposite reaction" was discovered by
  (a) Pascal
  (b) Newton
  (c) Edison
  (d) Copernicus

Ans. (b)

Q3. If a car travels a distance of 100 km & it takes 25 minutes to reach its destination , the speed of the car is
  (a) 4 km/min
  (b) 4 mt/min
  (c) 400 mt/min
  (d) None of these

Ans. (a)

Q4. Name of scienctist who gave a relationship between mechanical energy & heat energy
  (a) Darwine
  (b) Jameswatt
  (c) James precot joule
  (d) sir Isac Newton

Ans. (c)

Q5. A 1500 w electric geyser used every day for 2 hrs. Calculate the energy consumed ?
  (a) 90 kwh
  (b) 30 kwh
  (c) 750 kwh
  (d) None of these

Ans. (a) Power of Geyser = 1500 W
Used time = 30 x 2 = 60

Energy Power x Time = 1500 x 60 / 1000 = 90 kwh

Q6. As per Law of Conservation of energy during a process or system of transformation of energy, the energy is
  (a) always lost
  (b) always gained
  (c) (c) neither gain nor lost
  (d) (d) only gets converted for heat to mechanical energy

Ans. (c)

Q7. An engine supplies 196 joules of energy. If the energy is supplied to a weight of 500 gms. How high can it be lifted

(a) 38.2   (b) 39.2

(c) 40.2   (d) 42

Ans. (b) Energy supplied to the engine = 196 J

Mass of water = 500 gm = 500/1000 = ½ kg

Acceleration due to ground (g) = 10 mt/sec^2.

Energy required for lifting water = mgh

H = energy supplied / m x g = 196 x 2 / 1 x 10 = 39.2 mt.

Q8. Which of the following force is responsible for taking a gas ballon upwards ?

(a) Gravitational force   (b) Muscular force

(c) Bouyant force   (d) Magnetic force

Ans. (c)

Q9. When white light is passed through a prism, it is observed that violet light bends more than the red light. This is because

(a) Velocity of red light in glass is less than that of violet light

(b) Refractive Index of glass is more for violet light

(c) wave length of violet light is less than that of red light

(d) It is the properties of these colours.

Ans. (b)

Q10. Pascal's law hold good for

(a) gases only   (b) liquid & fluid

(c) solids only   (d) for all

Ans. (d)

Q11. The Instrument for measuring electric current is known as

(a) Ammeter   (b) Voltameter

(c) Galvanometer   (d) Chronometer

Ans. (a)

Q12. Find at what temperature, the velocity of sound in air is 1.5 times the velocity at 70^0 C

(a) 357°C   (b) 387°C

(c) 350°C   (d) 290°C

Ans. (a) we know that $\dfrac{Vt}{Vo} = \sqrt{\dfrac{373+t}{273}}$

& $\dfrac{Vt}{Vo} = \sqrt{\dfrac{373+t}{280}} = \dfrac{3}{2}$

$\Rightarrow t = 357°C$

Q13. If m_1 & m_2 be the masses of two bodies, d be the distance between them, the force of attraction (F) as per the universal law of gravitation is

    (a) $F = \dfrac{m_1 m_2}{d^2}$

    (b) $F = G\dfrac{m_1 m_2}{d^2}$

    (c) $F = G\dfrac{m_1 m_2}{d}$

    (d) $F = G\dfrac{m_1^2 m_2^2}{d^2}$

Ans. (c)

Q14. The acceleration due to gravity is zero at

    (a)   Poles
    (b)   equator
    (c)   center of earth
    (d)   None of these

Ans. (c)

Q15. The energy of an electron in n the orbit of a hydrogen atom is given by

    (a) $E_n = -13.6 / n^2$ ev.
    (b) $E_n = -13.6 / n^3$ ev.
    (c) $E_n = +13.6 / n^2$ ev.
    (d) $E_n = +13.6 / n^3$ ev.

Ans.

