

B.Sc.(IT) Entrance Test Sample Paper with Answer Key

Name:

Total Time :- 2 Hours

Questions: 100 MCQs

Form Number:

Total Marks :- 200

SECTION-A **MATHEMATICS QUESTIONS**

- Age of Umesh will be 4 times the age of Reena in 6 years from today. If ages of Umesh and Mahesh are 7 times and 6 times the age of Reena respectively, what is present age of Umesh?
a. 64 years b. 30 years c. 48 years d. 42 years
- Consider a circular track of circumference= 1400 m. There are 2 bikes which start from point A and move in the opposite direction. Once they meet, they start moving in the opposite directions. The one that moves in the anticlockwise direction to the other one has a Speed in the ratio of 36:48 kmph. Find the Distance of the two bikes from A when they meet for the 15th Time?
a. 1200 b. 250 c. 350 d. none of these
- A cistern is filled by Pipe A and Pipe B together in 2.4 hours. Pipe A alone can fill the cistern at the rate of 100 litres per hour. Pipe B alone can fill the cistern in 4 hours. What is the capacity of the cistern?
a. 1200 litres b. 600 litres c. 1000 litres d. 500 litres
- Dean has a cardboard box whose length, breadth and height are in the ratio 1:2:3. He makes a new box such that the length, breadth and height got increased by 100%, 200% and 200% respectively. How much less is volume of old box than the new box?
a. 12 times less b. 16 times less c. 17 times less d. 24 times less
- If A and B are matrices, then which from the following is true?
a. $AB \neq BA$ b. $(At)t \neq A$ c. $A + B \neq B + A$ d. all are true
- If $|A| = 0$, then A is
a. 0 b. zero matrix c. singular matrix d. non-singular matrix
- If A is a symmetric matrix, then $A^T =$
a. 0 b. A c. $|A|$ d. diagonal matrix
- If 30% of the visitors to an ice cream shop had chocolate ice-cream, then what is the probability that 2 out of 3 people who entered the store on Saturday at 5 pm will have chocolate ice cream?
a. 0.16 b. 0.15 c. 0.19 d. 0.28

9. A milkman had water and milk mixture in a can with water to milk ratio 5:7. He accidentally spills 9 litres of the mixture. He then fills the can with water equal in quantity to spilled mixture. This makes the water to milk ratio 9:7. How much milk did the can initially have?
 a. 21 litres b. 24 litres c. 16 litres d. 20 litres
10. Tap P alone fills a cistern in 2 hours; while tap Q alone fills the same cistern in 3 hours. A new tap R is attached to the bottom of the cistern which can empty the completely filled cistern in 6 hours. Sunny started all three taps together at 9am. When will the tank be full?
 a. 10.30 am b. 11.15 am c. 12 pm d. 9.45 am
11. At a cricket match, out of the 2 lakh spectators, 90% were fans of team A, 85% of Team B, 70% of Team C, 75% of Team D and 80% of Team E. What is the minimum number of spectators who were fans of all five teams if it is given that each of these spectators supports at least one team?
 a. 5 b. 100 c. 1000 d. none of these
12. Find the value of x such that: $7C_{x-1} + 7C_x = 8C_{x+2}$
 a. 2 b. 3 c. 4 d. 5
13. Afsan is deciding which car to rent for a day for a class trip, from among anPinnova and a Bilty. The rate/km is in a ratio of 3:2, the seating capacity is in a ratio of 5:2. The Speeds are in the ratio of 7:4. Find out the ratio of the maximum cost incurred that day for the two car types, given that there is no wastage of capacity or Time?
 a. 60:28 b. 56:30 c. 105:16 d. 140:12
14. Which of the following defines a function f for which $f(-x) = -f(x)$?
 a. $f(x) = x^2$ b. $f(x) = \sin x$ c. $f(x) = \cos x$ d. $f(x) = \log x$
15. $\ln(x-2) < 0$ if and only if
 a. $x < 3$ b. $0 < x < 3$ c. $2 < x < 3$ d. $x > 2$
16. Rohan's age is five times Ajay's and seven-eighteenth of Meena's age. The sum of the ages of all three of them is 132 years. How much younger is Ajay to Meena?
 a. 56 years b. 83 years c. 27 years d. Cannot be determined
17. When Jaya divided surface area of a sphere by the sphere's volume, she got the answer as $1/18$ cm. What is the radius of the sphere?
 a. 24 cm b. 6 cm c. 54 cm d. 4.5 cm
18. The number of non-zero rows in an echlon form is called?
 a. rank of a matrix b. cofactor of the matrix c. reduced echlon form
 d. conjugate of the matrix
19. Transpose of a rectangular matrix is a
 a. scaler matrix b. square matrix c. diagonal matrix d. rectangular matrix

