

M.Sc.-Agriculture Analytics

DA-ICT

Sample Question Paper

Maths Questions:

1. If $x \sin (90^\circ - \theta) \cot (90^\circ - \theta) = \cos (90^\circ - \theta)$, then x is equal to
 - (a) 0
 - (b) 1
 - (c) -1
 - (d) 2
2. If $\sin \theta + \sin^2 \theta = 1$ then $\cos^2 \theta + \cos^4 \theta$ is equal
 - (a) -1
 - (b) 0
 - (c) 1
 - (d) 2
3. If $A + B = 90^\circ$, $\cot B = 3/4$ then $\tan A$ is equal to:
 - (a) $5/3$
 - (b) $1/3$
 - (c) $3/4$
 - (d) $1/4$
4. If the probability of an event is p , then the probability of its complementary event will be :
 - (a) $p - 1$
 - (b) $1 - p$
 - (c) p
 - (d) $1 - 2p$
5. The pair of equation $x = -4$ and $y = -5$ graphically represent lines which are
 - (A) Intersecting at $(-5, -4)$
 - (B) Intersecting at $(-4, -5)$
 - (C) Intersecting at $(5, 4)$
 - (D) Intersecting at $(4, 5)$
6. Which ordered pair (x, y) satisfies the following system of equations?
$$x = y + 5$$
$$5x - y/5 = 25$$
 - (a) $(0, -5)$.
 - (b) $(5.4, 10)$.

(c) (5, 0).

(d) (6, 25).

7. Consider the following system of equations:

$$ax = by + 78$$

$$4x + 3y = 13$$

where a and b are constants. If the system has infinitely many solutions, what is the value of ab ?

(a) -6 .

(b) 6 .

(c) -432 .

(d) 432 .

8. Which of the following is equivalent to the equation $x^2 - 6x + 1$?

(a) $(x + 3)^2 + 8$.

(b) $(x - 3)^2 + 8$.

(c) $(x + 3)^2 - 8$.

(d) $(x - 3)^2 - 8$.

9. Find the value of the constant a , such that $(1/2)(x+a)(x-a) = x^2/2 - 6$.

(a) $a = 6$.

(b) $a = 12$.

(c) $a = \sqrt{12}$.

(d) $a = \sqrt{6}$.

10. Let the constant $a = 6$ in the equation $\sqrt{2x - a} = 3 - x$. Then the solution set of the given equation will be

- (a) {3}
- (b) {5}.
- (c) {-3}.
- (d) {3, 5}.

11. If $-5 < -4a + 9 \leq 1$, then the least possible value of $4a + 1$ is

- (a) 1.
- (b) 3.
- (c) 6.
- (d) 9.

12. Find the number of solutions to the equation $|x| = |2x - 1|$.

- (a) 0.
- (b) 1.
- (c) 2.
- (d) 3.

13. Consider a graph of the line in xy -plane passing through the points $(-1, a)$ and $(-2, 0)$. If the line crosses the y -axis at $(0, 3)$, then the value of the constant a will be

- (a) $2/3$
- (b) $3/2$
- (c) $-2/3$
- (d) $-3/2$

14. Consider the circle $(x - 1)^2 + (y - 2)^2 = 9$. Which of the following point does NOT lie on the exterior of the circle?

(a) (1,-1).

(b) (2, 5).

(c) (1, 6).

(d) (5, 2).

15. If $5 - 5/x = x + 11$, and $x \neq 0$, then the possible value of x will be

(a) -1.

(b) 1.

(c) 5.

(d) 4.

Physics Questions:

16. The magnitude of gravitational force between two masses is:
- A) Inversely proportional to the cube of the distance between them.
 - B) Independent of the distance between them.
 - C) Inversely proportional to the square of the distance between them.
 - D) None of the above.
17. Which of the following is not a renewable source of energy:
- A) Coal
 - B) Wind
 - C) Solar
 - D) Tidal
18. The magnitude of the electrostatic force between two charges is:
- A) Inversely proportional to the fifth power of the distance between them.
 - B) Directly proportional to the cube of the distance between them.
 - C) Directly proportional to the square of the distance between them.
 - D) None of the above.
19. Two identical buckets, A and B, are taken. The first (A) is full of water and the second (B) is half-full of water. They are connected by a pipe through which water can flow. Which of the following events occur:
- A) Water flows from A to B until the water level in both buckets is the same.
 - B) Water flows from B to A until B is empty.
 - C) Water flows from A to B until A is empty.
 - D) None of the above.
20. The physical dimension of work done by a force is equal to the dimension of:
- A) Force times acceleration.
 - B) Force times distance.
 - C) Acceleration times distance.
 - D) Distance times time.