Q16. The size of an atom is nearly

    (a) 10^{-5} m
    (b) 10^{-8} m
    (c) 10^{-15} m
    (d) 10^{-10} m

Ans. (d)

Q17. The force of repulsion between two parallel wires is 'f' when each one of them carries a certain current ' I '. If the current in each is doubled, the force between them would be

    (a)   2f
    (b)   3f
    (c)   4f
    (d)   f / 4

Ans. (c)

Q18. A fuse wires has eventially

    (a)   High resistance & high melting point
    (b)   Low resistance & high melting point
    (c)   Low resistance 7 low melting point
    (d)   None of these

Ans. (d) it has high resistance & low melting point

Q19. **The emf of 3 identical cells connected in series in 6 V. The emf of each is**

(a) 6 V (b) 2 V

(c) 3 V (d) None of these

Ans. (b)

Q20. **One weber/mt^2 is equal to**

(a) 10^{-3} gram (b) 10^{-4} gram

(c) 10^4 gram (d) None of these

Ans. (b)

Q21. **A person using convex lense must be suffering from**

(a) Myopia
(b) Astigmatism
(c) Hypermyopia
(d) None of these

Ans. (c)

Q22. **If there is no atmosphere, then the duration of daylight on earth will**

(a) Increase
(b) decrease
(c) remain same
(d) (d) None of these

Ans. (b)

Q23. **The critical angle of liquid is 30^0. Its refractive Index will be**

(a) 4
(b) 2
(c) 3
(d) 0.5

Ans. (b) r = 1/ Sin C, Here C = 30^0.
So r = 1 / Sin 30^0 = 2.00

Q24. **A hygrometer measures**

(a) The constant of Hydroscopic substance
(b) Relataive density of solids
(c) Relative density of liquids
(d) amount of water vapour in air

Ans. (a)

Q25. **Which of the given samples of equal volumes of Hydrogen & Oxygen at NTP has a larges number of molecules.**

(a) Hydrogen
(b) Oxygen
(c) Both have the same number of molecules
(d) None of these

Ans. (b)

Q26. A sample of gas is at 0^0. What is the requirement of temperature for increasment to double the r.m.s. speed of molecules ?

(a) 273^0
(b) 1000^0
(c) -273^0
(d) 1092^0

Ans. (a)

Q27. (Equal volume of all gases, measured under the same condition of pressure & temperature contain the same number of molecules. This is known as

(a) Boyle's law
(b) Charle's law
(c) Avogradous law
(d) Ottovan law

Ans. (a)

Q28. The value of plank's Constant

(a) depends upon frequency
(b) is always same
(c) depends upon energy
(d) depends on wavelength

Ans. (b)

Q29. Doping is a process of

(a) purifying the semiconductor
(b) making the material crystalline
(c) adding controlled impurities into the material
(d) making the material an insulator

Ans. (c)

CHEMISTRY PAPER – II

Q1. **If ethanol reacts with oxygen it produces**
- (a) Acetic Acid
- (b) Hydrocloric Acid
- (c) Sulphuric Acid
- (d) Sulphur dioxide

Ans. (a) $C_2H_5OH + O_2 \xrightarrow{K_2Cr_2O7} CH_3COOH + H_2O$

Acetic Acid

Q2. **Fill the question mark in following reaction**

$CH_3COONa + NaOH/CaO \xrightarrow{\Delta} ? + Na_2Co_3$

- (a) 2 C_2H_6
- (b) CH_4
- (c) C_2H_4
- (d) None of these

Ans. When Sodium acetate react with sodalime, methane is produced

Q3. **A burner consumes one gram of LPG in 11 sec. What is the power of consumption of burner in KW if C_v of LPG is 55 kJ/g.**
- (a) 5 kW
- (b) 10 kW
- (c) 5.5 kW
- (d) None of these

Ans. (a) Power = E / T = 55 / 11 = 5 kW, Time (T) = 1 sec.