20. Transpose of a column matrix is
 a. row matrix b. zero matrix c. column matrix d. diagonal matrix
21. When the area in square units of an expanding circle is increasing twice as fast as its radius in linear units, the radius is
 a. $\frac{1}{4\pi}$ b. $\frac{1}{4}$ c. $\frac{1}{\pi}$ d. 1
22. The set of all points (e^t, t) , where t is a real number, is the graph of y equals to
 a. $\frac{1}{e^x}$ b. $e^{\frac{1}{x}}$ c. $xe^{\frac{1}{x}}$ d. $\ln x$
23. The present ages of Aman and Nina are 59 and 37 years, respectively. What was the ratio of the ages of Nina and Aman 13 years ago?
 a. 3:2 b. 46:25 c. 12:23 d. 8:3
24. Sam has a solid metal ball with diameter 6cm. He melts it and uses the material for making a solid cylinder. If the diameter of the cylinder is same as the ball, what would its height be?
 a. 4 cm b. 4.5 cm c. 6 cm d. 8 cm
25. Rajesh has a container which has a mixture of wine and water in it. Wine and water are in the ratio 4:1. Rajesh spills some of the mixture by accident. He then replaces the spilled amount with water of same quantity. But now the wine to water ratio became 3:2. How much water did Rajesh add?
 a. $\frac{3}{5}$ b. $\frac{1}{2}$ c. $\frac{1}{4}$ d. $\frac{2}{7}$
26. Chaman has two big cans of wine and water mixture. Chaman mixes the contents of both the cans in a big container. The new mixture has half water and half wine. In what quantity did Chaman mix contents of Can 1 and 2 if Can 2 has wine to water ratio of 2:3 and Can 1 has wine to water ratio 5:3?
 a. 5:3 b. 4:5 c. 5:4 d. 2:5
27. A group of 100 people plays carom, snooker and chess. 90 people play chess, 80 people play snooker and 80 people play carom. Find the maximum number of people who play all three games, if each person plays at least one game.
 a. 70 b. 75 c. 65 d. none of these
28. $\int_0^8 \frac{dx}{\sqrt{1+x}} =$
 a. 1 b. $\frac{3}{2}$ c. 2 d. 4
29. The average age of 10 students and their teacher is 15 years. The average age of the first seven students is 15 yr and that of the last three is 11 yr. What is the teacher's age?
 a. 33 years b. 30 years c. 27 years d. 24 years

30. Paper charge is \$ 60 per kg. How much expenditure would be there to cover a cube of edge 10m with a paper, if one kg of paper covers 20 sq.m. area?

- a. \$ 2250 b. \$ 3600 c. \$ 2700 d. \$ 1800

31. Two matrices A and B are multiplied to get AB if

- a. both are rectangular b. both have same order c. no of columns of A is equal to columns of B
d. no of rows of A is equal to no of columns of B

32. A table is set up which can seat 5 people from 4 Adults and 6 children. Find the probability that the table seats at least 2 children?

- a. 31/42 b. 124/126 c. 41/42 d. 3/26

33. For a drama, 3 students need to be selected out of 6 students A, B, C, D, E and F. If A is already selected, what is the probability of selecting C also?

- a. 0.5 b. 0.2 c. 0.3 d. 0.4

34. A cistern has two taps attached to it. Tap B can empty the cistern in 45 minutes. But Tap A can fill the cistern in just 30 minutes. Rohit started both taps unknowingly but realized his mistake after 30 minutes. He immediately closed Tap B. Now after this, in how much time will the cistern be filled?

- a. 30 minutes b. 45 minutes c. 15 minutes d. 20 minutes

35. Of the 200 candidates who were interviewed for an admin position at Noesis, 100 had a two-wheeler, 70 had a credit card and 140 had a mobile phone. 40 of them had both, a two-wheeler and a credit card, 30 had both, a credit card and a mobile phone and 60 had both, a two wheeler and mobile phone and 10 had all three. How many candidates had none of the three?

