

Wipro Sample Paper #2

1. When a bicycle is in motion, the force of friction exerted by the ground on the two wheels is such that it acts

- (a) In the backward direction on the front wheel and in the forward direction on the rear wheel.
- (b) In the forward direction on the front wheel and in the backward direction on the rear wheel.
- (c) In the backward direction on both the front and rear wheels.
- (d) In the backward direction on both the front and rear wheels.

Ans. (d)

2. A certain radioactive element A, has a half life = t seconds.

In $(t/2)$ seconds the fraction of the initial quantity of the element so far decayed is nearly

- (a) 29%
- (b) 15%
- (c) 10%
- (d) 45%

Ans. (a)

3. Which of the following plots would be a straight line ?

- (a) Logarithm of decay rate against logarithm of time
- (b) Logarithm of decay rate against logarithm of number of decaying nuclei
- (c) Decay rate against time
- (d) Number of decaying nuclei against time

Ans. (b)

4. A radioactive element x has an atomic number of 100.

It decays directly into an element y which decays directly into element z.

In both processes a charged particle is emitted.

Which of the following statements would be true?

- (a) y has an atomic number of 102
- (b) y has an atomic number of 101
- (c) z has an atomic number of 100
- (d) z has an atomic number of 101

Ans. (b)

5. If the sum of the roots of the equation $ax^2 + bx + c = 0$ is equal to the sum of the squares of their reciprocals
then $a/c, b/a, c/b$ are in

- (a) AP
- (b) GP
- (c) HP
- (d) None of these

Ans. (c)

6. A man speaks the truth 3 out of 4 times.
He throws a die and reports it to be a 6.
What is the probability of it being a 6?

- (a) $3/8$
- (b) $5/8$
- (c) $3/4$
- (d) None of the above

Ans. (a)

7. If $\cos^2 A + \cos^2 B + \cos^2 C = 1$ then ABC is a

- (a) Right angle triangle
- (b) Equilateral triangle
- (c) All the angles are acute
- (d) None of these

Ans. (a)

8. Image of point (3,8) in the line $x + 3y = 7$ is

- (a) (-1,-4)
- (b) (-1,4)
- (c) (2,-4)
- (d) (-2,-4)

Ans. (a)

9. The mass number of a nucleus is

- (a) Always less than its atomic number
- (b) Always more than its atomic number
- (c) Sometimes more than and sometimes equal to its atomic number
- (d) None of the above

Ans. (c)

10. The maximum KE of the photoelectron emitted from a surface is dependent on

- (a) The intensity of incident radiation
- (b) The potential of the collector electrode
- (c) The frequency of incident radiation
- (d) The angle of incidence of radiation of the surface

Ans. (c)

11. Which of the following is not an essential condition for interference

- (a) The two interfering waves must be propagated in almost the same direction or the two interfering waves must intersect at a very small angle
- (b) The waves must have the same time period and wavelength
- (c) Amplitude of the two waves should be the same
- (d) The interfering beams of light must originate from the same source

Ans. (c)

12. When X-Ray photons collide with electrons

- (a) They slow down
- (b) Their mass increases
- (c) Their wave length increases
- (d) Their energy decreases

Ans. (c)

13. An electron emits energy

- (a) Because its in orbit

- (b) When it jumps from one energy level to another
- (c) Electrons are attracted towards the nucleus
- (d) The electrostatic force is insufficient to hold the electrons in orbits

Ans. (b)

14. How many bonds are present in CO₂ molecule?

- (a) 1
- (b) 2
- (c) 0
- (d) 4

Ans. (d)

15. In a balanced chemical equation

- (a) Atoms are conserved
- (b) Molecules are conserved
- (c) Moles are conserved
- (d) Reactant and product molecules are preserved

Ans. (a)

16. How many grams of NaOH will react with 0.2 equivalent of HCl?

- (a) 0.59
- (b) 0.285
- (c) 1.18
- (d) none of these

Ans. (a)

17. Which of the following is least acidic

- (a) Ortho-cresol
- (b) Para-cresol
- (c) Phenol
- (d) Meta-cresol

Ans. (b)

18. In Reimer-Tiemann's reaction, the reaction intermediate is

- (a) Carbene
- (b) Dichloro carbene
- (c) Carbonion
- (d) Carbonium ion

Ans. (b)

19. Which of the following is most acidic?

- (a) C_2H_5OH
- (b) $CH_3CHOHCH_3$
- (c) Ethanol
- (d) CH_3OH

Ans. (b)

20. A catalyst

- (a) always slows down the reaction
- (b) always starts a reaction that would not have occurred at all otherwise
- (c) causes changes in the rate of the reaction
- (d) changes the quantities of the products formed

Ans. (c)

21. The rate of the first order reaction depends on the

- (a) Concentration of the reactant
- (b) Concentration of the product
- (c) Time
- (d) Temperature

Ans. (d)

22. The most abundant element in the universe is

- (a) Hydrogen
- (b) Helium
- (c) Oxygen

(d) Silicon

Ans. (a)

23. Integrate $3x + 5 / (x^3 - x^2 - x + 1)$

(a) $\frac{1}{2} \log \left| \frac{x+1}{x-1} \right| - \frac{4}{x-1}$

(b) $\log |2 + \tan x|$

(c) $-(1 + \log x)/x$

(d) $2 \log |(\tan x)/(\tan x + 2)|$

Ans. A

24. If $y = \cos^{-1}(\cos x + 4\sin x)/(17)^{1/2}$, then dy/dx is

(a) 0

(b) 1

(c) -1

(d) none of these

Ans. (b)

25. If the sum of n terms of two series of A.P are in the ratio $5n+4:9n+6$. find the ratio of their 13th terms

(a) $129/231$

(b) $1/2$

(c) $23/15$

(d) None of the above

Ans. (a)

26. If the letters of the word "rachit" are arranged in all possible ways and these words are written

out as in a dictionary, what is the rank of the word "rachit".