Q4. **The ideal gas equation is**
- (a) $P_1T_1 / V_1 = P_2V_2 / T_2$
- (b) $P_1V_1 / T_1 = P_2V_2 / T_2$
- (c) $P_1V_1T_1 = P_2V_2T_2$
- (d) $P_1V_1 / T_2 = P_2V_2 / T_1$

Ans. (b)

Q5. **Dalton's Law of partial pressure is obeyed in which one of the following pair of gases**
- (a) Oxygen & Nitrogen
- (b) Nitrogen & Hydrogen
- (c) Hydrogen & Argon
- (d) Hydrogen & oxygen

Ans. (c)

Q6. **The molecular formula of a compound in (CO)x and its vapour density is 70. Then the possible value of x is**
- (a) 2
- (b) 10
- (c) 5
- (d) 9

Ans. (c)

Q7. **Number of groups present in the long form of the periodic table are**

(a) 16　　　　　　　　　　　　　　　　(b) 8

(c) 2　　　　　　　　　　　　　　　　(d) 18

Ans. (a)

Q8. **Which of the following is a neutral oxide**

(a) NO　　　　　　　　　　　　　　　(b) NO_2

(c) N_2O_5　　　　　　　　　　　　　(d) CO_2

Ans. (a)

Q9. **Molecular weight of a substance is equivalent to**

(a)　Sum of atomic wt. of each element present in the given substance

(b)　Sum of At.wt of each element with their respective number present in each compound

(c)　Sum of equivalent wt. of each element present in the given substance

(d)　None of these

Ans. (b)

Q10. **Covalent linkages is formed by**

(a)　Transfer of electrons

(b)　Mutual sharing of electrons

(c)　Transfer as well as mutual sharing of electrons

(d)　None of these

Ans. (b)

Q11. **If an acid having construction as 0.01 N is diluted to 1000 times then the PH of that acid is ?**

(a) 5　　　　　　　　　　　　　　　　(b) 2

(c) 3　　　　　　　　　　　　　　　　(d) 10

Ans. (a)

Q12. **Oxygen has two isotopes O^{16} & O^{18}. If the percentage of O^{16} is 90 then the atomic weight of oxygen will be**

(a) 16　　　　　　　　　　　　　　　(b) 16.2

(c) 16.4　　　　　　　　　　　　　　(d) None of these

Ans. (b)

Q13. **Atom that can neither gain nor lose electrons is said to be**

(a)　an Inert

(b)　Atomsperic

(c)　Metalic

(d)　Non – metalic

Ans. (a)

Q14. When a burning splinter is brought near the gas jar containing hydrogen gas a poping sound is observed. It is due to

(a) exothermic
(b) endothermic
(c) exothermic & endothermic
(d) None of these

Ans. (a)

Q15. In which of the following preparation Hydrogen is not used?

(a) preparation of Ammonia (NH_3)
(b) Hydrogenetion of oil
(c) Synthesis of water gas
(d) all of these

Ans. (d)

Q16. Deacon's process is used for the manufacturing of

(a) Bleaching powder
(b) Sulphuric acid
(c) chlorine
(d) Hydrochloric acid (HCL)

Ans. (c)

Q17. Which one of the following method is considered to be a best method for the removal of temporary hardness of water

(a) Caylon's process
(b) Clark's process
(c) Vesence process
(d) Permutti's process

Ans. (b)

Q18. When chlorine gas is passed through NaoH, it forms

(a) Sodium chloride
(b) Sodium chlorate
(c) Sodium hypochlorite
(d) All of these

Ans. (d)

Q19. Skin becomes yellow in Conc. H_2SO_4 as

(a) HNO_3 acts as an oxidizing agent
(b) HNO_3 acts as a dehydrating agent
(c) Nitro – cellulose is formed
(d) The proteins are converted into xantho proteins

Ans. (d)

Q20. Which of the following is used as a moderator in nuclear reactor

(a) Water   (b) Heavy water

(c) Active Hydrogen   (d) Heavy Hydrogen

Ans. (b)

Q21. **Which one of the following is known as "King of Chemicals"**

   (a)   Hydrochloric acid
   (b)   Sulphuric acid
   (c)   Nitric acid
   (d)   Phosphoric acid