- a. 0 b. 20 c. 10 d. 18

36. Find the maximum value of ${}^{16}C_x$ for any natural number x.

- a. 6 b. 4 c. 7 d. 8

37. Ram and Shyam's average age is 65 years. The average age of Ram, Shyam and John is 53 years. What is the age of John?

- a. 29 years b. 31 years c. 59 years d. 45 years

38. Ramesh has a metal cube. He paints all sides of the cube with green color. He divides the cube into smaller cubes of volume 1 cu.m. each. How many of these smaller cubes will not have green color on even one of its sides if the volume of larger cube is 27 cu.m.?

- a. 9 b. 1 c. 0 d. 3

39. If the order of matrix A is $m \times p$. And the order of B is $p \times n$. Then the order of matrix AB is?

- a. $n \times p$ b. $m \times n$ c. $n \times p$ d. $n \times m$

40. Additive inverse of a matrix A is

- a. $\text{adj } A/|A|$ b. A^2 c. $|A|$ d. A

41. For a non-trivial solution $|A|$ is
 a. $|A| > 0$ b. $|A| < 0$ c. $|A| \neq 0$ d. $|A| = 0$
42. What is the probability of forming the word "ADDS" by picking 4 cards at random and kept in the same order out of 50 cards given with 10 cards having "A", 10 having "S" and the remaining 30 having "D" on it?
 a. $2^2/5^2$ b. $15/[(48-1)(48+1) \times 4]$ c. $1/50^2$ d. $10/47$
43. A Number is selected at random from first thirty natural numbers. What is the chance that it is a multiple of either 3 or 13?
 a. $17/30$ b. $2/5$ c. $11/30$ d. $4/15$
44. Sunil started a juice (lemon syrup + water) counter. Initially he had 140 litre juice which had 30% water in it. He sold 20 litres of the juice. Then he added equal amount of lemon syrup and water. Now the ratio of water to lemon syrup became 1:2. How much water was added later on?
 a. 9 litres b. 12 litres c. 14 litres d. 20 litres
45. If $p(x) = (x+2)(x+k)$ and if the remainder is 12 when $p(x)$ is divided by $x-1$, then k equals to
 a. 2 b. 3 c. 6 d. 11
46. Rohit buys some rice at \$ 10.40 per kg. He mixes it with some rice having price \$ 8.8 per kg. The final mixture becomes 15kg in weight and with total worth \$ 146.40. What is the quantity of rice priced at \$ 8.8 per kg?
 a. 9 kg b. 10 kg c. 5 kg d. 6 kg
47. Pipe R can empty a full tank in 30 hours. But two pipes P and Q can fill a tank in 15 hours and 10 hours respectively. Ram unknowingly opened all three taps. After 2 hours Shyam realized it and closed Pipe R. Due to this mistake how much time more would it take to fill the tank?
 a. 18 minutes b. 24 minutes c. 1 hour 20 minutes d. 2 hours 15 minutes
48. There is a leak at the bottom of a cistern. Due to this it takes 8 hours to fill the cistern. Had there not been a leak, it would take one hour less to fill the cistern. How much time does it take for the leak to completely empty the cistern?
 a. 48 hours b. $55(1/3)$ hours c. 56 hours d. 15 hours
49. In a class, 110 students like physics, 80 like chemistry, 120 like mathematics and 70 like English. 20 students like only physics, 15 like only chemistry, 30 like only mathematics and 15 like only English. What can be the maximum possible number of students in the class?
 a. 155 b. 210 c. 380 d. 230
50. If one out of every four in 100 students had a car and three out of five students had a bike and half the students had a cycle and not more than 20 out of 100 had exactly two of the three above mentioned vehicles, then the maximum number of students having all three modes of transport is?
 a. 20 b. 25 c. 17 d. cannot be determined

51. Find the value of 'n' if ${}^{12}P_n = {}^{12}P_6 = {}^{12}P_4$.

- a. 8 b. 11 c. 9 d. 7

52. If ${}^nC_r = 5$ and ${}^nP_r = 120$, then determine the value of n, r.

- a. 5, 3 b. 4, 2 c. 7, 4 d. 5, 4

53. Determine the number of ways in which 5 prizes can be distributed among 4 students.

- a. 4^5 b. 5^4 c. 20 d. $5!/4$

54. Amit and Aman have to travel from Delhi to Jaipur in their respective cars. Amit is driving at 60 kmph while Aman is driving at 90 kmph. Find the Time taken by Aman to reach Jaipur if Amit takes 9 hrs.