Chemistry Questions:

21. What is the fundamental property used to arrange elements in the periodic table?
- a) Atomic number
 - b) Atomic mass
 - c) Number of electrons
 - d) Density
22. At what temperature does water boil at sea level?
- a) 0°C
 - b) 100°C
 - c) -273°C
 - d) 37°C
23. What is the molecular mass of water?
- a) 18 g/mol
 - b) 20 g/mol
 - c) 22 g/mol
 - d) 16 g/mol
24. Which of the following represents a diatomic molecule?
- a) HCl
 - b) O₂
 - c) CH₄
 - d) NH₃
25. Which of the following represents a balanced chemical equation?
- a) $\text{H}_2\text{O} + \text{CO}_2 \rightarrow \text{H}_2\text{CO}_3$
 - b) $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$
 - c) $\text{NaCl} + \text{H}_2\text{O} \rightarrow \text{NaOH} + \text{HCl}$
 - d) $\text{Fe} + \text{O}_2 \rightarrow \text{Fe}_2\text{O}_3$

Biology Questions:

26. In C₃ and C₄ plants, primary carboxylation takes place with the help of

- (a) PEP carboxylase and pyruvate carboxylase
- (b) RuBP carboxylase and PEP carboxylase
- (c) PEP carboxylase and RuBP carboxylase
- (d) RuBP carboxylase and pyruvate carboxylase

27. The meiotic division takes place in

- (a) Meristematic cells
- (b) Conductive cells
- (c) Reproductive cells
- (d) Vegetative cells

28. Kranz Anatomy is found in which plant

- (a) C₃
- (b) C₄
- (c) CAM
- (d) Both c₃ and c₄

29. First stable product of Calvin cycle has _____ number of carbons:

- (a) 2
- (b) 3
- (c) 4
- (d) 5

30. Dark reaction of photosynthesis occurs in:

- (a) Protoplasm
- (b) Cytoplasm
- (c) Grana
- (d) Stroma

Logical Reasoning Questions:

31. Pritam takes twice as much time as Dinesh or thrice as much time as Sumit to finish a piece of work. They can finish the work in 2 days if work together. How much time will Dinesh take to do the work alone?
- 4 days.
 - 5 days.
 - 6 days.
 - 7 days.
32. Excluding stoppages, the speed of a bus is 54 kmph and including stoppages, it is 45 kmph. For how many minutes does the bus stop per hour?
- 9 minutes.
 - 10 minutes.
 - 12 minutes.
 - 20 minutes.
33. A person walks 10 km to the south and then turns to the west and walks 6 km. Further he turns to the north and walks 5 km. Next he turns toward west and walks 6 km. How far is he from his starting point?
- 5 km
 - 11 km
 - 13 km
 - 15 km
34. In an examination 43% passed in Math, 52% passed in Physics and 52% passed in Chemistry. Only 8% students passed in all the three. 14% passed in Math and Physics and 21% passed in Math and Chemistry and 20% passed in Physics and Chemistry. Number of students who took the exam is 200. How many students passed in Math only?
- 16
 - 32
 - 48
 - 80
35. Consider the following Syllogism
- All tigers lay eggs
 - All cats lay eggs
 - Some cats can fly
 - All tigers cannot fly
 - All tigers are cats
 - All tigers cannot swim
- Based on the above premises, find out the appropriate sequence.
- BEA
 - ABE
 - DEC
 - ECB

36. Five friends Michael, Mark, Lewis, Karan and Jenson are students of five different disciplines—medical, engineering, architecture, arts, management and each plays a different musical instrument—sitar, tabla, sarod, guitar and violin. Lewis, a medical student, does not play sarod or sitar nor guitar. Jenson is neither a student of Engineering nor Management. Karan, who plays tabla, is an Arts student. Neither Jenson nor Michael plays sarod. Who among the following plays Sarod?

- (a) Michael
- (b) Mark
- (c) Jenson
- (d) Data Inadequate

37. Four brothers Rohan, Sohan, Mohan and Ganesh are at their annual family property fight sitting across a circular table. Their occupations are— author, biologist, chemist and doctor, but not necessarily in that order. Ganesh starts by setting the agenda of the meeting and after him the doctor gives a long discourse of what is right and what is wrong. Rohan is sitting across the doctor and next to the chemist. Mohan is silent throughout the meeting and the chemist speaks only at the very end. The profession of Rohan is

- (a) Author
- (b) Biologist
- (c) Doctor
- (d) Cannot be determined

38. A, B, C, D, E, F, and G are travelling in three different vehicles. There are at least two passengers in each vehicle—Maruti, Santro, Opel, and only one of them is a male. There are two engineers, two doctors and three teachers among them.

- (i) C is a lady doctor and she does not travel with the pair of sisters A and F.
- (ii) B, a male engineer, travels with only G, a teacher in a Maruti.
- (iii) D is a male doctor.
- (iv) Two persons belonging to the same profession do not travel in the same vehicle.
- (v) A is not an engineer and travels in a Santro

What is F's profession?

- (a) Engineer
- (b) Doctor
- (c) Teacher
- (d) Data inadequate

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In which vehicle does C travel?

- (a) Maruti
- (b) Santro
- (c) Opel
- (d) Data inadequate

40. Vigilant: Alert: :Viable::?

- (a) Active
- (b) Gentle
- (c) Hopeless
- (d) Feasible

41. 25:37::49:?

- (a) 41
- (b) 56
- (c) 60
- (d) 65

42. Choose the word which is least like the other words in the group

- (a) Rose
- (b) Lotus
- (c) Marigold
- (d) Lily

43. Which number would replace question mark in the series 7, 12, 19, ?, 39

- (a) 29
- (b) 28
- (c) 26
- (d) 24

44. In a certain code, SIKKIM is written as THLJLL. How is TRAINING written in that code?

- (a) SQBHOHOH
- (b) UQBHOHOF
- (c) UQBJOHHO
- (d) UQBJOHOH

45. Pointing towards a person in a photograph, Anjali said, "He is the only son of the father of my sister's brother." How is that person related to Anjali?

- (a) Mother
- (b) Father
- (c) Brother
- (d) Maternal Uncle