Ans.   (b)

Q22. **The common gas used in our refrigerator**

   (a) maresh gas   (b) producer gas

   (c) freon   (d) water gas

Ans.   (c)

Q23. **Alum is added with muddy water to**

   (a)   Kill bactaria
   (b)   Make filtration of milk
   (c)   Make the sedimsitation process quick
   (d)   None of these

Ans.   (c)

Q24. **Alloy is a homogenous mixture of**

   (a)   two or more metals
   (b)   a metal & a non metal
   (c)   metals as well as non metals
   (d)   all of these

Ans.   (c)

Q25. **To protect the metal from corrosion it is some times coated with a thin layer of Al_2O_3 (Aluminium oxide) and the process is called**

   (a)   Electroplating
   (b)   Electroforming
   (c)   Aluminizing
   (d)   None of these

Ans.   (b)

Q26. **The I.U.P.A.C. name of the compound $CH_2\ CH_2\ CH\ (CH_3)_2$ is**

   (a)   N – Propene
   (b)   3 methyl butane
   (c)   2 methyl butene
   (d)   None of these

Ans.   (c)

Q27. **Fuel in Automobiles is a mixture of**

   (a)   saturated hydrocarbons
   (b)   unsaturated hydrocarbons
   (c)   crude oil
   (d)   saturated & unsaturated hydrocarbons

Ans.   (c)

Q28. **In the soda fire extinguishes due to**
   (a) formation of CO_2
   (b) presence of sodium bicarbonate
   (c) formation of water as a product
   (d) None of these

Ans. (a)

Q29. **The glasses which is used for making lenses and prisms for optical instrument**
   (a) Hard glass
   (b) Pyrex glass
   (c) Croked glass
   (d) Tint glass

Ans. (c)

Q30. **Which of the following is of a thermoplastic?**
   (a) Teflon
   (b) Orlon
   (c) Bakelite
   (d) Polythene

ECONOMICS

Q1. **India has**
(a) Socialistic economy
(b) Gandhian economy
(c) Mixed economy
(d) Free economy

Ans. (c)

Q2. **Which of the following is not a central problem of the economy?**
(a) What to produce
(b) How to produce
(c) When to produce
(d) For whom to produce

Ans. (c)

Q3. **National income in India is compiled by**
(a) Finance Commission
(b) Indian Statistical Institute
(c) National Development Council
(d) Central Statistical Organisation

Ans. (d)

Q4. **Which is the best measure of the economic growth of a country?**
(a) GNP
(b) GDP
(c) Net revenue
(d) None of these

Ans. (a)

Q5. **The largest revenue in India is obtained from**
(a) Sales tax
(b) Direct tax
(c) Excise duties
(d) None of these

Ans. (c)

Q6. **Deficit financing is spending**
(a) By getting foreign aid
(b) Less than what is needed
(c) In excess of revenue
(d) By borrowing from abroad

Ans. (c)

Q7. **Monetary policy is regulated by**
(a) Money lenders
(b) Central Banks
(c) Private entrepreneurs
(d) Government policy

Ans. (d)

Q8. **Which of the following is the banker of the banks?**
(a) IDBI
(b) SBI
(c) RBI
(d) SBI & RBI

Ans. (c)

Q9. **Inflation implies**
(a) Rise in budget deficit
(b) Rise in money supply
(c) Rise in general price index
(d) Rise in prices of consumer goods

Ans. (c)

Q10. **The Industrial Development Bank started functioning in**
(a) 1950 (b) 1952
(c) 1964 (d) 1972

Ans. (c)

Q11. **Jawahar Rozgar Yojna was started by**
(a) Jawaharlal Nehru (b) Rajiv Gandhi
(c) Indira Gandhi (d) Sanjay Gandhi

Ans. (b)

Q12. **IRDP stands for**
(a) Integrated Regional Development Programme
(b) International Rural Development Programme
(c) Integrated Rural Development Programme
(d) None of these

Ans. (c)