- a. 6 hours b. 4 hours c. 2 hours d. none of these

55. If $3x^2 + 2y + y^3 = z$, then the value of $\frac{dy}{dx}$ at $x=1$ is

- a. -2 b. 0 c. 2 d. not defined

56. What is $\lim_{h \rightarrow 0} \frac{\left(\frac{1}{2} + h\right)^8 - \left(\frac{1}{2}\right)^8}{h}$

- a. 0 b. $\frac{1}{2}$ c. 1 d. The limit does not exist.

57. Ram and Shyam are standing at two ends of a room with a width of 30 m. They start walking towards each other along the width of the room with a Speed of 2 m/s and 1 m/s respectively. Find the total Distance traveled by Ram when he meets Shyam for the third Time.

- a. 60 m b. 100 m c. 200 m d. none of these

58. Two trains A and B leave stations P and Q simultaneously and travel towards Q and P respectively on the same route. After meeting en route, A takes one hour to reach Q and B takes 4 hours to reach P. How long did A take to cover the entire Distance?

- a. 6 hours b. 4 hours c. 2 hours d. none of these

59. If $\lim_{x \rightarrow 2} \frac{\sqrt{2x+5} - \sqrt{x+7}}{x-2} = k$ and if f is continuous at $x=2$, then k equals to

- a. 0 b. $\frac{1}{6}$ c. $\frac{1}{3}$ d. 1

60. For what value of k will $x + \frac{k}{x}$ have a relative maximum at $x = -2$?

- a. -4 b. -2 c. 2 d. 4

SECTION-B
APTITUDE QUESTIONS

61. Mara runs faster than Gail.

Lily runs faster than Mara.

Gail runs faster than Lily.

If the first two statements are true, the third statement is:

- a. True b. False c. None d. Uncertain

62. Pointing to a photograph, a man said, "I have no brother, and that man's father is my father's son." Whose photograph was it?

- a. His son b. His own c. His father d. His nephew

63. Looking at the portrait of a man, Mohan said, "His mother is the wife of my father's son and I have no brother and sister." at whose portrait was Mohan looking?

- a. His nephew b. His son c. His cousin d. None of these

64. Select one word that is the necessary part of the underlined word.

Book

- a. Education b. Pictures c. Pages d. Knowledge

65. Select one word that is the necessary part of the underlined word.

Guitar

- a. Music b. Band c. Instrument d. Strings

66. Mukesh walks 6 km toward the South and then walks 3 km to his left. Finally, he turns to his right and walks 6 km. In which direction is he from the starting point?

- a. South b. South-West c. South-East d. West

67. Deepak placed his watch on the table in such a way that at 6 pm the hour hand points to the South. In which direction the minute hand will point at 9 pm?

- a. North b. West c. South d. East

68. Two cones have their heights in the ratio 1:3 and the radii of their bases in the ratio 3:1. Find the ratio of their volumes.

- a. 3:1 b. 2:1 c. 4:1 d. 5:1

69. A watch loses 5 minutes every hour and was set right at 6am on a Monday. When will it show the correct time again?

- a. 3am b. 4am c. 5am d. 6am

70. How many times in a day, the hands of a clock are straight?

- a. 24 b. 34 c. 44 d. 54

71. How many times are the hands of a clock at right angle in a day?

- a. 22 b. 24 c. 44 d. 48

72. At what time between 5 and 6 o' clock are the hands of a clock 3 minutes apart?
a. 24min b. 12min c. 13min d. 14min

73. How many times do the hands of a clock coincide in a day?
a. 23 b. 20 c. 21 d. 22

74. Which of the following is a leap year?
a. 2800 b. 1800 c. 2600 d. 3000

75. The number of odd days in a leap year is?
a. 1 b. 2 c. 3 d. 4

76. The calendar of the year 2024 can be used again in the year?
a. 2030 b. 2052 c. 2048 d. 2036.

77. In the following question, a statement/group of statements is given followed by some conclusions. Without resolving anything yourself, choose the conclusion which logically follows from the statement(s).