(a) 485

(b) 480

(c) 478

(d) 481

Ans. (d)

27. Ravi's salary was reduced by 25%. Percentage increase to be effected to bring the salary to the original level is

- (a) 20%
- (b) 25%
- (c) $33 \frac{1}{3}\%$
- (d) 30%

Ans. (c)

28. A and B can finish a piece of work in 20 days .B and C in 30 days and C and A in 40 days.

In how many days will A alone finish the job

- (a) 48
- (b) $34 \frac{2}{7}$
- (c) 44
- (d) 45

Ans. (a)

29. How long will a train 100m long traveling at 72kmph take to overtake another train 200m long traveling at 54kmph

- (a) 70sec
- (b) 1min
- (c) 1 min 15 sec
- (d) 55 sec

Ans. (b)

30. What is the product of the irrational roots of the equation $(2x-1)(2x-3)(2x-5)(2x-7)=9$?

- (a) $\frac{3}{2}$
- (b) 4
- (c) 3
- (d) $\frac{3}{4}$

Ans. (a)

31. Which of the following parameters is the same for molecules of all gases at a given temperature?

- (a) Mass
- (b) Momentum
- (c) Speed
- (d) Kinetic energy

Ans. (d)

32. A solid is completely immersed in liquid. The force exerted by the liquid on the solid will

- (a) Increase if it is pushed deeper inside the liquid
- (b) Change if its orientation is changed
- (c) Decrease if it is taken partially out of the liquid
- (d) None of the above

Ans. (c)

33. Select the correct statements

- (a) A simple harmonic motion is necessarily periodic
- (b) An oscillatory motion is necessarily periodic
- (c) A periodic motion is necessarily oscillatory
- (d) All of the above

Ans. (a)

34. An electron is injected into a region of uniform magnetic flux density with the components of velocity parallel to and normal to the flux. What is the path of the electron?

- (a) Helix
- (b) Parabola
- (c) Circle
- (d) Rectangle

Ans. (a)

35. A constant voltage is applied between the 2 ends of a uniform metallic wire. Some heat is developed in it. The heat developed is doubled if

- (a) both the length and radius of the wire are halved.
- (b) both the length and radius of the wire are doubled
- (c) the radius of the wire is doubled
- (d) the length of the wire is doubled

Ans. (b)

36. If Young's double slit experiment is performed in water

- (a) the fringe width will decrease
- (b) the fringe width will increase
- (c) the fringe width remains unchanged
- (d) there will be no fringe

Ans. (a)

37. The shape of a spot of light produced when bright sunshine passes perpendicular through a hole of very small size is

- (a) Square, because the hole is a square
- (b) Round, because it is an image of the sun
- (c) Round with a small penumbra around it
- (d) Square with a small penumbra

Ans. (b)

Select the alternative that logically follows from the two given statements.

38.

Some forms are books

All books are made of paper

- (a) Some forms are made of paper
- (b) Some forms are not made of paper
- (c) No forms are made of paper
- (d) None of the above

Ans. (a)

39.

All toffees are chocolates
Some toffees are not good for health
(a) Some chocolates are not good for health
(b) Some toffees are good for health
(c) No toffees are good for health
(d) Both (a) and (b)

Ans. (a)

The questions 40-46 are based on the following pattern. The problems below contain a question and two statements giving certain data. You have to decide whether the data given in the statements are sufficient for answering the questions. The correct answer is

- (A) If statement (I) alone is sufficient but statement (II) alone is not sufficient.
- (B) If statement (II) alone is sufficient but statement (I) alone is not sufficient.
- (C) If both statements together are sufficient but neither of statements alone is sufficient.
- (D) If both together are not sufficient.
- (E) If statements (I) and (II) are identical.

43. If a ground is rectangular, what is its width?

- (I) The ratio of its length to its breadth is 7:2
- (II) Perimeter of the playground is 396 mts.

Ans. C

44. If the present age of my father is 39 yrs and my present age is x yrs, what is x?

- (I) Next year my mother will be four times as old as I would be.
- (II) My brother is 2 years older than I and my father is 4 years older than my mother.

Ans. C

45. How many brothers and sisters are there in the family of seven children?

- (I) Each boy in the family has as many sisters as brothers
- (II) Each of the girl in the family has twice as many brothers as sisters

Ans. D

46. x is not equal to 0, is $x + y = 0$?

- (I) x is the reciprocal of y
(II) x is not equal to 1

Ans. A

Following questions are based on letter's analogy. First pair of letters should have the same relationship as the second pair of letters or vice versa.

47. ? : BGLQ :: YDIN : VAFK

- (a) EKNS
- (b) DKMT
- (c) DLMS
- (d) EJOT

Ans. (d)

48. NLO : RPS :: ? : ZXA

- (a) VUW
- (b) VTR
- (c) VTW
- (d) TRP

Ans. (c)

49. If "segment" is coded as rffndou, then "ritual" is coded as

- (a) shutbm
- (b) qjutbk
- (c) qhutbk
- (d) qhubtk

Ans. (c)

50. If "football" is "cricket", "cricket" is "basketball", "basketball" is "volleyball", "volleyball" is "khokho" and "khokho" is cricket, which is not a ball game?

- (a) cricket
- (b) football
- (c) khokho
- (d) basketball

Ans. (a)

51. Which of the following is a recursive set of production

- (a) $S \rightarrow a|A, A \rightarrow S$
- (b) $S \rightarrow a|A, A \rightarrow b$
- (c) $S \rightarrow aA, A \rightarrow S$
- (d) None of these

Ans. (c)