Q13. **The family planning programme was adopted by the government in**
(a) 1952 (b) 1953
(c) 1962 (d) 1965

Ans. (a)

Q14. **MODVAT refers to**
(a) Export value of a commodity (b) Value generated by exports
(c) Value added to manufacturing costs (d) Money generated by import – export

Ans. (c)

Q15. **The basic characteristic of oligopoly is**
(a) A few sellers, a few buyers (b) A few sellers, many buyers
(c) A few sellers, one buyer (d) Many sellers, a few buyer

Ans. (b)

Q16. **Nurke's theory of 'Vicious Circle' is related to**
(a) Population explosion (b) Poverty
(c) Capital formation (d) Unemployment

Ans. (b)

Q17. **According to the law of demand**
  - (a) Price increases, demand decreases
  - (b) Price decreases, demand decreases
  - (c) Price increases, demand decreases
  - (d) Price decreases, demand does not change

Ans. (a)

Q18. **Who is called the 'Father of Economics'?**
  (a) Karl Marx   (b) Max Muller
  (c) Adam Smith   (d) None of these

Ans. (c)

Q19. **Fiscal Policy means**
  - (a) Credit policy
  - (b) Planning policy
  - (c) Taxation policy
  - (d) Policy of expenditure and public debt policy

Ans. (d)

Q20. **'Utility' in economics means**
  (a) Provide comfort   (b) Earn an income
  (c) Satisfy human wants   (d) Satisfy human motives

Ans. (c)

Q21. **'Capital goods' refers to the goods**
  - (a) Which serve as a source of raising further capital
  - (b) Which help in the further production of goods
  - (c) Directly go into the satisfaction of human wants
  - (d) Find multiple uses

Ans. (b)

Q22. **Bank rate means**
  - (a) Interest rate charged by the scheduled banks
  - (b) Official rate of interest charged by the central bank of a country
  - (c) Rate of profit of the banking institutions
  - (d) Interest rate charged by the money lenders

Ans. (b)

Q23. **Which of the following is not a characteristic of Capitalism?**
  (a) Equality   (b) Privatisation
  (c) Monopoly   (d) Maximum profit

Ans. (a)

Q24. **Which of the following would be fixed cost for an industry?**
  (a) Raw materials   (b) Replacement of load
  (c) Wages   (d) Plant & machinery

Ans. (d)

Q25. **The biggest public sector undertaking in the country is**
   (a)   Shipways
   (b)   Roadways
   (c)   Railways
   (d)   Airways
Ans.   (c)

CIVICS

Q1. **Newspapers play an important role in building**
 (a) Public opinion   (b) Government opinion
 (c) Political Parties   (d) Opinion of all

Ans. (a)

Q2. **Adult suffrage is the basis of**
 (a) Democracy   (b) Dictatorship
 (c) Autocracy   (d) Communism

Ans. (a)

Q3. **The concept of welfare state is included in which part of the Indian Constitution?**
 (a) The Preamble of the Constitution
 (b) Fundamental Rights
 (c) Directive Principals of the State Policy
 (d) 4th schedule of the Constitution

Ans. (c)

Q4. **The Preamble to the Constitution includes all except**
 (a) Adult Franchise   (b) Equality of status
 (c) Fraternity   (d) Justice

Ans. (a)

Q5. **The Constituent Assembly that framed the Constitution of Independent India was set up**
 (a) Under the Indian Independence Act, 1947
 (b) By the Indian National Congress
 (c) Under the Cabinet Mission Plan
 (d) Through a resolution of the provisional government

Ans. (c)

Q6. **The importance of family rests on the fact**
 (a) Family is the enemy of the society
 (b) Family distorts our sense of duty towards the society
 (c) Family is the first school of social virtues
 (d) Family is the basis of nothing

Ans. (c)

Q7. **Dictatorship is a government in which**
 (a) The entire power of the government is held by a single person
 (b) The dictator is tolerant of any opposing group
 (c) There is individual liberty
 (d) There is freedom of speech and Press

Ans. (a)