Statement - All beggars are not poor.

- a. Some beggars may not be poor.
- b. If A is not rich, then A is not a beggar.
- c. All those who are poor are beggars.
- d. If A is rich, then A is not a beggar.

78. In the following question, a statement/group of statements is given followed by some conclusions. Without resolving anything yourself, choose the conclusion which logically follows from the statement(s).

Statement - Many creative persons become painters.

- a. Some painters are creative persons.
- b. A creative person will surely become a painter.
- c. It is not possible to become an artist without creativity.
- d. A high level of creativity is not needed to become a painter.

79. In the following question, a statement/group of statements is given followed by some conclusions. Without resolving anything yourself, choose the conclusion which logically follows from the statement(s).

Statement - Many offices are located in buildings with multiple floors. If a building has more than three floors, it has a lift.

- a. All floors of buildings with multiple floors may be reached in lifts.
- b. Only floors above the third floor have lifts.
- c. Seventh floor does not have lifts.
- d. All buildings have lifts.

80. In the following question, a statement/group of statements is given followed by some conclusions. Without resolving anything yourself, choose the conclusion which logically follows from the statement(s).

Statement - All guilty singers were arrested. Narendra and Arvind were among those arrested.

- All singers are guilty.
- All arrested people are singers.
- Narendra and Arvind were not singers.
- Narendra and Arvind were guilty.

81. In the following question, a statement/group of statements is given followed by some conclusions. Without resolving anything yourself, choose the conclusion which logically follows from the statement(s).

Statement - Most articles in the shop are expensive.

- There are no cheap articles available in that shop.
- Handmade articles in that shop are cheap.
- There are cheap articles also in that shop.
- Handmade articles in the shop are expensive.

82. Read the following information to answer the given questions

- Pepper Potts, Hulk, Ironman, Hawkeye, Thor, Loki and Black Widow are sitting in a circle.
- Pepper Potts, Hulk, Ironman, Hawkeye, Loki and Black Widow are sitting at equal distances from each other.
- Ironman is sitting two places right of Loki, who is sitting one place right of Hawkeye.
- Pepper Potts forms an angle of 90° from Thor and an angle of 120° from Hulk.
- Hulk is just opposite Black Widow and is sitting on the left of Thor.

Which of the following statements is not correct?

- Loki is on the right of Hulk.
- Hawkeye is sitting next to Ironman.
- Thor is sitting adjacent to Loki.
- All of the above

83. Read the following information to answer the given questions:

- Pepper Potts, Hulk, Ironman, Hawkeye, Thor, Loki and Black Widow are sitting in a circle.
- Pepper Potts, Hulk, Ironman, Hawkeye, Loki and Black Widow are sitting at equal distances from each other.
- Ironman is sitting two places right of Loki, who is sitting one place right of Hawkeye.
- Pepper Potts forms an angle of 90° from Thor and an angle of 120° from Hulk.
- Hulk is just opposite Black Widow and is sitting on the left of Thor.

The angle between Thor and Hulk in the clockwise direction is?

- 150°
- 180°
- 210°
- None of these

84. Read the following information to answer the given questions:

- Pepper Potts, Hulk, Ironman, Hawkeye, Thor, Loki and Black Widow are sitting in a circle.
- Pepper Potts, Hulk, Ironman, Hawkeye, Loki and Black Widow are sitting at equal distances from each other.
- Ironman is sitting two places right of Loki, who is sitting one place right of Hawkeye.

4.) Pepper Potts forms an angle of 90° from Thor and an angle of 120° from Hulk.

5.) Hulk is just opposite Black Widow and is sitting on the left of Thor.

Where is Hawkeye sitting with respect to Black Widow?

- a. To immediate right
- b. To immediate left
- c. Exactly Opposite
- d. None of these

85. Read the following information to answer the given questions

1.) Pepper Potts, Hulk, Ironman, Hawkeye, Thor, Loki and Black Widow are sitting in a circle.

2.) Pepper Potts, Hulk, Ironman, Hawkeye, Loki and Black Widow are sitting at equal distances from each other.

3.) Ironman is sitting two places right of Loki, who is sitting one place right of Hawkeye.