Q8. **Secularism means**
    (a) Suppression of all religions
    (b) Freedom of worship to minorities
    (c) Separation of religion from State
    (d) A system of political and social philosophy that does not favour any particular religious faith

Ans. (d)

Q9. **Which of the following is not a fundamental right?**
    (a) Right to Equality   (b) Right against Exploitation
    (c) Right to Property   (d) Right to Freedom of Religion

Ans. (c)

Q10. **How many fundamental duties are provided by our Constitution?**
    (a) 13   (b) 10
    (c) 7   (d) 4

Ans. (b)

Q11. **The Rajya Sabha can be dissolved by**
    (a) Lok Sabha   (b) Constitutional Amendment
    (c) President   (d) None of these

Ans. (d)

Q12. **What is 'zero hour'?**
    (a) When the proposals of the opposition are considered
    (b) When the matters of utmost importance are raised
    (c) When a money bill is introduced in the Lok sabha
    (d) Interval between the morning and the evening sessions

Ans. (b)

Q13. **What is the maximum membership of a State Legislative Assembly**
    (a) 400   (b) 500
    (c) 450   (d) 550

Ans. (b)

Q14. **The legislative powers are vested in**
    (a) President   (b) Parliament
    (c) Prime Minister   (d) Governor

Ans. (b)

Q15. **Minimum age required to contest for Presidentship is**
    (a) 30 years   (b) 35 years
    (c) 23 years   (d) 21 years

Ans. (b)

Q16. **The President of India can be removed from his office by the**

(a) Prime Minister (b) Lok Sabha
(c) Chief Justice of India (d) Parliament

Ans. (d)

Q17. **For the enforcement of Fundamental Rights, the Supreme Court may issue a/an**

(a) Decree (b) Ordinance
(c) Notification (d) Writ

Ans. (d)

Q18. **By which amendment Bill did the Parliament lower the voting age from 21 to 18 years?**

(a) 42nd (b) 44th
(c) 62nd (d) 73rd

Ans. (c)

Q19. **Lok Sabha elections are held after every _____ years**

(a) 3 (b) 4
(c) 7 (d) 5

Ans. (d)

Q20. **In which of the following states was the Panchayati Raj system first introduced?**

(a) Gujarat (b) U.P.
(c) Rajasthan (d) Bihar

Ans. (c)

Q21. **Who is the executive head of the Municipal Corporation?**

(a) Mayor (b) Commissioner
(c) Secretary (d) Deputy Mayor

Ans. (b)

Q22. **The maximum time gap between two successive sessions of the Parliament can be**

(a) 4 months (b) 6 months
(c) 1 year (d) As specified by the President

Ans. (b)

Q23. **Who is the ex – officio chairman of Rajya Sabha?**

(a) President (b) Vice President
(c) Minister of Parliamentary Affairs (d) Leader of opposition

Ans. (b)

Q24. **A constitution is**

(a) A set of ordinary laws (b) A set of ordinary laws
(c) A set of financial laws
(d) The basic structure defining the powers of the state and the rights and duties of the citizens

Ans. (d)

Q25. **In a federal state**

(a) The Constitution effects division of power between the centre and the states with safeguards against transgression of jurisdiction.

(b) States are more powerful than the centre

(c) Centre is more powerful than the state.

(d) A Presidential form of government functions

Ans. (a)

GEOGRAPHY

Q1. **The largest planet of the solar system is**
    (a) Uranus   (b) Pluto
    (c) Earth   (d) Jupiter

Ans. (d)

Q2. **Solar eclipse occurs when**
    (a)   Earth comes between sun and moon
    (b)   Moon is at right angle to the earth
    (c)   Moon comes between sun and earth
    (d)   Sun comes between moon and earth

Ans. (c)

Q3. **The term that best describes the shape of the earth is**
    (a) Ellipse   (b) Geiod
    (c) Globe   (d) Sphere

Ans. (b)

Q4. **Which is the unit to measure intensity of earthquakes?**
    (a) Decible   (b) Knots
    (c) Richter Scale   (d) Metres

Ans. (c)

Q5. **Sedimentary rocks are formed by the process of**
    (a) Metamorphism   (b) Deposition
    (c) Weathering   (d) Solidification

Ans. (b)

Q6. **The largest sea in the world is**
    (a) Caspian sea   (b) South China Sea
    (c) Mediterranean Sea   (d) North Sea

Ans. (b)

Q7. **Sahara desert is in**
    (a) Africa   (b) Australia
    (c) Asia   (d) Europe

Ans. (a)

Q8. **Which Indian state is known as 'Land of Five Rivers'?**
    (a) UP   (b) Haryana
    (c) Punjab   (d) Jammu & Kashmir

Ans. (c)

Q9. **The highest mountain peak in India is**
(a) Kanchenjunga
(b) Mt. Everest
(c) Mt. K2
(d) Nanda devi

Ans. (c)

Q10. **Which of the following rivers flows through a rift valley?**
(a) Ganga
(b) Godavari
(c) Tapti
(d) Krishna

Ans. (c)

Q11. **Sambhar Lake is in**
(a) Gujarat
(b) Bihar
(c) Rajasthan
(d) MP

Ans. (c)

Q12. **The climate of India is**
(a) Tropical
(b) Sub tropical
(c) Savanna type
(d) Subtropical monsoon

Ans. (a)

Q13. **Which of the following latitudes pass through India?**
(a) Equator
(b) Arctic circle
(c) Tropic of Capricorn
(d) Tropic of Cancer

Ans. (d)

Q14. **Kaziranga National Park is in**
(a) Tamil Nadu
(b) Assam
(c) Meghalaya
(d) AP

Ans. (b)

Q15. **Nathpa − Jhakri hydel project is located in the state of**
(a) Andhra Pradesh
(b) Himachal Pradesh
(c) Madhya Pradesh
(d) Tamil Nadu

Ans. (b)

Q16. **Which state leads in the production of tobacco?**
(a) Tamil Nadu
(b) Karnataka
(c) Maharashtra
(d) Andhra Pradesh

Ans. (c)

Q17. **The rabi crops are sown in the month of**
(a) April
(b) July
(c) September
(d) November

Ans. (d)

Q18. **The largest producing mineral in India is**
(a) Zinc   (b) Copper
(c) Gold   (d) Mica

Ans. (d)

Q19. **Digboi in Assam is famous for**
(a) Tea Places   (b) Atomic Power Plant
(c) Oil Fields   (d) None of these

Ans. (c)

Q20. **Which of the following is not a sea port?**
(a) Cochin   (b) Paradeep
(c) Rameshwaram   (d) Vishakapatnam

Ans. (c)

Q21. **The state which has no railway line is**
(a) Tripura   (b) Meghalaya
(c) Nagaland   (d) Arunachal Pradesh

Ans. (d)

Q22. **Rourkela steel plant was built in collaboration with**
(a) USA   (b) Russia
(c) France   (d) West Germany

Ans. (d)

Q23. **The place 'Avadi' which is known for the manufacture of Vijayanta Tanks is in**
(a) Orissa   (b) Karnataka
(c) Andhra Pradesh   (d) Tamil Nadu

Ans. (d)

Q24. **Where are the electric locomotives manufactured?**
(a) Varanasi   (b) Jamshedpur
(c) Bhopal   (d) Chittaranjan

Ans. (c)

Q25. **Garo and Khasi tribes are found mainly in**
(a) Manipur   (b) Meghalaya
(c) Mizoram   (d) Chota Napur

Ans. (b)

HISTORY

Q1. **The Great Bath of the Indus Valley Civilization was discovered in**
(a) Harappa   (b) Lothal
(c) Mohenjodaro   (d) Ropar

Ans. (c)

Q2. **The Indus Valley people had trade relations with**
(a) Egypt   (b) Greece
(c) Ceylon   (d) Mesopotamia

Ans. (d)

Q3. **Which is the oldest Veda?**
(a) Yajur Veda   (b) Atharva Veda
(c) Rig Veda   (d) Sama Veda