4.) Pepper Potts forms an angle of 90° from Thor and an angle of 120° from Hulk.

5.) Hulk is just opposite Black Widow and is sitting on the left of Thor.

Thor is sitting between which of the following pair?

- a. Ironman and Loki
- b. Hulk and Loki
- c. Hawkeye and Pepper Potts
- d. Hulk and Ironman

86. Read the following information to answer the given questions

1.) Pepper Potts, Hulk, Ironman, Hawkeye, Thor, Loki and Black Widow are sitting in a circle.

2.) Pepper Potts, Hulk, Ironman, Hawkeye, Loki and Black Widow are sitting at equal distances from each other.

3.) Ironman is sitting two places right of Loki, who is sitting one place right of Hawkeye.

4.) Pepper Potts forms an angle of 90° from Thor and an angle of 120° from Hulk.

5.) Hulk is just opposite Black Widow and is sitting on the left of Thor.

Who is the only person sitting on the immediate left of Black Widow?

- a. Loki
- b. Hawkeye
- c. Thor
- d. Pepper Potts

87. 26th January, 1996 was a Friday. What day of the week lies on 26th January, 1997?

- a. Saturday
- b. Sunday
- c. Monday
- d. Thursday

88. The calendar for the year 2001 is same for which of the following year?

- a. 2005
- b. 2007
- c. 2011
- d. 2006

89. What day of the week was 31st July, 1993?

- a. Monday
- b. Sunday
- c. Saturday
- d. Tuesday

90. The last day of the century cannot be:

- a. Sunday
- b. Wednesday
- c. Friday
- d. Saturday

91. Which of the following year is not a leap year?

- a. 1960
- b. 2080
- c. 2024
- d. 2100

92. Choose the number which is different from others in the group
a. $72 - 12$ b. $48 - 24$ c. $120 - 74$ d. $96 - 84$
93. Choose the number which is different from others.
a. $7 : 343$ b. $9 : 243$ c. $8 : 512$ d. $6 : 216$
94. Choose the number which is different from others in the group.
a. 35 b. 49 c. 50 d. 63
95. Choose the number which is different from others in the group.
a. 48 b. 50 c. 82 d. 170
96. Choose the number which is different from others.
a. 275 b. 183 c. 242 d. 119
97. Ducks : Quack :: Cow : ?
a. Moo b. Hoot c. Sing d. Grunt
98. Bowl : Soup :: Plate : ?
a. Spoon b. Coffee c. Rice d. Dish
99. $2 : 8 :: 4 : ?$
a. 16 b. 64 c. 128 d. 20
100. Vacant : Occupied :: Weak : ?
a. Feeble b. Paramount c. Sturdy d. None of the above

Answer Key

- | | | |
|-------|-------|--------|
| 1. d | 46. d | 91. d |
| 2. d | 47. b | 92. c |
| 3. b | 48. c | 93. c |
| 4. c | 49. d | 94. c |
| 5. a | 50. c | 95. a |
| 6. c | 51. c | 96. c |
| 7. b | 52. d | 97. a |
| 8. c | 53. a | 98. c |
| 9. a | 54. a | 99. b |
| 10. a | 55. d | 100. c |
| 11. d | 56. b | |
| 12. b | 57. b | |
| 13. c | 58. d | |
| 14. b | 59. d | |
| 15. c | 60. d | |
| 16. b | 61. b | |
| 17. c | 62. a | |
| 18. d | 63. b | |
| 19. d | 64. a | |
| 20. a | 65. d | |
| 21. c | 66. c | |
| 22. d | 67. a | |
| 23. c | 68. a | |
| 24. a | 69. d | |
| 25. c | 70. c | |
| 26. b | 71. c | |
| 27. b | 72. a | |
| 28. d | 73. d | |
| 29. c | 74. a | |
| 30. d | 75. b | |
| 31. c | 76. b | |
| 32. c | 77. a | |
| 33. c | 78. a | |
| 34. d | 79. a | |
| 35. c | 80. d | |
| 36. d | 81. c | |
| 37. a | 82. d | |
| 38. b | 83. d | |
| 39. b | 84. a | |
| 40. a | 85. d | |
| 41. d | 86. d | |
| 42. d | 87. a | |
| 43. b | 88. b | |
| 44. b | 89. c | |
| 45. b | 90. d | |