Ans. (c)

Q4. **The Gayatri Mantra contained in the Rig Veda is dedicated to which deity?**
(a) Agni   (b) Marut
(c) Surya   (d) Savitri

Ans. (d)

Q5. **Who was the first king to have the image of Lord Buddha inscribed on his coins?**
(a) Ashoka   (b) Kanishka
(c) Dharmpala   (d) Harshvardhan

Ans. (b)

Q6. **The Puranas are _____ in number**
(a) 52   (b) 18
(c) 108   (d) 100

Ans. (c)

Q7. **The Council of 'Nine Gems' is associated with**
(a) Ballala Sena   (b) Harshavardhana
(c) Chandragupta II   (d) Devapala

Ans. (c)

Q8. **Bimbisara was the ruler of**
(a)   (a) Magadh   (b) Avadh
(b)   (c) Kamboja   (d) Gandhara

Ans. (a)

Q9. **Which of the following was a saint of the Bhakti Movement in Bengal?**

(a) Kabir
(b) Tulsidas
(c) Vivekananda
(d) Chaitanya

Ans. (d)

Q10. **Kanchi was the capital of**

(a) Pallavas
(b) Rashtrakutas
(c) Chalukyas
(d) Cholas

Ans. (a)

Q11. **The court language of Mughals was**

(a) Arabic
(b) Hindi
(c) Persian
(d) Urdu

Ans. (c)

Q12. **Who initiated Din – I – Ilahi?**

(a) Akbar
(b) Shahjehan
(c) Aurangjeb
(d) Jahangir

Ans. (a)

Q13. **When did Vasco da Gama came to India?**

(a) 1492
(b) 1498
(c) 1398
(d) 1542

Ans. (b)

Q14. **Sarnath's Lion Capital is attributed to**

(a) Kanishka
(b) Harshavardhana
(c) Ashoka
(d) Chandragupta

Ans. (c)

Q15. **The mausoleum of Sher Shah is at**

(a) Delhi
(b) Sasaram
(c) Agra
(d) Lahore

Ans. (b)

Q16. **Which art did Jehangir mainly patronize?**

(a) Sculpture
(b) Architecture
(c) Music
(d) Painting

Ans. (d)

Q17. **Ajanta paintings depict scenes from**

(a) Ramayana
(b) Mahabharata
(c) Jatakas
(d) Upanishads

Ans. (c)

Q18. **The term 'Macedonia's Madman' referred to**
(a) Phillip II   (b) Xerxes
(c) Darius   (d) Alexander

Ans. (d)

Q19. **The Battle of Plassey was fought in the year**
(a) 1576   (b) 1757
(c) 1761   (d) 1775

Ans. (b)

Q20. **The strategy of 'divide and rule' was adopted by**
(a) Lord Curzon   (b) Lord Minto
(c) Lord Wellesley   (d) Lord Canning

Ans. (b)

Q21. **Who started the 'Bhoodan Movement'?**
(a) Mahatama Gandhi   (b) Jayaprakash Narayan
(c) Swami Vivekananda   (d) Acharya Vinoba Bhave

Ans. (d)

Q22. **Who was the political guru of Gandhiji?**
(a) Dadabhai Naoroji   (b) Bal Gangadhar Tilak
(c) Gopal Krishna Gokhale   (d) Lala Lajpat Rai

Ans. (c)

Q23. **Which Mughal king tried to stop the practice of sati?**
(a) Akbar   (b) Humayun
(c) Aurangzeb   (d) Shahjehan

Ans. (c)

Q24. **Who died because of 'hunger strike' in jail?**
(a) Jatin Das   (b) Bhagat Singh
(c) Rajguru   (d) Chandrasekhar Azad

Ans. (a)

Q25. **Who led the Quit India Movement in the absence of Mahatma Gandhi?**
(a) Sardar Patel   (b) Aruna Asaf Ali
(c) Jawaharlal Nehru   (d) Sarojini Naidu

Ans. (b)